

Third Edition



Trask's Historical Linguistics

Revised and edited by
Robert McColl Millar



Trask's Historical Linguistics

Trask's Historical Linguistics, Third Edition, is an accessible introduction to historical linguistics – the study of language change over time. This engaging book is illustrated with language examples from all six continents, and covers the fundamental concepts of language change, methods for historical linguistics, linguistic reconstruction, sociolinguistic aspects of language change, language contact, the birth and death of languages, language and prehistory and the issue of very remote relations.

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- more detail on morphological change including cutting-edge discussions of iconization
- coverage of recent developments in sociolinguistic explanations of variation and change
- new case studies focusing on Germanic languages and American and New Zealand English, and updated exercises covering each of the topics within the book
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Robert McColl Millar is Professor in Linguistics and Scottish Language at the University of Aberdeen. His most recent books include *English Historical Sociolinguistics* (2012) and (with William Barras and Lisa Marie Bonnici) *Lexical Variation and Attrition in the Scottish Fishing Communities* (2014).

Larry Trask was Professor of Linguistics at the University of Sussex and an authority on Basque language and historical linguistics.

‘Trask’s Historical Linguistics is a jewel among textbooks of Historical Linguistics: it brings to life the intriguing paths on which human languages have wandered in their development, and sparks the enthusiasm of the reader to explore and study them, providing the necessary toolkit and background knowledge.’

Robert Mailhammer, University of Western Sydney, Australia

‘Larry Trask’s Historical Linguistics is an exemplary introduction to the field, and McColl Millar’s third edition is a much needed update: the new case studies and exercises are superb, and the revised reading suggestions extremely helpful.’

Adrian Pablé, University of Hong Kong

‘This new edition of Trask’s Historical Linguistics by Robert McColl Millar provides a thorough introduction to the field in the broadest sense while remaining accessible to students and specialists alike. Truly a useful book.’

Garry Davis, University of Wisconsin-Milwaukee, USA

‘This revised and expanded edition of Trask’s seminal work will make welcome reading for scholars and students alike.’

Raymond Hickey, University of Duisburg and Essen, Germany

‘Accessible but not simplified, entertaining but not simplistic, this book provides thorough coverage of the field with a richness of explanation and examples that offers at the same time a synthetic overview and a wealth of data and detail. The new companion website promises to enhance its value as a textbook for the classroom and the independent learner.’

Mark Richard Lauersdorf, University of Kentucky, USA

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To the reader

This book is intended to give you an introduction to historical linguistics. It deals with the study of the histories and prehistories of languages, with the discovery of ancient connections between languages, and with the study of language change. Historical linguistics has existed as a scholarly discipline for well over 200 years, and it was the first branch of linguistics to be placed on a firm scholarly footing; nonetheless, it is at present one of the liveliest and most engaging areas of linguistics. The subject has recently been revolutionized by the sociolinguistic examination of variation and change, and today, unlike our predecessors, we can watch a language changing in front of our eyes (or, perhaps better, hear it changing in front of our ears). Progress in other areas of linguistics, such as the study of typology and universals and the study of syntax, has had a profound effect on our discipline, by opening up new avenues for exploration. Our traditional links with archaeology have recently been renewed in dramatic fashion, and some of us are beginning to look at possible links with such unexpected fields as genetics and physical anthropology. In the past two decades, exciting and controversial new hypotheses have turned up in the pages of our journals and attracted heated discussion. At the same time, new statistical and computational methods are being brought to bear on some of our outstanding problems. All of these developments are explained in the pages of this book.

The book is designed to be used with an instructor on a university course in the subject, but it can equally be read with pleasure and understanding by anyone interested in finding out something about how and why languages change, what the consequences of change are, and how we go about the business of uncovering the prehistories of languages and of families of languages.

To get the most out of this textbook, you will find it extremely helpful (and, if you're a student, essential) to consult certain reference books. Chief among these is the *Oxford English Dictionary*, the great dictionary of English that covers the last thousand years of the language. Most libraries will possess the *OED*, either on paper or on the web, and you should become familiar with it and learn how to use it. You will also find it useful to consult one of the etymological dictionaries of English: Onions (1966), Partridge (1966) or Klein (1971); your library will probably have at least one of these. It will not be necessary to consult etymological dictionaries of other languages, but, if you can read the relevant languages, you will find it illuminating to browse through Corominas and Pascual (1980) for Spanish (written in Spanish), Ernout and Meillet (1959) for Latin (written in French), Meyer-Lübke (1935) for the Romance languages (written in German) or Pokorny (1959) for Indo-European, the vast family to which English belongs (written in German).

And, if your library has it, you should certainly become acquainted with Buck (1949), which is a treasure trove of information about the vocabularies of most of the major Indo-European languages; this book is written in English. A recent, and generally excellent, introduction can be found in Mallory and Adams (2006).

Every chapter in this book contains suggestions for further reading on the topics covered in that chapter, and you would be wise to chase up and read some of the books and articles suggested for those topics that particularly interest you. With just a few exceptions, all the references are to work written in English, and nearly all this work is reasonably easy to read. You will also find exercises at the end of each chapter. Along with other material, these are discussed further on the book's dedicated website at www.routledge.com/cw/trask.

To the teacher

This is a textbook of historical linguistics, designed to be used with a ten- to fifteen-week course in the subject with university students meeting it for the first time. Students will need to have some background in basic descriptive linguistics: specifically, they will need some acquaintance with phonetics, with the (classical) phoneme concept and with a little morphology. They will also require some grasp of traditional grammar, at least with the parts of speech and with notions such as ‘sentence’, ‘transitive verb’, ‘subordinate clause’ and ‘direct object’.

The book is as atheoretical as possible: absolutely no knowledge of contemporary theories of phonology or syntax is presupposed, and such theories are not introduced in the book. Some acquaintance with the notation of classical generative phonology will be helpful for [Chapter 3](#), but is not essential. The only theories introduced here are theories of historical linguistics and of language change.

The organization is as follows. The book opens with a demonstration of the fact of language change, using data that will or may be familiar to the students. Next, it discusses lexical and semantic change, the types of change that are most readily visible. Succeeding chapters cover phonological change (syntagmatic and paradigmatic), morphological change and syntactic change. [Chapter 7](#) then addresses the consequences of language change, in the form of dialects and language families. With an understanding of language change and its consequences, students should then be ready to tackle the next two chapters, dealing with the principal historical methods and particularly with reconstruction. [Chapters 10](#) and [11](#) deal with sociolinguistic issues, the first with the relation between variation and change, the second with contact, the birth and death of languages and language planning. [Chapter 12](#) examines a variety of issues in language and prehistory, connections with archaeology and recent statistical approaches.

No attempt is made to cover every conceivable topic in historical linguistics. Instead, the book concentrates on presenting the most central issues as clearly and illuminatingly as possible, together with a representative sample of other topics which I consider particularly interesting. Abundant further reading is suggested for every topic discussed.

Especially in the earlier chapters, English data are used wherever possible, in order to encourage students to relate their own knowledge and experience to the content of the book. Some considerable use is also made of French, Spanish, German and Italian, the second languages most likely to be known by English-speaking students. Exceptionally frequent are data from Basque, a language that rarely features in textbooks. But the book ultimately makes use of data from a wide range of Indo-European and non-Indo-European languages from all six inhabited continents and the islands of the Pacific. The ancient Indo-

European languages figure less prominently here than in some other textbooks, but they are not neglected, and considerable attention is paid to Proto-Indo-European.

A prominent characteristic of this book is its insistence on combining the study of ancient languages with the study of contemporary change. So, a discussion of what happened in Latin or Old English centuries or millennia ago will frequently be found next to a discussion of what's going on in English or French at the moment. I believe strongly that students should grasp the idea that language change today is not significantly different from language change in the remote past: we may require different techniques for studying the two cases, but the phenomena are the same. Too many other textbooks, in my view, treat the study of historical linguistics as the study of mouldering museum pieces; I want the reader, once in a while at least, to read a paragraph and exclaim 'Hey – I know something about that!' I have therefore made every effort to avoid reducing students to passive spectators watching a train of dry facts parade majestically past their noses, and to persuade them instead that language change is something they are personally involved in.

Every chapter is accompanied by a set of original exercises. These are usually arranged from easiest to hardest and most time-consuming, so that instructors can select exercises according to the level of their course and the amount of time available. Discussion of exercises and other issues is on the book's dedicated website at www.routledge.com/cw/trask.

The last four chapters are self-contained, and teachers will be able, if they like, to pick and choose among them according to the nature of the course they want to teach.

In comparison with most other textbooks, this one devotes an unusually large amount of space to etymology and onomastics, to the recent work on syntactic change, to the contribution of the sociolinguists, to language birth and death, to language planning and to the often controversial use of statistical methods and the establishment of distant language relationships. It is further distinguished by its explicit discussion of how *not* to do historical linguistics.

Acknowledgements

This third revision of *Trask's Historical Linguistics* was carried out in 2013 and 2014, partly during research leave kindly awarded by the School of Language & Literature at the University of Aberdeen. I am very grateful to my colleagues at Aberdeen for shouldering burdens so that I could do this and many other things with a minimum of disturbance; Andy Gordon should be given particular mention for taking on the role of School Director of Teaching and Learning. Janet Cruickshank, Mercedes Durham, Elspeth Edelstein and Heike Pichler have all taught on courses where this book was required reading: Will Barras has discussed and helped clarify many of the issues raised; their input and feedback have been most helpful, as have, of course, the views of the many students to whom I have taught historical linguistics. With the growth of social media I have also been able to take into consideration the views of students and others around the world. Reviewers and interested correspondents have also been most helpful in pointing out occasional infelicities in the Second Edition. All of these have helped forge the Third Edition.

The editorial staff at both Hodder Arnold and now Routledge have been very forgiving of my foibles. Nadia Seemungal and Helen Tredget in particular have exhibited considerable tolerance in the last stages of the new edition's production.

It is also important that I pay tribute to Larry Trask, a man I never met, much to my regret. While a considerable part of this book has been formed by me, the general conception is Larry Trask's. I suspect that I would not have been as capable as he was in producing such an impressive structure while not forgetting the small details so important to its success.

Finally, I would like to thank Sandra and Mairi, who put up with a lot because of my work and the intensity which produces and lies behind it. This revision is dedicated to them.

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Abbreviations

A	adjective
Abs	absolute case
Acc	accusative case
Act	active voice
AR	Allomorphy Rule (in Natural Morphology)
Arm	Armenian
Asp	aspect
Aux	auxiliary
Av	Avestan
B	Bizkaian dialect of Basque
BalSl	Balto-Slavonic
Bq	Basque
<i>c</i>	percentage of shared cognates (in glottochronology)
C	Catalan
C	any consonant
CI	centralization index
cont	continuant
Cop	copula
CS	casual speech
Dat	dative case
DC	Déné-Caucasian
Decl	declarative particle
Det	determiner
Eng	English
Erg	ergative case
F	French
Fem	feminine (gender)
Fr	French
frict	friction
FS	formal speech
Fut	future tense
G	Gipuzkoan dialect of Basque
G	genitive noun phrase
Gen	genitive case
Ger	German

Ger	gerund
Gk	Greek
Gmc	Germanic
Go	Gothic
GVS	Great Vowel Shift
Hit	Hittite
HN	High Navarrese dialect of Basque
IE	Indo-European
Imperf	imperfect aspect
Indic	indicative mood
InIr	Indo-Iranian
Ir	Irish
It	Italian
Juss	jussive
L	Lapurdian dialect of Basque
Lat	Latin
Lith	Lithuanian
Masc	masculine (gender)
ME	Middle English
MHG	Middle High German
MPR	Morphophonological Rule (in Natural Morphology)
N	noun
Neg	negative
Neut	neuter (gender)
NM	Natural Morphology
Nom	nominative case
NP	noun phrase
Obj	object
Obl	oblique case
OCS	Old Church Slavonic
OE	Old English
OF	Old French
OHG	Old High German
OIr	Old Irish
ON	Old Norse
OSV	object–subject–verb word order
OV	object–precedes–verb word order
OVS	object–verb–subject word order
P	Portuguese
PAA	Proto-Afro-Asiatic
PAlt	Proto-Altaic
Part	participle
PD	Proto-Dravidian
Perf	perfect aspect
PGmc	Proto-Germanic
PIE	Proto-Indo-European
PK	Proto-Kartvelian

Pl	plural
Plur	plural
PM	Proto-Mongolian
PN	Proto-Nostratic
Poss	possessive
Postp	postposition(al)
PP	prepositional phrase
PR	Phonological Rule (in Natural Morphology)
Prep	preposition(al)
Pres	present tense
Prop	proper-name marker
Prt	particle
PTg	Proto-Tungusic
PTk	Proto-Turkic
PU	Proto-Uralic
PWR	Proto-Western-Romance
<i>r</i>	glottochronological constant
Real	realis mood
Rom	Romansh
RP	Received Pronunciation
RPS	reading-passage speech
S	Spanish
Sard	Sardinian
Sg	singular
Sing	singular
Skt	Sanskrit
SOV	subject–object–verb word order
Sp	Spanish
Sub	subject
SVO	subject–verb–object word order
<i>t</i>	time depth (in glottochronology)
TochB	Tocharian B
V	any vowel
Ved	Vedic Sanskrit
VO	verb–precedes–object word order
voi	voice
VOS	verb–object–subject word order
VSO	verb–subject–object word order
WLS	word-list speech
Z	Zuberoan dialect of Basque
1	first person
2	second person
3	third person

The fact of language change

1.1 Chilled

Some years ago I asked a friend whether she had had an enjoyable weekend. She replied that she had been ‘really chilled’. I immediately asked her whether she had been having problems with her central heating. When I saw the look of surprise and amusement on her face, I realized that the age difference between us (I was born in the 1960s, she in the 1970s) had caused me to misunderstand her. To people whose formative years were the late 1980s and early 1990s, *chilled* means ‘relaxed, peaceful’.

I didn’t know *chilled*, but I did know *chilled out*, which had (and has) the same meaning. Because I am a child of punk, this phrase could only be used mordantly, with an affected Californian accent, when telling someone to ‘chill out and be mellow, maaan’ while listening to music that was, to my taste, atrocious hippy drivel; it was certainly part of my active vocabulary, however.

Obviously, sometime in the early 1990s, *chilled out* had been abbreviated in the speech of the young. I fear that that was further evidence that I was no longer young myself.

This example is in no way unusual or remarkable: whether we are aware of it or not, English is changing all the time. New words are constantly coming into use, and not only new words, but also new pronunciations and even new grammatical forms. At the same time, old words, old forms and old pronunciations are gradually dropping out of use.

Moreover, this constant change is not some new and alarming development. English, as we will see, has been changing throughout its history in the same sorts of ways, and the same is true of every other living language. One of the fundamental things you need to understand about languages is that they are always changing.

This book is about the study of language change. The first few chapters will discuss the different ways in which languages can and do change, and try to explain why some kinds of changes are more frequent than others. The next couple of chapters are devoted to the consequences of language change: what happens to languages after many generations of accumulated changes? After that, we turn to an examination of the methods that linguists have developed for studying change, both for uncovering changes that occurred long ago and for observing changes that are taking place now. Finally, we will look at certain special cases and at some controversial new ideas that are currently stirring up excited discussion in the field of historical linguistics. Each chapter will end with a case study that will look in greater depth at an issue (or set of issues) raised in that chapter.

1.2 English then and now

The language we now call English was introduced into Britain about 1,500 years ago by invaders from the North Sea coasts of continental Europe. These invaders, commonly known as the *Anglo-Saxons*, were at first non-literate (except for the rather laborious use of runes) but, within a few centuries of settling in Britannia, they had acquired the use of writing, and they began writing down all sorts of things in their English language: administrative records, historical chronicles, religious texts and literary works. Very many of these texts survive today. Here is a brief passage from the entry for the year 878 in the great historical document called the *Anglo-Saxon chronicle*:

Her . . . Ælfred cyning . . . gefeaht wið ealne here, and hine geflymde, and him æfter rad oð þet geweorc, and þær sæt XIII niht, and þa sealde se here him gislas and myccele aðas, þet hi of his rice woldon, and him eac geheton þet heora cyng fulwihte onfon wolde, and hi þæt gelaston . . .

If you have never seen this kind of English before, you may be dumbfounded to be told that it is in fact English, and not Norwegian or Icelandic or something more exotic. But English it most certainly is, even though it is spectacularly different from the English we use now. We call this type of English **Old English**, and we can't read it without special study. Nevertheless, the people who spoke this language taught it to their children, who taught it to *their* children, who taught it to *THEIR* children, who . . . until it finally reached us, some 11 centuries later. But it has reached us in a very different state. So what happened?

Well, there was no one thing that happened. Like all languages that are spoken by people, English has been changing throughout its history. Eleven centuries is hardly more than 40 generations, but throughout those 40 generations the language has been changing: a new word here, a new pronunciation there, a new grammatical form somewhere else, and . . . well, you see the result.

Let's look again at that passage, this time with a rough translation, or **gloss**, provided for each word:

Her . . . Ælfred cyning . . . gefeaht wið ealne here, and hine
Here Alfred king fought against whole army and it

geflymde, and him æfter rad oð þet geweorc, and þær sæt
put to flight and it after rode to the fortress and there camped

XIII niht, and þa sealde se here him gislas and myccele
fourteen nights and then gave the army him hostages and great

aðas, þet hi of his rice woldon, and him eac
oaths that they from his kingdom would [go] and him also

geheton þet heora cyng fulwihte onfon wolde, and
promised that their king baptism receive would and

hi þæt gelaston . . .
they that did

Here is a translation into Modern English:

Here [in this year] King Alfred fought against the whole army, and put it to flight, and rode after it to the fortress, and there he camped for fourteen nights. And then the army gave him hostages and great oaths that they would depart from his kingdom, and they also promised that their king would receive baptism. And they did these things.

With this assistance, let's see how much of the passage we can recognize as English. First, note that there are three unfamiliar letters in it. These letters were employed by the Anglo-Saxon scribes but later dropped out of use. The two letters *thorn* (þ) and *eth* (ð) were used to write the sounds we now spell *th*, as in *think* and *then*, while *ash* (æ) was used to spell a vowel sound not now found in all varieties of English, but heard in the speech of many North Americans in the word *man* and, among some older upper and upper middle class southern English people, in the word *cat*. If you mentally replace these letters with *th* and with *a*, you may find that some words look a bit more familiar.

A few words are easy, especially the little grammatical ones: *her* is 'here', *and* is 'and', *æfter* is 'after', *þær* is 'there', *his* is 'his', *þæt* is 'that', and *him* is 'him' – at least sometimes! Only slightly harder are *cyning* and its contracted form *cyng* 'king', *rad* 'rode', *niht* 'nights' and *wolde*, *woldon* 'would'. And you have probably spotted that *sæt* is just our word 'sat'. Barely recognizable is *aðas* 'oaths', but, if you ignore the prefix *ge-*, you can see that *gefeagt* is the same word as our 'fought'. You may be startled to learn that the mysterious-looking *ealne* is just our word 'all' with a grammatical ending attached. Finally, that word *wið* is just our word 'with', but note that the word meant 'against' in Old English. The Old English word for 'with' was *mid*, which has completely disappeared except in the compound 'midwife' (literally, 'with-woman'); its job has been taken over by *wið*, which in turn has handed over its original meaning to yet another word, *against*, except in the ambiguous phrase *he fought with his brother* and in the verb *withstand*, which has a similar meaning to 'stand against'.

The rest of the passage, however, is very probably so much Martian as far as you're concerned. Part of the reason for that is that many of the other words in the passage have completely disappeared from the language and been replaced by other words that did not exist in Old English. The words used for 'army', 'kingdom', 'put to flight', 'fortress', 'baptism' and even 'they' have all disappeared in this way. The word *eac* 'also' has vanished too, but a trace of it remains in the name of what used to be an *eke-name* but is now a *nickname*.

A further source of strangeness is the unfamiliar word order: the passage has 'and it put to flight' instead of 'and put it to flight', 'it after rode' instead of 'rode after it', 'then gave the army him hostages' instead of 'then the army gave him hostages' and 'promised that their king baptism receive would' instead of 'promised that their king would receive baptism', among other curiosities. (If you have learned Modern German or Dutch, some of these odd orders may look suspiciously familiar, for a reason to be explained in [Chapters 7 and 8](#).)

Little words are sometimes unrecognizable: the passage has *him* or *hine* where modern English would have 'it'; the word for 'the' turns up as *þæt* or *se*; *of* is used for 'from'. In one case (the phrase meaning 'fought against the whole army') the word for 'the' is missing altogether: clearly the rules for using this word were different in Old English. Other words have mysterious endings: 'would' is variously *wolde* or *woldon*, and the other verbs

show these same endings; the words *mycel* ‘great’ and *ric* ‘kingdom’ appear as *myccle* and *rice*; *eall* ‘all’ appears as *ealne*. On the other hand, the word *niht* ‘nights’ has no ending at all. Finally, although this is not so easy to see from a written text, the pronunciation of English has changed drastically. All the <h>s in words like *gefeahhte* ‘fought’, *niht* ‘nights’ and *fulwihte* ‘baptism’ were actually pronounced with a velar fricative, the sound found in Scottish *loch* and German *ach*, and *niht* was pronounced with the vowel of *hit*. Indeed, the Old English *niht* sounded just about the same as modern German *nicht* ‘not’, as it still does for many Scots-speakers, including me. Almost all the vowel sounds were different from what you would guess from knowing modern English.

In short, then, English has changed overwhelmingly in the space of 40 generations or so. Since we are lucky enough to possess substantial written records in English from almost all periods since the English learned to write, we can see the changes appearing in our texts century by century and sometimes even decade by decade.

By the late Middle Ages, English had already undergone about five centuries of change from the time of the passage we’ve just examined, and it was beginning to look quite a bit more like modern English. Here is a passage from Chaucer’s *Treatise of the astrolabe* (an astrolabe was an instrument employed to measure relative distances in the heavens), written in the late fourteenth century for his son Louis. Remember that, although Chaucer was a writer of consummate skill, this is an example of something approaching scientific prose:

Lyte Lowys my sone, I aperceyve wel by certeyne evidences thyn abilite to lerne sciences touching nombres and proportions; and as wel consider I thy besy praier in special to lerne the tretys of the Astrelabie. Than for as mochel as a filosofre saith, ‘he wrappith him in his frend, that condescendith to the rightfulle praieris of his frend,’ therefore have I yeven the a suffisant Astrolabie as for oure orizonte, compowned after the latitude of Oxenforde; upon which, by mediacioun of this litel tretys, I purpose to teche the a certain nombre of conclusions aperteynyng to the same instrument.

This is much easier to understand than the Old English passage, but still very strange; we call the English of this period **Middle English** (actually *late* Middle English; but although much interesting change took place in the two to three hundred years before this work was written, it need not concern us here). You can probably cope with such unfamiliar spellings as *nombres*, *tretys*, *mediacioun*, *litel* and *teche*, but you might have been troubled by *besy* for ‘busy’, *mochel* for ‘much’ or *orizonte* for ‘horizon’. Although the grammar of the passage appears very similar to our own, there is good reason to suspect, for instance, that word final <-e> was pronounced by Londoners of the time, and at least normally had a grammatical function. For example, the <-e> in *certeyne* was probably employed to mark the adjective for plurality (since *evidences* is plural). There are few words in this passage that are entirely opaque to us (although the meanings may escape us primarily because very few of us are historians of science concerned with pre-Copernican astronomy). Occasionally we find words like *yeven*, which context would tell us was equivalent to Modern English *given*. Common sense would also suggest that the words are related to each other. On this occasion common sense is correct, since *yeven* is the native English form that at the time was gradually being replaced by the equivalent form borrowed during the Viking period from its close relative Norse.

Other words in the passage that survive today appear to have a different meaning. *Condescendith*, for instance, does not mean the same as today's *condescends*. Today, the word generally has negative connotations, being associated with being talked down to by someone who assumes social – and probably intellectual – superiority. If we consult the *Oxford English Dictionary*, however, we discover the obsolete definition 'to give one's consent, to accede or agree *to* (a proposal, request, measure, etc.); to acquiesce', which appears (along with a number of other related meanings) very close to what Chaucer intends here (although, interestingly, none of the citations dates from Chaucer's lifetime: even a truly great work of scholarship like the *OED* is not infallible). Thus even with words we know, a few centuries of historical displacement can make our understanding sketchy.

And I haven't even mentioned how Chaucer probably pronounced the above. For the moment it should suffice to say that it was not long after Chaucer's death in 1400 that the pronunciation of English vowels began to change to something approaching our modern vowel sounds, and many of the remaining grammatical endings began to disappear too. By the time of Shakespeare, in the late sixteenth century, the English of the day was beginning to become something that we can easily recognize as English. We call the language of this period **Early Modern English**; here is a sample taken from Shakespeare's *As you like it*, written around 1600. Orlando is speaking to Adam:

As I remember, Adam, it was upon this fashion bequeathed me by will but poor a thousand crowns; and, as thou sayest, charged my brother on his blessing, to breed me well; and there begins my sadness. My brother Jacques he keeps at school, and report speaks goldenly of his profit; for my part, he keeps me rustically at home, or, to speak more properly, stays me here at home unkept; for call you that keeping for a gentleman of my birth, that differs not from the stalling of an ox?

Even if you haven't read any Shakespeare before, you can understand almost all of this with little difficulty, but it still sounds very strange to our ears: we just don't *talk* like this. Things like 'upon this fashion', 'as thou sayest', 'report speaks goldenly of his profit', 'he . . . stays me here at home unkept', 'call you that keeping [?]' and 'that differs not' are all bizarre or impossible for us, even if they're not hard to understand.

By the eighteenth century, a hundred years or so after Shakespeare, several more generations of change had produced a form of English that scholars recognize as **Modern English** – that is, for purposes of classification, it is considered to be essentially the kind of English we use now. But such classifications are, of course, no more than a convenience, and eighteenth-century English is still easily distinguishable from anything you will hear or read today. Here is a sample from the famous satirist Jonathan Swift; this is part of a letter he wrote in 1712 to the Earl of Oxford and Mortimer, a senior official in the British government. Swift was keenly aware of the ceaseless change in English that we have just been illustrating, and he didn't like it one bit, as you can see:

MY LORD, I do here, in the Name of all the Learned and Polite Persons of the Nation, complain to your LORDSHIP, as *Firft Minister*, that our Language is extremely imperfect; that its daily Improvements are by no means in proportion to its daily Corruptions; that the Pretenders to polifh and refine it, have chiefly multiplied Abufes and Abfurdities; and, that in many Infances, it offends againft every Part of Grammar.

I see no absolute Neceßity why any Language ſhould be perpetually changing;

BUT what I have moſt at Heart is, that ſome Method ſhould be thought on for *afcertaining* and *fixing* our Language for ever, after ſuch Alterations are made in it as ſhall be thought requiſite. For I am of Opinion, that it is better a Language ſhould not be wholly perfect, than that it ſhould be perpetually changing; and we muſt give over at one Time, or at length infallibly change for the worſe:

BUT where I ſay, that I would have our Language, after it is duly correct, always to laſt; I do not mean that it ſhould never be enlarged: Provided, that no Word which a Society ſhall give a Sanction to, be afterwards antiquated and exploded, they may have liberty to receive whatever new ones they ſhall find occaſion for:

The orthographic peculiarities (the long *s* and the numerous capital letters) were the fashion of the day, and had nothing to do with speech; the same is true of Swift's punctuation, which to our eyes is decidedly eccentric. You can see, however, why we call this Modern English, even if the style strikes us as stuffy and pompous now. But, style aside, this is still not quite the English we use now: the words 'ascertain', 'give over' and 'explode' clearly have meanings for Swift that they don't have for us; Swift refers to certain people as 'the pretenders to polish and refine it', which is not grammatical for us; similarly, he writes 'some method should be thought on' and 'I am of opinion', which are equally impossible for us, at least in Standard English.

Swift is here complaining about the constant changes in English, which he quite explicitly regards as largely a process of 'corruption'. He is proposing that something should be done about this, and that a body of people, an 'English Academy', should be set up to fix English once and for all, like a dead butterfly in a specimen box, after which nobody would be allowed to introduce any further changes at all, apart from the acceptance of an occasional new word that might be deemed necessary and allowable by the authorities.

Swift's hopes, of course, were not realized, and English has gone on changing, and it is still changing at this moment, as we have already seen and as we will see below. In all likelihood, these processes of change will continue forever, and the English-speakers of 500 years from now will find our English every bit as strange and difficult as we find Chaucer's English. Dedicated scholars will laboriously struggle to master that quaint and archaic form of the language, twenty-first-century English, and they will instruct their handful of interested students in the black art of reading our books and magazines, and also of understanding the sound recordings that, unlike our ancestors, we shall be able to bequeath to them. Just as scholars today prepare specialist dictionaries to explain such obsolete Chaucerian words as *aperceyve* and *orizonte*, future scholars will prepare dictionaries of obsolete and incomprehensible twentieth-century words such as (perhaps) *cinema* or *exaggerate* or *beige*, or even *whale* or *train*.

Jonathan Swift is not alone in his dislike of this ceaseless flux. Many other people have strong emotional reactions to language change. Let's see why.

1.3 Attitudes to language change

Language change is always with us but, as we have just seen, some people take exception to this fact and even complain that something should be done about it. Here is an example of something that has recently been upsetting quite a few of these people:

- 1.1 Fortunately, I have a spare fan belt.
- 1.2 Frankly, you ought to stop seeing Bill.
- 1.3 Mercifully, the ceasefire appears to be holding.
- 1.4 Undoubtedly, she has something up her sleeve.
- 1.5 Hopefully, we'll be there in time for lunch.
- 1.6 Honestly, you have no taste in clothes.

How do you feel about these sentences? Are they normal English or not? There is every likelihood that you find them perfectly normal, and very likely you're wondering what the point is of citing them here. In fact, five of them are probably perfectly normal for every English-speaker on the planet. But one of them is different.

The one that causes problems for some people is number 1.5. A small minority of English-speakers not only reject sentences like 1.5 but do so with steam coming out of their ears. The problem for such people is the way the word *hopefully* is used here. And they don't just dislike this use of *hopefully*: they're *infuriated* by it. Here is what Philip Howard, a well-known writer on language, has to say about it: he describes this use of *hopefully* as 'objectionable', 'ambiguous', 'obscure', 'ugly', 'aberrant', 'pretentious' and 'illiterate'; finally, playing his ace, he asserts that it was 'introduced by sloppy American academics' (Howard 1977). In short, he really doesn't like it much.

Howard is not alone in his dislike of this usage: many other writers have complained about it, often with similar bitterness. But why should a usage that seems so normal and unremarkable to most of the population attract such hostility from the rest?

All of the words set off by commas in my examples are instances of what linguists call **sentence adverbials**, but the key point is that, while the others have been in the language for several generations at least, *hopefully* began to be widely used as a sentence adverb only two or three decades ago. That is, this particular one happens to be a fairly recent innovation, just one more recent change in the long history of change in English.

The people who object to this use of *hopefully* are, almost without exception, middle-aged or older. That is, they are people who had already been using English for several decades before this particular innovation became prominent. Moreover, they are also mostly people who are especially well educated and who take a particular interest in the use of language. Such people are often very conservative in their view of language; they are perhaps particularly inclined to view any changes in the English they grew up with as instances of 'sloppiness' or 'corruption'. Younger speakers, in contrast, have grown up with this new usage and they regard it as perfectly normal.

The conservative speakers do not object to the other sentence adverbs: nobody is complaining that, instead of *undoubtedly*, we should say *I do not doubt that*, or that, instead of *mercifully*, we should say *it is a mercy that*. It's only that recent introduction *hopefully* that they want to abolish in favour of *I hope that* or even the ghastly *it is to be hoped that*. But, quite apart from their curious desire to get rid of the brief and elegant *hopefully* in favour of a string of words, they've overlooked something. Pinker (1994: 382) has pointed out an interesting fact about *hopefully*: it doesn't mean the same as *I hope that*. Consider two more examples:

- 1.7 I hope we'll be there in time for lunch, but I suspect we won't make it.
- 1.8 Hopefully, we'll be there in time for lunch, but I suspect we won't make it.

The first of these is fine, but the second, I expect you'll agree, is not fine at all: it's very odd, almost incoherent. Why? Because *hopefully* seems to mean, not just *I hope that*, but rather something like *I hope and expect that*. That is, the word carries a clear sense of expectation, and hence the speaker of 1.8 is doing something perverse: she's simultaneously declaring that she expects to be in time and that she expects to be too late.

In spite of the vitriol that *hopefully* has attracted, then, this word provides us with a neat and elegant way of saying *I hope and expect that*, something that we couldn't say before without using a cumbersome string of words. To put it another way, the introduction of *hopefully* is not just a sloppy and meaningless deformation of the language, as the critics suggest: it has a *function*. It's *useful*. It can readily be regarded as one of those 'daily Improvements' that Jonathan Swift declared to be so rare in his letter.

Now I certainly am not going to suggest that every single change in language immediately results in improved communication: this is very far from being the case, as you will learn later in this book. But neither is it the case, as the critics often seem to maintain, that most changes represent nothing more than 'sloppiness' or 'corruption'. Indeed, a moment's thought suggests that such could hardly be the case: if the spectacular collection of changes that English has undergone in the last thousand years or so were really mostly just 'corruptions' of an originally unsullied tongue, then modern English would surely be so debased that we would hardly be able to use it at all. In fact, a few of the critics actually go so far as to maintain that this *is* the case, but they can't possibly be right. Such recent examples of English as the speeches of Winston Churchill, the novels of Ben Okri, the histories of Tom Devine and the wit of a Ray Davies lyric demonstrate that English today is just as fine a vehicle of expression as it ever was, and that all those centuries of 'sloppiness' and 'corruption' have had not the slightest deleterious effect.

Lest you suspect that my example of *hopefully* might be atypical, let's look at something quite different. Consider these examples:

1.9 My car is being repaired.

1.10 My house is being painted.

1.11 This problem is being discussed at today's meeting.

Anything strange here? I doubt it – I don't think there's an English-speaker alive who regards these as other than normal.

But it wasn't always so. Until the end of the eighteenth century, this particular construction did not exist in Standard English, and an English-speaker would have had to say *My car is repairing*, *My house is painting* and *This problem is discussing at today's meeting* – forms that are absolutely impossible for us now. (For example, the seventeenth-century civil servant Samuel Pepys wrote in his famous diary the sentence 'I met a dead corpse of the plague, just carrying down a little pair of stairs', which is almost incomprehensible to us at first reading – we have to say *just being carried*.)

This curious (to us) construction was the only possibility in the eighteenth century, and when a few innovating speakers began to say things like *My house is being painted*, the linguistic conservatives of the day could not contain their fury. Veins bulging purple from their foreheads, they attacked the new construction as 'clumsy', 'illogical', 'confusing' and 'monstrous'. But their efforts were in vain. Today all those who objected to the 'illogical' and 'monstrous' new form are long dead and the traditional form they defended with such passion is dead with them. The 'illogical' and 'monstrous' new form has become the only possibility, and even the most careful and elegant writer of English would not dream of

trying to get away with the defunct older form. And you are probably marvelling at this eighteenth-century fury and wondering what all the fuss was about, just as the next generation will read in puzzlement about the attacks on *hopefully* and wonder what all the fuss was about.

Two thousand years ago Roman writers were making similarly hostile comments about the changes that were occurring in the spoken Latin of their day. Their dismay at the increasing ‘corruption’ of the language had, of course, no effect at all and the increasingly ‘corrupt’ spoken Latin continued to change (‘deteriorate’) until it had developed into such modern forms as French, Spanish and Italian. Naturally, the speakers of these languages do not regard them as corrupt, but as rich, beautiful and expressive. More precisely, the linguistic conservatives in France, Spain and Italy have great admiration for the language they grew up with, but they have some very harsh words for some of the things the young people seem to be saying these days. At every time and in every place there is a body of conservative opinion that holds that the language reached some kind of pinnacle of perfection a generation or so ago, and is now going rapidly downhill with all these ‘ugly’, ‘sloppy’, ‘illiterate’ new usages we keep hearing nowadays.

Nowhere is the effect of language change more apparent than in present-day French. Centuries ago, the French really did do for their language what Swift wanted done for English: they created a language academy, an august official body charged with making regulations for the proper use of French and staffed by distinguished (and often elderly) scholars and *littérateurs* of impeccable reputation. At frequent intervals the members of the French Academy meet to discuss things, handing down solemn rulings about what French-speakers are allowed to say. Has this had the effect of freezing the French language into place, as Swift hoped?

Hardly. While written French, like most written languages, has remained rather conservative, spoken French has recently been changing as fast as any language on earth. Indeed, most of us who endeavoured to learn French at school are in for something of a shock when we hear colloquial French.

The reality, of course, is that we have learned only the written language, and hence our exposure to the very different spoken form comes as a shock. Here are some examples of contemporary French, taken from George (1993):

- ‘These clothes are very expensive.’
Written: *Ces vêtements coûtent très chers.*
Spoken: *Ces fringues coûtent la peau des fesses.*
- ‘Finding a flat in the Invalides is not easy.’
Written: *Trouver un appartement aux Invalides n’est pas facile.*
Spoken: *Décrocher un appart aux Invaloches c’est pas évident.*
- ‘My brother is very good at arithmetic.’
Written: *Mon frère est très fort en arithmétique.*
Spoken: *Le frangin, il est giga fort en cunu.*
- ‘There’s the woman whose bag was stolen.’
Written: *Voilà la femme à qui on a volé le sac.*
Spoken: *Vlà la meuf qui s’est fait péta son keus.*

Some of these spoken forms are used only by young people, while others are far more widespread. But all are typical of the sort of French you can expect to hear if you spend

time in France. In written French, something may be *excellent*; in speech it is more likely to be *génial*, *dément*, *hypersensass*, *mégafoutral* or any of a dozen other things you won't have learned in your French class. Likewise, something really awful may be *mauvais* or *dégoûtant* in written French, but it will be *dégueulasse* (or more likely just *dégueu*) in speech, or something even less expected. A guy and a girl are *un mec* and *une nana*; the university is *la fac*; a fascist is *un facho*; a nudist is *un nunu*; someone who's not too bright is *pas très fu-fute*; a public toilet is *un pipi-room*; dreary modern architecture is *McDo* (from the name of a certain fast-food chain).

Whatever you may think of such French (and the members of the Academy mostly don't think much of it), this is the way the language is spoken, and telling the French that they're not speaking their language properly is not going to have much effect. If you want to learn French, you'll have to learn the French that people are speaking now, and not the French that was spoken a generation or two ago, just as a French-speaker learning English must learn to say *Bloody car won't start*, and not something like *I fear our motor car is declining to start*.

The changes in French are not just changes in words: there are also a number of grammatical changes in progress. If you know a little French, you will be able to spot, in my example sentences above, several striking differences in grammar between the written and spoken forms. And some of these grammatical changes are very substantial: you may have learned in school that 'John bought the car' is in French *Jean a acheté la voiture*, but what you're going to hear in France is far more likely to be something like *Jean, il l'a achetée, la bagnole* (literally, 'John, he bought it, the car').

The French Academy has clearly had little success in maintaining a constant form of French. So what exactly is its function, apart from making its members feel important? Here is one case in which its decisions have had an effect. The traditional French form for 'the string bean' is *le haricot*, and this form was long required by the Academy. But almost everyone in France has for generations said *l'haricot*, in blissful defiance of the Academy's decisions. A few years ago, the Academy finally bowed to the inevitable and officially recognized *l'haricot* as a permissible alternative. Of course, the great majority who already said *l'haricot* didn't change their speech as a result, and neither did the small minority who had always said *le haricot*. What happened was this: formerly, a schoolteacher was allowed to box the ears of a child who said, or wrote, *l'haricot*; since the new ruling, schoolteachers aren't allowed to do that anymore. So the Academy's role in life, it appears, is to decide when schoolchildren should have their ears boxed. It is scarcely likely that an English Academy, if we had ever bothered to create one, would have had any greater success in keeping the lid on change in English.

1.4 The inevitability of change

The lesson to be drawn from such observations is that language change is ceaseless and remorseless. Every language that is spoken continues to change, not just century by century, but day by day. The language that you speak is not just different from your parents' language: it's different from the language you were speaking last year or last week, even if you don't notice changes occurring on such a small time scale. In fact, most people don't notice the language changing at all: at most, they are merely aware that young people speak a little differently from the old folks. Even then, as we have already seen, if they draw any conclusion at all, that conclusion is likely to be that young people are 'lazy' or 'sloppy',

and that they need to be taught how to speak the language ‘properly’. Even those few who are perceptive enough to realize that the language is genuinely changing will often, like Jonathan Swift, regret this fact and yearn for a world in which languages never change, or at least for one in which changes are carefully and thoughtfully introduced by suitable authorities after protracted deliberation. They can yearn all they like, but they’re not going to get such a world.

Why should language change be unavoidable? Isn’t Jonathan Swift right in concluding that a fixed and carefully regulated language would be a great advantage? If the authorities could declare that a certain word must have a certain meaning, with no dissent allowed, wouldn’t we all find it much easier to speak and write? Wouldn’t we be free of the ambiguities and misunderstandings that not infrequently crop up when someone else’s speech turns out to be slightly different from our own?

Fortunately, we’re not likely ever to find out, because only in the brutal authoritarian world of Orwell’s *1984* could anybody ever have the power to regulate language in such a way – and probably not even then. But we can ask a more promising question: why does language change?

Here I must admit at once that I can give you no simple answer. The causes of language change are many and various, and only some of them are reasonably well understood at present. One of those reasons, undoubtedly, is mere fashion. People like to change their speech in much the same way, and for the same reasons, as they change their hemlines or their neckties: they want to show that they are up to date and in the know about what’s going on, and last year’s speech can be every bit as embarrassing as last year’s clothes or hairstyles, as I showed at the start of the chapter. This awareness of fashion is most noticeable among teenagers, for whom using this week’s words is vital, since the alternative may be social ostracism. A mother who tries to win her teenage daughter’s sympathy by using apparently trendy words such as ‘wicked’ or ‘simples’ may find that daughter helpless with laughter at hearing words that were passé when Noah reached dry land – even if she herself was using them a year ago.

But fashion certainly can’t be the whole story, and there are many other reasons why languages change. In the next chapter we will consider the most obvious type of language change, one in which fashion certainly does play a part, even if it’s outweighed by other factors.

Case study: *bonk!*

Larry Trask began the First Edition of this book in the following way:

In Britain today, the most usual everyday word for ‘copulate’ is *bonk*. No issue of a British tabloid newspaper is complete without a headline featuring ‘bonking schoolgirls’ or ‘bonking vicars’. The word is inescapable. But it wasn’t always like that.

In 1986 a sly reporter at Wimbledon asked the [German] tennis player Boris Becker a question about ‘bonking’. Becker famously replied, ‘The word “bonking” is not in my dictionary.’ This was hardly surprising: in 1986, the word ‘bonk’ wasn’t in *anybody’s* dictionary – at least, not in the relevant sense.

Today, everybody who's spent half an hour in Britain knows this word, presumably including Boris Becker, and, if you consult a good recent British dictionary of English, you will find the word entered there between 'bonito' (a type of fish) and 'bonkers' (meaning, of course, 'crazy'). But, if your dictionary is older than about 1987, you probably won't find it.

What conclusions can we draw? Well, one possible conclusion is that you need to buy a new dictionary. More importantly, though, we can conclude that a new word has entered English in the last few years. The word 'bonk' came into use only around 1985 or so, and the dictionaries picked it up a couple of years later. To put it another way, English has *changed* in this small respect: a few years ago this word didn't exist, but now it does.

Bonk is one of those words that most people my age or over are aware of hearing for the first time: in my case, like Boris Becker, sometime in the summer of 1986 (although without the inquisitive reporter). Right through until the end of the 1980s, the word was omnipresent; so omnipresent, in fact, that I associate it strongly with London, where I lived at the time, the excesses of the Thatcherite economic bubble and its inevitable deflation. *Bonk* was even productive in compounding, the most persistent compound being *bonkbuster*, a particular type of (large) novel often bought in newsagents and bookshops at airports and in railway stations, where a convoluted plot was combined with considerable amounts of fairly graphic, largely consequence-free sex that could, occasionally, come near the line of soft pornography.

I left the British Isles in 1990 and only returned to Scotland in 1996, spending most of the intervening years outside the English-speaking world. In my absence, *bonk* seemed practically to have disappeared. A consultation of the *Oxford English Dictionary* confirms this: *bonk* appears hardly to have been used in print since the end of the 1980s.

Why should this have happened? Primarily, fashion. A word may become fashionable for a few years and then, just as quickly, drop out and become passé. For instance, to what extent are terms coined or popularized in the 1980s – such as *Reaganomics* 'monetarist economic policies carried out by the Reagan administration' or *Thatcherism* 'similar economic policies coupled to the ideology of a powerful and highly centralized state', very popular in their day – still current? I used *Thatcherite* above in an historical context. I'm sure that nearly everyone would, in 2014, understand what I meant; but I'm pretty sure that the term has little currency and, in a generation or so, people might have to look up the word in the *OED*. We will discuss a number of examples of this phenomenon in the next chapter. But it also leaves a question hanging. When Larry Trask wrote the passage cited above, he obviously assumed that *bonk* was here to stay, a perfectly understandable view at the time. But he was wrong. How can you tell when an apparent change is actually a permanent change? This apparently simple but actually quite difficult question will be one of the primary themes of this book.

Further reading

There are very many books on the history of English. Among the better ones are Strang (1970), Williams (1975), Baugh and Cable (2013) and Pyles *et al.* (2014). The very readable McCrum *et al.* (1992) concentrates on social factors in the development of English, as does Leith (1983), which, however, includes a great deal more in the way of linguistics. Freeborn (1992) is a coursebook with many dozens of exercises and samples of written English from all periods. Dillard (1992) is a linguistic and social history of American English. Fennell (2001) attempts to discuss change in English from a sociolinguistic perspective, a viewpoint to which we will return on a number of occasions in this book. Watts and Trudgill (2002) present a genuine sociolinguistic analysis of the language's history. Millar (2012) provides a history seen from the point of view of macrosociolinguistics and the sociology of language.

Briefer accounts of the history of English can be found in several chapters of Crystal (1988), which is popular in style, and Bolton and Crystal (1987); glossy and popular, but well worth reading, is the first long section of Crystal (1995). Crystal (2004) also presents a scholarly history of the language that is approachable for a wider audience.

A particularly good introduction to Old English for linguistics students is Lass (1994), which requires some linguistic background and focuses on structure and change. They will not teach you to read Old English texts. (Your library will probably have a number of textbooks of Old English, if you would like to learn it.) Students with a particular interest in the Germanic languages (which include English) should read Robinson (1992).

Bauer (1994) is a readable study of change in contemporary English. The observations on change in contemporary French are taken from George (1993); the same volume contains an article on the recent development of technical French (Noreiko 1993). Walter (1994) is a somewhat light-hearted account of the history of French and of current developments in it. Among the more readable books in English on the histories of other major European languages are Price (1971), Harris (1978) (syntax only) and Lodge (1993) (more sociolinguistic than linguistic) for French, Penny (1991) for Spanish, Maiden (1995), for Italian, Mattoso Camara (1972) for Portuguese, and Lockwood (1965), Waterman (1966), Keller (1978), Wells (1987) and Salmons (2012) for German. For the last language, you might want to look at Barbour and Stevenson (1990), which discusses historical as well as contemporary language variation.

Exercises

Note: For these exercises, you will need to consult the *Oxford English Dictionary* and probably also a good etymological dictionary, as explained in *To the reader* at the beginning of this book.

Exercise 1.1

Certain English words have a decidedly strange spelling, with 'silent' letters included. Here are a few examples:

- (a) *light, bright, sight, night* (silent *gh*)
- (b) *knife, knee, knit, knot* (silent *k*)
- (c) *write, wrong, wring, wrestle* (silent *w*)
- (d) *walk, talk, folk, should* (silent *l*)
- (e) *lamb, tomb, comb, bomb* (silent *b*)
- (f) *castle, listen, rustle, fasten* (silent *t*)
- (g) *ride, give, take, name* (silent *e*)

What do you suppose is the reason for this?

Exercise 1.2

Here are a few phrases from the passage quoted on p. 5 from Shakespeare's play *As you like it*. How would you express each of them in modern English?

- (a) upon this fashion
- (b) as thou sayest
- (c) charged my brother ...to breed me well
- (d) report speaks goldenly of his profit(e) he ...stays me here at home unkept
- (f) call you that keeping [?]
- (g) that differs not ...

Exercise 1.3

Here are some further quotations from Shakespeare's plays. What differences can you observe between Shakespeare's English and our own?

- (a) Our remedies oft in ourselves do lie / Which we ascribe to heaven.
- (b) How now, wit! Whither wander you?
- (c) Hath not old custom made this life more sweet / Than that of painted pomp?
- (d) A bloody deed! almost as bad, good mother, / As kill a king and marry with his brother.
- (e) All is not well; I doubt some foul play.
- (f) But, soft! Methinks I scent the morning air.
- (g) What do you read, my lord? [*addressed to Hamlet, who is reading a book*]

- (h) The frame and huge foundation of the earth / Shak'd like a coward.
- (i) This was the most unkindest cut of all.
- (j) 'Tis a naughty night to swim in.

Exercise 1.4

The following extract is taken from the Paston letters, the voluminous correspondence of the Paston family of Norfolk; it dates from 1476, just about the time that scholars consider that Middle English was giving way to Modern English. Translate it into modern English as best you can, and comment on any characteristics of the language that strike you. John Paston is writing to Margery Brews; the text has been modernized here in a few respects, and all of the numerous abbreviations of the original have been spelled out in full.

Mastresse, thow so be that I, vnaqweyntyd wyth yow as yet, tak vp on me to be thus bold as to wryght on to yow wyth ought your knowlage and leve, yet, mastress, for syche pore seruyse as I now in my mind owe yow, purposyng, ye not dyspleasyd, duryng my lyff to contenu the same, I beseche yow to pardon my boldness, and not to dysdeyn, but to accepte thys sympyll bylle to recomand me to yow in syche wyse as I best can or may jmagyn to your most plesure. And, mastress, for sych report as I haue herd of yow by many and dyuerse persones, and specyally by my ryght trusty frend, Rychard Stratton, berer her of, to whom I beseche yow to geue credence in syche maters as he shall on my behalve comon wyth yow of, if it lyhe yow to lystyn hym ... Her I send yow thys bylle wretyn wyth my lewd hand and sealyd wyth my sygnet to remayn wyth yow for a wyttnesse ayenste me, and to my shame and dyshonour if I contrary it.

Exercise 1.5

Do the same with the following passage from the Prologue to Chaucer's *Canterbury tales*. These lines were written in about 1387; the poet is apologizing for the apparent crudeness of some of the stories he is 'repeating':

But first I pray yow, of youre curteisye,
That ye n'arete it nat my vileynye,
Thogh that I pleynty speke in this mateere,
To telle yow hir wordes and hir cheere,
Ne thogh I speke hir wordes proprely,
For this ye knowen al so wel as I,
Who so shal telle a tale after a man,
He moote reherce as ny as euere he kan
Eueriche a word, if it be in his charge,
Al speke he neuer so rudeliche or large,
Or ellis he moot telle his tale vntrewe,
Or feyne thing, or fynde wordes newe.

Lexical and semantic change

Undoubtedly the most conspicuous type of language change is the appearance of new words. When a new word appears in the language, there will be an occasion on which you hear it for the first time, and you may well notice that you have just heard a new word and remember the occasion. Depending on your age, you may perhaps remember the first time you heard somebody mention *3G*, or *dirty bomb*, or *glasnost*, or *floppy disc*, or *laser*; you may remember the first time President Lyndon Johnson spoke of the *escalation* of the war in Vietnam, or even the first time you heard the word *television*. I can remember clearly the first time I heard the word *gay* being used to refer to (male) homosexuality rather than exuberance.

Apart from being conspicuous, the acquisition of new words is also frequent. New words have been pouring into English throughout its history, and today the language is acquiring many hundreds, perhaps even thousands, of new words every year. One of the major tasks faced by lexicographers in preparing new editions of their dictionaries is to collect the thousands of new words that have appeared since their last edition, perhaps only three or four years earlier. The editorial teams or publishers behind some dictionaries now encourage members of the public to write in to their websites with new words and usages. Some even hold votes at regular intervals over which words are to be included in the new 'official' online (and, eventually, print) version of the dictionary. Where do all these new words come from?

There are, in fact, many different ways of acquiring new words, some of them very common, others rather unusual. In this chapter we will review these sources of new words, beginning with the simplest and most obvious source of all.

2.1 Borrowing

At present there are some 6,000 different languages spoken on our planet; every one of these languages has a vocabulary containing many thousands of words. Moreover, speakers of every one of these languages are in contact with neighbours who speak different languages this is true today even for people living on remote Pacific islands on which they had previously been isolated for centuries. Consequently, everybody is in a position to learn some of the words used by their neighbours, and very frequently people take a liking to some of their neighbours' words and take those words over into their own language. So, for example, the word *glasnost* was taken into English from Russian in the mid-1980s to denote the new political and social climate initiated by President Gorbachev in the former USSR, and, by extension, greater openness in any organization, just as the Russians had

earlier taken the word *vokzal* from English to denote a mainline railway station (at the time, Vauxhall Station in London was a particularly important station).

This process is somewhat curiously called **borrowing** – ‘curiously’, because, of course, the lending language does not lose the use of the word, nor does the borrowing language intend to give it back. A better term might be ‘copying’, but ‘borrowing’ has long been established in this sense. Words that are borrowed are called **loan words**.

Such borrowing is one of the most frequent ways of acquiring new words, and speakers of all languages do it. English-speakers have long been globally among the most enthusiastic borrowers of other people’s words and many, many thousands of English words have been acquired in just this way. We get *kayak* from an Eskimo language, *whisky* from Scottish Gaelic, *ukulele* from Hawaiian, *yoghurt* from Turkish, *mayonnaise* from French, *algebra* from Arabic, *sherry* from Spanish, *ski* from Norwegian, *waltz* from German and *kangaroo* from the Guugu-Yimidhirr language of Australia. Indeed, if you leaf through the pages of an English dictionary that provides the sources of words, you will discover that well over half the words in it are taken from other languages in one way or another (although not always by the sort of straightforward borrowing we are considering here).

Why should people be so eager to borrow somebody else’s word? There are several reasons, but the simplest is that the word is the name of something genuinely new to speakers of the borrowing language. English-speakers had never seen kayaks, skis, ukuleles or yoghurt before they encountered these things overseas and appropriated them along with their names. Cases such as *ski* and *yoghurt* represent the most straightforward type of borrowing, but borrowing can be more complicated. We have just seen that Russian, instead of borrowing the English word *station* directly, borrowed the name of a particular English station and used it for any large station. In Luxembourgish, the word *Quaker* (pronounced /'kve:kə/) means ‘porridge’, while in the English-speaking world *Quaker Oats* refers only to an – admittedly well-known – cereal product. Something similar happened with *kangaroo*: the Guugu-Yimidhirr word *gangurru* is in fact only the name of a particular species, the large black kangaroo, but English-speakers, never before having seen *any* kangaroos, simply took the word and applied it to all kangaroos.

Such misunderstandings and adjustments are very common. Our word *cafeteria* is borrowed from Spanish, but the Spanish word means ‘coffee shop’, while we have applied it to a no-frills self-service restaurant. The English phrase *happy ending* has been borrowed into French, German and Italian, but in the form *happy-end*, which doesn’t exist in English, while English *footing* has been borrowed into French and Spanish, but only in the sense of ‘jogging’, which it doesn’t have in English. It is even possible to ‘borrow’ a word that doesn’t exist at all: English *nom de plume* ‘pen name’ is ‘borrowed’ from French, but no such phrase exists in French: the equivalent item is *nom de guerre*. English-speakers with a somewhat limited command of French were trying to borrow something from French, but got it wrong, and wound up inventing some fake French and borrowing that.

The case of *nom de plume* illustrates a further motivation for borrowing words. Why should English-speakers go to the trouble of trying to borrow a French word for something when English already had a perfectly good word with the same meaning: *pen name*? The reason is a simple one: prestige. For two or three centuries, before the rise of English in the twentieth century, French was the most prestigious language in the European world. French was everywhere the language of diplomacy, of fine arts, of high culture generally – indeed, virtually the language of Western civilization. Consequently, many speakers of English (and of other languages) were eager to show off their command of this prestigious

language by spattering their speech and writing with words and phrases borrowed from French. Why speak of a mere mishap or blunder when you can instead speak delightfully of a *contretemps* or a *faux pas*? Why describe someone as ‘disreputable’ or ‘shifty’ when you can make your own superiority so much more obvious by dismissing him as *louche*? And any class of person might possess composure or social graces, but surely only a true gentleman would exhibit *sang-froid* or *savoir-faire*.

In fact, English has been borrowing French words in their thousands ever since the eleventh century, long before French had acquired the worldwide prestige that it later achieved. This was for a particular reason: in 1066, the French-speaking Normans conquered England, and for the next 200 years or so Norman French was the language of the ruling elite. Royalty and the aristocracy spoke French; the law spoke French; the upper echelons of the administration and the military spoke French. Consequently, Norman French words such as *prince*, *duke*, *baron*, *judge*, *attorney*, *court*, *chancellor*, *bailiff*, *official*, *army*, *captain* and *lieutenant* inevitably passed into English, displacing their native English equivalents, which passed out of use. (Remember the Old English word *here* ‘army’ in [Chapter 1](#)? This is now defunct, although it survives in the name of the English city *Hereford*, originally ‘army-ford’.)

But it wasn’t only these administrative words that were borrowed. Thanks to the vastly greater prestige of French, English-speakers eagerly borrowed almost any French words they could get their hands on, regardless of the fact that English in many cases already had perfectly good equivalents. Such Norman French words as *country*, *music*, *jewel*, *picture*, *beef*, *fruit*, *boil*, *courage*, *honour*, *virtue*, *pity*, *sentence*, *question*, *language*, *literature*, *fool*, *horrible*, *mirror*, *gentle*, *male*, *female*, even *face*, all came pouring into English, where they proved so popular that they drove the corresponding native words out of the language. Only a specialist scholar now knows that the English once said *to-come* instead of *arrive*, *learning-knight* instead of *apprentice*, *wrethe* instead of *support*, *wridian* instead of *flourish*, *anleth* instead of *face*.

One of the chief reasons that Old English texts are so difficult for us to read is that so many of the native English words used in those texts were later driven out of the language by borrowings from French. More than 60 per cent of the Old English vocabulary has disappeared, and the Norman Conquest is the greatest single reason for this. If William the Conqueror had been William the Defeated, this huge influx of French words might never have occurred, and English today might look a great deal more like Old English (although many of the fashionable borrowings in later centuries would probably have been acquired in any event, as they were in, say, German).

As you can see, English-speakers are still happily borrowing foreign words today: the frequency of the German words *deutschmark* and *Bundesbank* in English-language publications of the 1970s and 1980s demonstrated the economic power of Germany, in the 1990s anyone who followed the news became aware of the Mexican rebels called the *Zapatistas*, and the craze for things Japanese has brought *sumo*, *sushi* and *karaoke* into everyday speech. But perhaps we no longer borrow words so often for reasons of prestige – for English itself has become the most prestigious language on earth, today it is primarily a donor language. Just as French words once poured into English, now English words are pouring into French, German, Spanish, Italian and Japanese in vast numbers. Open any popular Italian or German or even Japanese magazine at random and you will find its pages spattered with English words: *superstar*, *top model*, *gadget*, *rockstar*, *hobby*, *T-shirt*, *massage parlour*, *mass media*, *status*, *fan*, *check-up*, *gentleman* and hundreds of others. German computer

magazines have columns called *Tips und Tricks*; Italian fashion magazines talk about the *look* and explain what's currently *in*. A more creative process can be seen in the formation of the German word *Handy* 'mobile telephone'.

Handy is, indeed, an English word; it just doesn't exist as a noun. Its German coiners must have recognized (1) that English words are considered stylish in the speech of younger German-speakers (the initial targets for the mobile phone industry); (2) that German-speakers would recognize their own *Hand*, meaning exactly the same as its English sister form, in the 'English' word; and (3) that a significant part of the target audience would also have understood the pun on the new telephones being useful, readily available and handheld. Thus a new word is born.

You might wonder how these English words are pronounced in German, Italian or Japanese. This interesting question we will examine in the next section. Before that, however, we note that new words can be formed in various ways by exploiting the resources of other languages without quite borrowing any words directly. One way of doing this is to construct a calque. A **calque**, or **loan translation**, is a new word or phrase constructed by taking a foreign word or phrase as a model and translating it morpheme-by-morpheme. The Romans frequently used this technique to expand the vocabulary of Latin by appealing to the then more prestigious Greek. For example, the Greek word *sympathia* 'sympathy' consists of two morphemes: a prefix *syn* 'with' and a stem *pathia* 'suffering'. The Romans rendered this with the Latin prefix *con-* 'with' and the stem *passio* 'suffering', obtaining the calque *compassio*, which therefore became the Latin word for 'sympathy'. Centuries later, the Germans in turn calqued the Latin word into German by using their preposition *mit* 'with' and the noun *Leid* 'grief', obtaining *Mitleid*, the German word for 'sympathy' or 'compassion'. If English had done the same, our word for 'sympathy' might now be **withgrief* (the asterisk marks a non-existent or impossible form), but we have, as usual, preferred merely to borrow directly, and so we have taken both *sympathy* from Greek and *compassion* from Latin. In the same way, Greek *poiotes* 'suchness' and *posotes* 'muchness' were calqued into Latin as *qualitas* and *quantitas*, respectively; in English, however, we have refrained from using the obvious calques *suchness* and *muchness*, and simply borrowed *quality* and *quantity* from Latin (although we *do* say that two unattractive choices are 'much of a muchness').

Very occasionally we do form calques in English: German *Übermensch* and *Weltanschauung* have been calqued into English as *superman* and *worldview*, and French *Ça va sans dire* has been calqued as *It goes without saying*. Mostly, however, English-speakers are not fond of calques: we prefer to borrow directly.

Another way of exploiting foreign languages is to pillage their vocabularies in order to extract morphemes that can then be imported and used as building blocks for constructing words in another language. Such building blocks are called **combining forms**, and English does this on a massive scale in order to create technical and scientific terms with combining forms extracted from Greek and Latin. Thus, Greek *thermos* 'heat' and *metron* 'measure' provide the combining forms for our word *thermometer*, literally 'heat-measure', and most European languages do the same: French *thermomètre*, Spanish *termómetro*, German *Thermometer*, Welsh *thermomedr*, Basque *termometro*, Turkish *termometre*, Russian *termometr*, Swedish *termometer*, and so on. Only Hungarian has defied this trend with its *hőmérő*, a calque constructed from the Hungarian words for 'heat' and 'measure'.

The overwhelming majority of our technical terms are constructed in this way: *microphone* (Greek 'small-voice'), *television* (Greek plus Latin 'far-seeing'), *carnivore* (Latin

'meat-eater'), *streptococcus* (Greek 'twisted-seed'), *bibliography* (Greek 'book-writing'), *astronomy* (Greek 'star-law'), *orthodontist* (Greek 'straight-teeth' plus *-ist*), *consanguineous* (Latin 'with-blood' plus *-ous*), *pharmacology* (Greek 'drug-word'), and *telecommunications* (Greek and Latin 'far-sharing'). The vast majority of such formations, of course, never existed in ancient Greek or Latin, and even the best-educated Roman would be utterly baffled by formations like the chemical name for aspirin, *acetylsalicylic acid*, which is literally 'vinegary-willowly sour-stuff'.

Some of these combining forms have become so familiar that we now happily attach them to almost anything, including native English words, producing things like *biodegradable*, *megastar*, *psychobabble*, *cyberpunk* and *technospeak*. It appears that such elements are losing their purely technical status and coming to be regarded as everyday English morphemes. Indeed, it is possible that our long tradition of constructing our technical terms from Greek and Latin may be drawing to a close. The scientists of earlier generations were often well acquainted with the classical languages, but today's technical people rarely are, and in particular the people who have created our now vastly important computer industry know nothing of Greek or Latin. It is noticeable that technical terms in computing are never formed in the traditional Graeco-Latin manner, and Greek and Latin elements appear only occasionally and incidentally. Computer people prefer other devices for coining their technical terms: *RAM*, *screen saver*, *bus*, *graphics card*, *reboot*, *software*, *prompt*, *debug*, *bulletin board*, *mouse*, *floppy disc*, *pixel*, *modem*, *scroll bar*, *window*, *hard copy*, *browser*, *NAND gate*, *hacker*, *password*, *icon* and, of course, the inimitable *WYSIWYG*. An earlier generation might have preferred *telecommunicator* to *modem*, or *manual selector* to *mouse*, but times have changed.

In a somewhat similar way, French-speakers have recently been coining both technical terms and everyday words by combining English elements either with French words or with other English words: *top modèle* 'supermodel', *crack-pain* 'crispbread', *pipi-room* 'public toilet', *papy-boom* 'growth in the number of old-age pensioners', *perchman* 'boom operator', *tennis-woman* 'female tennis player', *baby-foot* 'table football' and *baby-star* 'child star'.

All languages borrow words, but it is notable that some types of words are borrowed more readily than others. For one thing, nouns are borrowed more often than verbs or adjectives. This occurs partly because nouns are far more numerous than other classes of words to begin with, partly because new things are more likely to be denoted by nouns than by other words, and partly because new nouns are often easier to accommodate within the grammatical system of the borrowing language.

For example, Turkish has borrowed heavily from its prestigious neighbour Arabic, but the verbal morphologies of Arabic and Turkish are so utterly different that there is no way an Arabic verb can be accommodated in Turkish: an Arabic verb has a root consisting entirely of consonants (like *kṭb* 'write') and it is inflected by internal changes (*katab* 'he wrote', *kutib* 'it was written', *aktub* 'he's writing', and so on), while a Turkish verbal root always contains at least one vowel (like *yaz-* 'write') and is inflected by suffixation (*yazdı* 'he wrote', *yazıldı* 'it was written', *yazıyor* 'he's writing', and so on). Unable to borrow an Arabic verb directly, therefore, what Turkish does is to borrow the corresponding noun and combine this with a 'dummy' verb *etmek* 'do' to produce a verb that can be used in Turkish. Thus, the Arabic verbal noun *kabul* 'acceptance' is borrowed and used to form the compound verb *kabul etmek* 'accept'; *mukayese* 'comparison' yields *mukayese etmek* 'compare'; *ispat* 'proof' gives *ispat etmek* 'prove'; *teşkil* 'formation' yields *teşkil etmek*

'form'; and so on for many hundreds of such borrowings. Verbs are taken from other languages in the same way: the Persian noun *rija* 'request' gives the Turkish verb *rica etmek* 'request', the French participle *désinfecté* 'disinfected' yields *dezenfekte etmek* 'disinfect', and the English noun *knockout* gives *nakavt etmek* 'knock (somebody) out' (in boxing).

Further, there is clear evidence that certain semantic classes of words are much less likely to be borrowed than other words. These are chiefly the items of very high frequency that we would expect to find in every language: pronouns, lower numerals, kinship terms, names of body parts, simple verbs like *go*, *be*, *have*, *want*, *see*, *eat* and *die*, widespread colour terms like *black*, *white* and *red*, simple adjectives like *big*, *small*, *good*, *bad* and *old*, names of natural phenomena like *sun*, *moon*, *star*, *fire*, *rain*, *river*, *snow*, *day* and *night*, grammatical words like *when*, *here*, *and*, *if* and *this*, and a few others. Such words are often called the basic vocabulary, and the fact that they are rarely borrowed makes them of considerable importance in historical linguistics, as we will see later in the book. Note, however, that it is not actually impossible for such words to be borrowed: English has borrowed *face* and *river* from French and *give*, *sky* and even the pronoun *they* from Old Norse; Latin borrowed the word **blancus* 'white' from a Germanic language (whence French *blanc*, Spanish *blanco*, Italian *bianco*); Turkish has borrowed *ve* 'and' from Arabic; younger speakers of Thai have reportedly borrowed the English pronoun *you* as a neutral term of address that allows a speaker to avoid the complex rules for addressing people in Thai; Kiswahili, formerly used as a trade language between Africans and Arabs, has borrowed the Arabic numerals for 'six', 'seven' and 'nine'; the two Basque words for 'leg', *zango* and *hanka*, are both borrowed from neighbouring Romance languages, and Basque *orain* 'now' is a loan from Latin with a Basque suffix. Still, the frequency of such borrowings is sufficiently low to make such basic words valuable in investigating the prehistories of languages.

2.2 Phonological treatment of loans

Every language has its own phonological system: its own collection of available speech sounds and its own rules for combining these sounds into pronounceable words. But the phonological systems of English, French, German, Italian and Japanese are all rather different, and hence a loan word can be very difficult for speakers to pronounce. English does not have the nasal vowel of French *genre* or the front rounded vowel of German *Muesli*; Spanish does not allow the initial /st-/ cluster found in English *star* and *status*; French lacks (or used to lack) the velar nasal of English *camping*; Japanese allows neither the consonant clusters nor the final consonant of English *grapefruit* – yet all these words have been borrowed. How do they get pronounced?

Broadly speaking, there are two ways of dealing with this problem. First, if you have some idea how the word is pronounced in the donor language, you can try your best to reproduce that pronunciation in your own language, producing as a result something that is conspicuously foreign. Second, you can abandon such efforts and just pronounce the loan word as though it were a native word, following the ordinary phonological patterns of your language, and as a result changing the original pronunciation of the word, perhaps greatly. Both these approaches are widely used.

On the one hand, most English-speakers who use the word *genre* do their best to produce something approximating to the French pronunciation and wind up saying something like [ʒɑ̃ʁ] with a nasal vowel but often with an English /r/ instead of the French uvular /r/. On

the other hand, nobody tries to pronounce *muesli* in a German way, as ['my:zli]: we all just say ['mju:zli] or ['mju:slɪ], with English sounds throughout. The choice is not predictable, but you are more likely to take the first option if you have some command of the lending language's pronunciation and if you consider the lending language to be prestigious. Lots of English-speakers know some French, especially in the academic circles in which the word *genre* is chiefly used, and French still retains some of its earlier prestige, so *genre* gets a French-type pronunciation. But few of us know much German, and German doesn't seem to enjoy the same *cachet* with us as French, and so *muesli* is simply anglicized.

Not all speakers make the same choice. The English word *video* has been borrowed into Japanese, which has no /v/, and so many Japanese pronounce the word as *bideo*, with the nearest native equivalent, /b/, but others carefully pronounce the word with a /v/. Almost all of us pronounce the Spanish loan *guerrilla* just like *gorilla*, but there used to be a television newsreader who made a point of pronouncing it with a Spanish accent, trilled /r/, palatal lateral and all – an odd choice, because the word does not in fact mean 'guerrilla' in Spanish (it means 'guerrilla war'), and hence her attempts at accuracy were rather pointless.

On the whole, especially if the loans are few in number, or if they present formidable phonological difficulties, or if they quickly come into use as everyday words, we may expect speakers to prefer the second option, nativization. Thus, English *grapefruit* is borrowed into Japanese as *gureepufuruutsu*, which conforms perfectly to the phonological patterns of Japanese, and Mexican Spanish *juzgado* 'courthouse' was borrowed into American English as the famous *hoosegow* 'jail' of Western movies, with totally English phonology (in small Western towns, the courthouse and the jail were often in the same building).

It is, however, the first option that chiefly concerns us here. If a few English-speakers pronounce a few French loans in a more-or-less French manner, then such words are just oddities in English. However, if lots of us pronounce lots of French loans in the same way, something has happened to the phonological system of English.

Consider the case of English /v/. Old English had no phoneme /v/, although it did have /f/, which had a voiced allophone [v] between vowels, so that *ofer*, for example, was pronounced with [v] – as it is today: this is the word we now spell *over*. Word-initially, however, /f/ could only be pronounced as voiceless [f], as it still is today in native words like *five*, *fish*, *friend*, and *fire*.

French, however, has both /f/ and /v/, both of which can occur in most positions, including word-initially. Many of the words borrowed into English from Norman French had initial /v/, and English-speakers obviously made an effort to pronounce this unfamiliar sound, because dozens of French words came into English with initial [v]: *very*, *vine*, *vinegar*, *voice*, *view*, *vicar*, *victory*, *venue*, *vault*, *vassal*, *value*, *villain*, *virgin*, *vowel* and many others. As a result, English acquired a contrast between [f] and [v] which had not previously existed: contrasts like *few* and *view*, or *fine* and *vine*, became possible for the first time. /v/ became a phoneme in English, and the phonological system of English was changed. Today /f/ and /v/ contrast in almost all positions: *fat* and *vat*, *rifle* and *rival*, *strife* and *strive*. (In the same way, those Japanese-speakers who pronounce a [v] in English loans like *video* have acquired a new phoneme /v/, contrasting with native /b/.)

English has acquired another voiced fricative from French, the /ʒ/ of *beige*, but this time the process was rather more complicated. French has a front rounded vowel /y/ which English lacks, and, when English-speakers began borrowing French words containing this

vowel, they could not pronounce it. Instead, they replaced this awkward vowel with a sequence of English sounds: /ju:/. Hence the /ju:/ of words like *music* and *puny* represents an adaptation of French /y/. Now in many cases this French vowel followed the fricative /z/, and hence English has borrowed a number of French words with the sequence /zju:/ representing French /zy/: *measure*, *pleasure*, *treasure*, *leisure*, *azure*, and others. In these cases, however, there was a further change: the alveolar fricative /z/ merged with the following palatal glide /j/ to produce instances of the fricative [ʒ], instances which were not present in the original French words. As you can confirm, the pronunciation with /ʒ/ is now the only possibility for most of these words. This process is ongoing. I pronounce the end of the word *Asia* with /ziə/ or /zjə/, while people with a rather more (linguistically) radical pronunciation, such as Received Pronunciation (RP), use /ʒ/. On occasion, I hear myself using the latter pronunciation, so obviously this is a change in progress.

Much more recently, we have obtained new instances of /ʒ/ by borrowing French words containing it. When it occurs finally, there is a good deal of variation, and loans like *entourage*, *camouflage*, *garage*, *barrage*, *massage* and *rouge* can be heard both with [ʒ] and [dʒ]. You may find that you pronounce some of these with the fricative but others with the affricate, and you are likely to find that your friends differ from you on one or two of these. With very recent loans from French, however, there is a strong tendency to use the fricative, and words like *beige*, *luge*, *cortège*, *gigolo*, *collage*, *dressage* and, of course, *genre* are almost always heard with [ʒ], although I have heard *gigolo*, at least, pronounced with [dʒ]. English has, therefore, if apparently somewhat reluctantly, acquired another voiced fricative from French.

Recently we have repaid the generosity of the French by providing them with a new phoneme. Until not long ago, the velar nasal /ŋ/ was absent from French, but French-speakers have shown a taste for borrowing English words containing the suffix *-ing*, and have now borrowed a sizeable number of these, though not always with the original meaning: *smoking* ('dinner jacket', from earlier English *smoking jacket*), *camping* ('campsite'), *footing* ('jogging', now increasingly replaced by *jogging*), *feeling* (in the musical sense of 'play with feeling', but also in the sense of 'instinct, intuition'), *living* ('living room'), *shopping*, *mailing* (in the sense of 'mail-shot'), *listing* and others. The majority of speakers now pronounce such loans with [ŋ], and thus French has acquired an additional phoneme. Indeed, linguists have noted that *-ing* has actually now become a productive suffix in French, and French-speakers use it to coin new words which do not exist in English: *lifting* ('face-lift'), *zapping* ('compulsive channel-changing'), *brushing* ('blow-dry'), *jogging* ('track suit'), and *caravaning* ('caravan park', 'trailer park').

Without introducing any new phonemes, lexical borrowing can also affect the phonotactics of the borrowing language. English has long had the consonant phoneme /ʃ/, usually spelled <sh>, as in *ship* and *fish*. Until recently, however, this /ʃ/ could not occur at the beginning of a word followed by any other consonant except /r/: hence we have words like *shrink*, *shred* and *shrimp*, but no words with initial /ʃt-/, /ʃl-/, /ʃm-/, and so on. Now, however, as a result of loans from German and more especially from Yiddish, this situation has changed. The Yiddish-influenced English of the New York City area now contains dozens of words with these 'impossible' clusters: *schmuck*, *shlemiel*, *shlock*, *shlep*, *shtum*, *shtick*, *schmo*, *schnoz*, *spiel* (pronounced /spi:l/) and many others. Many of these have passed into general currency in American English, and some have recently crossed the Atlantic to Britain, where they are reinforced by the German loans *schnapps*, *schnauzer*, *schnitzel* and *schmaltz*, by the trade name *Schwepes*, and, of course, by the familiar term *schwa* from

phonetics (a loan from Hebrew). As a result, the phonotactics of English now permit a whole series of initial clusters that were formerly impossible.

2.3 Morphological treatment of loans

We saw above that Turkish finds it awkward to borrow verbs directly and prefers to borrow nouns that are then turned into verbs with the ‘dummy’ verb *etmek*. This is, in fact, quite a common practice: Japanese borrows foreign verbs in the same indirect manner by taking over nouns and combining them with its verb *suru* ‘do’: hence the Chinese loan *benkyoo* ‘study’ produces the Japanese verb *benkyoo suru* ‘study’, and Japanese is full of verbs borrowed indirectly from English, like *hitto suru* ‘make a hit’, *doraibu suru* ‘drive a car’, *kisu suru* ‘kiss’, and *pasu suru* ‘pass an exam’. Verbs like *etmek* and *suru* are sometimes called **light verbs**, meaning that they have little or no semantic content of their own and serve only to provide a usable verbal form of an item that carries the semantic content of a verb but which is formally a noun.

Even nouns may produce morphological complications for the borrowing language, however. In the majority of languages, nouns are inflected for number, and in many languages they are also marked for case and/or grammatical gender. Borrowed nouns must be fitted into all this morphology in one way or another, and the result may be disturbances to the borrowing language’s morphology.

Consider first number. With just a handful of exceptions like *feet* and *children*, English nouns form their plural with an invariable suffix *-s*: *books*, *cars*, *discos*, *databases*, *CD-ROMs*, and so on for virtually every noun, old or new. With borrowed nouns, however, we agonize and vacillate. Many nouns borrowed from Greek and Latin have been taken over complete with their foreign plurals: hence *phenomena*, *indices*, *crises*, *formulae*, *cacti*, *bacteria*, and some dozens of others (or hundreds, if we count purely technical terms like *protozoa* and *hominidae*). Such un-English plurals disrupt the ordinary English morphology, and speakers often find them confusing and rearrange them in various ways. We formerly had singular *datum* and plural *data*, but the more frequent plural form just doesn’t look like a plural to English eyes, and most speakers now treat *data* as a singular (as in ‘This data is interesting’; compare the earlier ‘These data are interesting’, now confined to a handful of conservative speakers – many of whom are actually linguists!), and *data* now has no plural. Something similar is perhaps happening with *criterion/criteria*, *phenomenon/phenomena*, and *bacterium/bacteria*: very few of my students seem to be at all sure which form is the singular and which the plural, and use them the wrong way round as often as not: *this criteria*, *these phenomenon*, *a new bacteria*.

Confusion arises in other ways. The Greek word *syllabus* has a Greek plural *syllabontes* that is rarely used in English, but the model of Latin nouns like *radius/radii* has misled some speakers into creating a plural *syllabi*, which is now so frequent that it’s recognized by most dictionaries. In the same way, the uncommon Latin loan *nexus*, whose Latin plural is *nexus*, has been given a surprising English plural *nexi* by some speakers, including even by a few linguists who use it as a technical term, and I have even seen the startling form *casu bellorum* used as the plural of *casus belli* ‘cause of war’, whose Latin plural is again just *casus belli*.

We borrow a few other foreign plurals, such as *cherubim* and *kibbutzim* (from Hebrew), *concerti* and *castrati* (from Italian), and *bureaux* and *beaux* (from French), but we don’t always take over a foreign plural. Latin *circus*, Italian *pizza*, German *kindergarten*, Greek *daemon*, French *béret* and Eskimo *anorak* all just form regular English plurals in *-s*: nobody

tries to use such plurals as **circus*, **pizze*, **kindergärten*, or **daemones*; the French plural happens to be *bérets* anyway, and how many of us have the faintest idea how to form a plural in Eskimo?

When the borrowing language has a large number of different ways of forming plurals, the problem becomes more acute. German, for example, has a wide variety of patterns for plurals: *Weg* ‘way’, plural *Wege*; *Mann* ‘man’, *Männer*; *Mensch* ‘person’, *Menschen*; *Uhu* ‘eagle-owl’, *Uhus*; *Lehrer* ‘teacher’, *Lehrer*; *Bruder* ‘brother’, *Brüder*; *Hand* ‘hand’, *Hände*; *Blume* ‘flower’, *Blumen*; *Buch* ‘book’, *Bücher*; *Mineral* ‘mineral’, *Mineralien*. Loan words have to be given some plural form or other, and German-speakers have made various decisions. Many loan words are stuck into one pattern or another in a seemingly arbitrary manner: *Tenor* ‘tenor’, *Tenöre*; *Film* ‘film’, *Filme*; *Ski* ‘ski’, *Skier*; *Pilot* ‘pilot’, *Piloten*; *Experte* ‘expert’, *Experten*; *Boxer* ‘boxer’, *Boxer*; *Fossil* ‘fossil’, *Fossilien*. By far the largest number of recent loans, however, take the *-s* plural: *Test*, *Bungalow*, *Teenager*, *Kiwi*, *Job*, *Schock* ‘shock’, *Kamera* ‘camera’, *Bar* (for drinks), *Lady*, *Party*, *Story*, *Ghetto*, *Kasino* ‘casino’, *Kommando* ‘commando’, *Hobby*, *Baby*, *Zebra*, *Hotel*, and hundreds of others all form *-s* plurals (*Tests*, *Bungalows*, *Teenagers*, and so on). This is slightly surprising, since the *-s* plural is one of the rarest patterns of all for native words: there are perhaps fewer than a dozen native words of any antiquity that form this kind of plural. Interestingly, the plural in *-s* is beginning to turn up in colloquial speech in native words that never used to have it, and one can hear things like *Mädchens* ‘girls’, *Fräuleins* ‘young ladies’ and *Onkels* ‘uncles’. Perhaps these are the first signs that German may be going the same way English went many centuries ago: generalizing the once obscure *-s* plural at the expense of a dozen other patterns. (Old English was just like modern German in having many different ways of forming plurals.) There has, however, been considerable influence from French and more recently English upon German, both, of course, being languages that use *-s* as the default plural marker.

In German, the problem of dealing with loan words is made still more acute by the fact that the language has a case-system – and naturally different classes of nouns take different sets of case-endings. Table 2.1 shows just a few of the patterns that exist; the names of the cases are Nom(inative), Acc(usative), Gen(itive), and Dat(ive).

Loan words that take the *-s* plural are accommodated in an unexpected way: with just one exception, they simply don’t take any case-endings, as shown in Table 2.2. The one exception is that certain nouns do take the genitive singular ending *-s*, even though this makes the genitive singular look just like all the plural forms.

In Russian, which has a substantially more complex case morphology than German (six cases and well over a dozen different patterns for forming them), most loan words are treated in the same way: they just don’t take any case-endings at all.

Table 2.1 Some inflectional patterns of German nouns

		Weg ‘way’	Bär ‘bear’	Art ‘kind’	Dach ‘roof’
SG	NOM	Weg	Bär	Art	Dach
	ACC	Weg	Bären	Art	Dach
	GEN	Weges	Bären	Art	Daches
	DAT	Weg(e)	Bären	Art	Dach(e)
PL	NOM	Wege	Bären	Arten	Dächer
	ACC	Wege	Bären	Arten	Dächer
	GEN	Wege	Bären	Arten	Dächer
	DAT	Wegen	Bären	Arten	Dächern

Table 2.2 The treatment of loan words in German

		Kamera 'camera'	Test 'test'
SG	NOM	<i>Kamera</i>	<i>Test</i>
	ACC	<i>Kamera</i>	<i>Test</i>
	GEN	<i>Kamera</i>	<i>Tests</i>
	DAT	<i>Kamera</i>	<i>Test</i>
PL	NOM	<i>Kameras</i>	<i>Tests</i>
	ACC	<i>Kameras</i>	<i>Tests</i>
	GEN	<i>Kameras</i>	<i>Tests</i>
	DAT	<i>Kameras</i>	<i>Tests</i>

A language with grammatical gender, like French, German or Russian, has the additional problem of assigning loan words to a gender. French, which has only two genders, traditionally called 'masculine' and 'feminine', solves the problem in the simplest way possible: virtually all loan words are simply assigned to the masculine gender. Hence English loans like *look* (in the fashion sense), *western* (film), *zip* (zip fastener, zipper), *kiwi* (both the bird and the fruit), *strip-tease*, *week-end*, *cocktail*, *gin*, *bridge* (the card game), *best-seller*, *football*, *jazz*, *heavy-metal*, and hundreds of others are all masculine in French.

German has a third gender, the 'neuter', and German-speakers may assign a loan word to any of the three genders. Thus, *Jet*, *Cocktail*, *Bestseller* and *Western* are masculine, *Cleverness*, *Yacht* and *Lady* are feminine, *Bridge* and *Quiz* are neuter, while *Striptease*, *Yoghurt* and *Curry* are masculine for some speakers but neuter for others. As you can see, there is some variation in gender assignment, but in most cases speakers quickly agree what the gender of a loan word should be, a fact that has puzzled some observers.

If the morphological mismatch between the lending and borrowing languages is greater still, the borrowing language may be obliged to indulge in some strenuous manoeuvres in order to accommodate the loans. Kiswahili has eight genders, and the gender of a noun is regularly marked by one prefix in the singular and another in the plural: *mtu* 'person', plural *watu*; *mti* 'tree', *miti*; *kitu* 'thing', *vitu*; *jicho* 'eye', *macho*; *ulimi* 'tongue', *ndimi*, and so on. Loan words are fitted into this system in various ways. Many are put into the *ji-/ma-* gender, but without the singular prefix *ji-*. Hence, the Arabic loans *juma* 'week', *duka* 'shop', *waziri* 'vizier', and *kadhi* 'Islamic judge' and the English loan *boi* 'houseboy', are all treated as singulars lacking a prefix, and they form plurals *majuma*, *maduka*, *mawaziri*, *makadhi* and *maboi*. However, the Arabic loan *walimu* happens to look like a plural of the *m-/wa-* gender, and so it is treated as a plural 'teachers' and given a singular in *m-*, but surprisingly *mwalimu* instead of the expected **mlimu*. On the other hand, the Arabic loan *kitabu* 'book' fits comfortably into the *ki-/vi-* class, and so it is given a Swahili plural *vitabu* (the Arabic plural is *kutub*), which makes the word unrecognizable to outsiders.

2.4 Formation of new words

Borrowing is very far from being the only way of obtaining new words. Languages can use their own resources to create them, without appealing to other languages. There are many ways of doing this, some much more common than others.

One very frequent technique is **compounding**: combining two (or more) existing words into a new word. Compounding is common in English: at various times, English-speakers have created such compounds as *girlfriend*, *gingerbread*, *major-general*, *ice cream*, *table*

tennis, *close-up*, *overturn*, *jetlag*, *hatchback*, *lipstick*, *soundproof*, *forget-me-not*, and the *drop-dead* of a *drop-dead blonde* (which means ‘a stunningly beautiful blonde’). (Some of these are written with hyphens or white spaces, but they are still compounds.) Some other languages form compounds equally freely: Basque has compounds like *burubero* ‘unreasonable, fanatical’ (*buru* ‘head’ plus *bero* ‘hot’), *joan-etorri* ‘return trip, round trip’ (*joan* ‘go’ plus *etorri* ‘come’), *musu eman* ‘(to) kiss’ (*musu* ‘kiss’ plus *eman* ‘give’), and the delightful *eztabaida* ‘argument, dispute’, derived from the two complete sentences *Ez da! Bai da!* ‘No, it isn’t! Yes, it is!’ German, as is well known, is something of a European champion in this respect. Our little word *lift* (as in ‘Can you give me a lift home?’) is rendered in German by the imposing compound *Mitfahrgelegenheit*, literally ‘with-travel-opportunity’. From *um* ‘around’ and *Welt* ‘world’ German forms *Umwelt* ‘environment’; to this is added *Schutz* ‘protection’ to obtain *Umweltschutz* ‘protection of the environment’; to this is added *Maßnahmen* ‘measures’ (itself a compound) to derive the formidable *Umweltschutzmaßnahmen* ‘measures for the protection of the environment’. This is as far as things normally go in German, but German-speakers delight in coining entertaining curiosities like the legendary *der Donaudampfschiffahrtsgesellschaftskapitän* ‘the captain of the Danube Steamship Company’ and *der Hottentottenpotentatentantenattentäter* ‘the would-be assassin of the aunt of the Hottentot dignitary’.

Some other languages form compounds only with difficulty. French is one such. While English easily forms *country house*, French *campagne* ‘country’ and *maison* ‘house’ cannot be combined into **campagne-maison*, but only into *maison de campagne*, literally ‘house of country’; similarly, English *table wine* is equivalent to French *vin de table*. The same is true of Spanish, on the whole, but it readily allows a type of compound that is very rare in English, as in *tocadiscos* ‘record player’, literally ‘play-records’, and in the American Spanish *robacarros* ‘car thief’, literally ‘steal-cars’. The closest we have to this in English is the very rare pattern illustrated by *scarecrow* and *pickpocket*.

You will already have noticed that English forms many different types of compounds, but the majority of English compounds conform to certain rules. The chief rule is that the **head** of a compound is usually its final element. Thus, a *house cat* is a type of cat, and not a type of house, while a *cathouse* is a type of house (it’s a brothel) and not a type of cat. Similarly, an *eyeliner* is a type of liner, not a type of eye, and *olive green* is a type of green, not a type of olive.

Some other languages have different rules. In Welsh, for example, the head comes first, and hence Welsh has compounds like *brws danedd* ‘toothbrush’ (from *brws* ‘brush’ and *danedd* ‘teeth’) and *jwg laeth* ‘milk jug’ (from *jwg* ‘jug’ and *llaeth* ‘milk’, with one of the famous Welsh consonant mutations). That is, Welsh compounds are **head-initial**, while English ones are **head-final**. Even compound verbs in English are head-final: when you *overturn* something, you are turning it in a particular way, and when you *babysit*, you are sitting in a particular way.

There are, however, exceptions. One type of exception is that presented by **dvandva compounds**, or **copulative compounds**. Here both members are equally heads: *Alsace-Lorraine*, *tragicomic*, and the American *panty-hose* (= ‘tights’). This type of formation is rare in English, except in names of companies: *Rank-Hovis-McDougal*, *Metro-Goldwyn-Mayer*, *AOL-Time-Warner*, *Hotblack Desiato* or *Dixon’s-PC World* (it is interesting to note, however, that a number of these mergers have now ‘de-merged’).

A far more frequent type of exception is provided by **exocentric compounds**, in which there is *no* head. A *hatchback* is not a type of back, but neither is it a type of hatch: it’s a

type of car, but the element *car* does not occur in the name. Similarly, a *skinhead* is a type of person, and so is a *highbrow* or a *redneck* or a *hard-hat* or a *Tarheel* (someone from North Carolina). A *forget-me-not* is a type of flower, and a *hit-and-run* is a type of offensive play in baseball (these last two examples illustrate more complex and unusual patterns of compounding).

Sometimes a compound contains an affix in addition to its constituent words: *blue-eyed*, *long-legged*, *lived-in*, *outgoing*, *hard-liner*, *flat-earther*, *fast-acting*.

Even more frequent than compounding, and probably the single most important mechanism in the languages of the world for obtaining new words from native resources, is **derivation**. Derivation is the process of creating words by adding **affixes** (prefixes and suffixes) to existing words. Like many other languages, English has a large number of prefixes and suffixes used in this way: prefixes like *un-*, *pre-*, *dis-*, *re-*, *anti-*, *non-*, *con-*, *mini-*, *ex-*, *de-*, *step-*, *proto-* and *counter-*; suffixes like *-ness*, *-ful*, *-ity*, *-less*, *-ly*, *-al*, *-ian*, *-esque*, *-ee*, *-er*, *-ese* and *-ize*. To the adjective *happy* we can add the prefix *un-* to obtain a new adjective *unhappy*; to this we can add the suffix *-ness* to obtain the noun *unhappiness*. From *civil* we can variously derive *uncivil*, *civility* and *civilize*; from this last we can further derive *civilization*. From *derive* itself we can successively obtain *derivation*, *derivational* and the obscure technical linguistic term *transderivational*. (Note that there are usually clear rules governing the order of addition of affixes: neither **transderive* nor **transderivation* exists.)

Not all affixes are equally productive. The **productivity** of an affix is the degree of freedom with which it can be used to derive new words. The ancient English suffix *-th* is now totally unproductive: it occurs in a few old formations like *warmth* and *depth* (and, slightly disguised, in *height* and *weight*), but it can no longer be extended to other cases: things like **happyth* and **bigth* are impossible. The suffix *-dom* is chiefly found in a few old formations like *freedom* and *kingdom*, but it has never quite died out entirely: *stardom* is a recent formation, and we occasionally come across new instances of its use, like *gangsterdom*, *tigerdom* and even *girldom*. The old suffix *-wise* was formerly unproductive and confined to a few cases like *clockwise* and *otherwise*, but it has recently become productive again, and such novelties as *moneywise*, *healthwise*, *profitwise*, *fitnesswise* and even *clotheswise* are now probably familiar to you. An interesting example of these distinctions being personal can be seen with the prefix *semi-*. I would only use this in a small number of examples, most notably, perhaps, *semicircle*. But I know people for whom *semi-* is highly productive. I have, for instance, heard a television programme described as *semi-interesting*, which sounds almost comical (*semi-comical*?) to me. Again, this is probably evidence of a change in progress.

On the other hand, the prefix *re-* is very highly productive: *rewrite*, *repaint*, *rediscover*, *reroute*, *reschedule*, *rewrap*, *rethink*, *re-emerge*, *resolidify* and other such verbs can be coined almost at will. The same is true of the suffix *-ness*: *blackness*, *manliness*, *separateness*, *inventiveness*, *salaciousness*, *obstructiveness* show that this suffix can be added to almost any adjective (though adjectives ending in *-ical* usually prefer *-ity*: *topicality*, not **topicalness*).

Most affixes are of intermediate productivity. Thus, for example, the prefix *pre-* turns up in recent formations like *pre-shrunk*, *prearrange*, *preassemble*, *precancerous*, *precensor*, *premix* and *pre-Darwinian*, but there nonetheless seems to be something wrong with **pre-ride*, **pre-interested*, **pre-destroy* and **pre-eliminate*. (*‘Genghis had intended to raze the city, but, when he got there, he found it had been pre-destroyed by his rival.’)

A sensational recent success story in English is the prefix *mini-*. Before 1960, this prefix did not exist at all (see below for its origin), but the single new creation *miniskirt* apparently

caught the public imagination to such an extent that the prefix now turns up everywhere: *mini-budgets*, *mini-successes*, *mini-microphones*, *mini-computers*, *minicars*, *mini-kilts*, and even *mini-wars*, are present in the language.

In the interwar period, the linguists of the Prague School argued that the structure of any language is, at any given moment, a mixture of fully active and productive processes, the dead and dying remains of ancient processes now disappearing from the language, and the first glimmerings of new processes just beginning to come into existence. Nowhere is the truth of this view more evident than in word-formation, and most particularly in derivation.

Various other devices are used to coin new words in English and other languages. A rather subtle but very important one in English is **conversion**, also called **zero-derivation**. Conversion is the process of moving a word from one lexical category (part of speech) to another, with no affixation or other modification. For example, the adjective *brown* becomes a verb in *brown the meat*; the verb *drink* becomes a noun in *have a drink*; the noun *access* becomes a verb in computing locutions like *you can access that utility from the main menu*; the preposition and particle *up* becomes a verb in *up the ante* and a noun in *ups and downs*. This sort of thing has been going on constantly for centuries in English. Most of us don't even blink the first time we hear someone refer to *a nasty* or *a dyslexic* or when someone talks about *leafleting a neighbourhood* or *networking a computer*, or perhaps even the first time we hear someone say *I have a long commute to work*. Conversion is frequent only in languages with very little inflectional morphology, like English; morphologically richer languages usually require some kind of affixation in order to change the class of a word.

Another increasingly frequent device is **clipping**: extracting a word from a longer word of the same meaning. Thus, *telephone* becomes *phone*, *brassière* becomes *bra*, *gymnasium* becomes *gym*, *hippopotamus* becomes *hippo*, *violoncello* becomes *cello*, *influenza* becomes *flu*, *head-shrinker* ('psychiatrist') becomes *shrink* and *show business* becomes *show biz*; in French, *fast food* becomes *fast*, *pullover* becomes *pull*, *bulldozer* becomes *bull* and *hardware* (in the computer sense) becomes *hard*. In some such cases, as with *cello* and *flu*, the clipped form has more or less completely replaced the original longer word. (Note that a clipped form is a real word, and **not** an abbreviation.) Sometimes a clipped form acquires a curious suffix, as in English *ciggy* 'cigarette', *nightie* 'nightgown', *ammo* 'ammunition', *goalie* 'goalkeeper' and *fresher* 'first year student at university, freshman', British English *turps* 'turpentine' and *starkers* 'stark naked', Australian English *umpy* 'umpire' and French *apéro* (for *apéritif*), *Amerlo* (for *Américain*) and *facho* (for *fasciste*). Technical terms and trade names often exhibit unusual types of clipping, as in the British *polythene* (for *polyethylene*).

A sort of combination of compounding and clipping is **blending**, in which pieces of existing words are combined to make a new word. Well-known examples are *motel* (*motor* plus *hotel*), *smog* (*smoke* plus *fog*), *brunch* (*breakfast* plus *lunch*), and *Oxbridge* (*Oxford* plus *Cambridge*); more recent ones include *heliport* (*helicopter* plus *airport*), *Eurovision* (*European* plus *television*), *breathalyser* (*breath* plus *analyser*), and *Chunnel* (*Channel* plus *tunnel*). Such formations are beloved of advertisers and journalists, who constantly create new blends, which usually have only a momentary existence: *Mockney*, *infomercial*, *metrosexual*, *rockumentary* and the like. You will doubtless be dimly aware that several such **nonce formations** (as short-lived creations are called) slide past your eyes every day, although it is unlikely that most of them make any lasting impression on you.

Blends were widely used for official purposes in German during the Nazi era and in Russian during the communist period: German *Gestapo* (for *Geheime Staatspolizei* 'Secret

State Police’) and Russian *Sovnarkom* (for *Soviet Narodnykh Komissarov* ‘Council of People’s Commissars’).

Of particular linguistic interest is **back-formation**: the creation of a word by the removal of an *apparent* affix from another word. English has a number of agent nouns derived from verbs with the suffix *-er*: *writer* from *write*, *singer* from *sing*, *smoker* from *smoke*, and so on. At various times, we have acquired the nouns *pedlar* (an alteration of earlier *pedder*, from obsolete English *pedde* ‘basket’), *editor* and *sculptor* (loans from Latin), and *burglar* and *lecher* (loans from Norman French). All these happen to end in a syllable that sounds just like *-er*, and hence English-speakers have removed this ‘affix’ from the nouns to create the verbs *peddle*, *edit*, *sculpt*, *burgle* and *leech* (as in ‘Mike is leeching after Susie’). Similarly, the Latin name *pisa* for a certain vegetable and the Norman French name *cherise* for a certain fruit were borrowed into English as *pease* and *cherries*, respectively. Originally, these were uncountable nouns, like *spinach* and *fruit*, but they both happened to end in what *sounds* like an English plural suffix, and so speakers removed this ‘suffix’ to obtain the new singular forms *pea* and *cherry*. A more recent example of back-formation, familiar to fans of a certain cult TV show, is the verb *self-destruct*, back-formed from the compound noun *self-destruction* (note that no such verb as **destruct* exists in English). Other examples are *babysit* (from *babysitter*), *televise* (from *television*), and *double-glaze* (from *double-glazing*). An unusual case of back-formation involves the verb *orient* (as in ‘to orient oneself’); this yields a noun *orientation*, by the regular rules, but British speakers have extracted from this noun a new verb *orientate*, and most Britons now say things like ‘I couldn’t orientate myself’, which sound very odd to most other speakers.

In the same vein as back-formation, but more complex, is **reanalysis**: interpreting a word as having a structure that is not historically valid and hence obtaining a new morpheme for use in coining other words. The familiar *hamburger* probably takes its name from the German city of Hamburg (although there is much heated debate about this), but, since the first syllable looks like the name of a kind of meat, we have reanalysed the word as a compound of *ham* plus *-burger*, and the new morpheme *-burger* is now used to derive names for all kinds of things in a bun: *cheeseburger*, *chickenburger*, *vegeburger* and so on. Indeed, in Britain, things have gone so far that the original item is now commonly called a *beef burger*. A particularly striking case of reanalysis involves the word *bikini*, the name of a bathing costume. This word is taken from the name of a Pacific atoll where some of the earliest nuclear bomb tests were conducted, and it is thought to reflect the stunning impact of the scanty new costume at a time when bathing suits normally covered a great deal more skin than they do now. Now English has a prefix *bi-* meaning ‘two’, as in *bifocals* and *bilateral* – and the new costume consisted of two pieces. Consequently, when an even more shocking costume was introduced, consisting only of the bottom part of a bikini, some wags reanalysed the name *bikini* as containing the prefix *bi-*, and replaced this with the prefix *mono-*, meaning ‘one’, to name the microscopic new one-piece garment. The word *monokini* is still rather marginal in English, but it has become fully established in French.

Reanalysis is the origin of the prefix *mini-*, discussed above. English has long had the two words *miniature* and *minimum*, both derived from Latin; historically, these two words are not related at all, and their resemblance in form is purely an accident. But they both have meanings involving the sense of ‘very small’ and, around 1960, someone reanalysed them as though they both contained an element *mini-*, meaning ‘very small’; this new morpheme was used to construct that pioneering word *miniskirt*, and the rest is history.

Even more dramatic than reanalysis is **folk etymology**: restructuring a word whose structure is opaque into something seemingly more transparent. A good example is *bridegroom*. English once had a word *guma*, meaning ‘man’, and this was compounded with *bryd* ‘bride’ to give *brydguma* – literally, ‘bride-man’. With time, however, the word *guma* dropped out of the language, and *bridegroom* came to seem mysterious. As a result, the puzzling second element was altered to *groom* (a *groom* was a servant, although today the word normally just means somebody who looks after horses). We thus obtained *bridegroom*, in which the second element is at least familiar, if not obviously very sensible. In a similar way, the French loan *écrevisse* was folk-etymologized into *crayfish* – a crayfish is, of course, not a fish, but at least it lives in the water. A particularly striking example, however, comes from Basque. Spanish has borrowed the word *zanahoria* ‘carrot’ from Arabic, and the Spanish word has in turn been borrowed into Basque. There, however, it has been re-formed into *zainhoria*, which in Basque literally means ‘yellow-root’ (*zain* is ‘root’, *hori* is ‘yellow’, and *-a* is the Basque article). This is surely the most successful folk etymology of all time.

A device for coining words that has recently become very popular is the reduction of a long phrase or name to a few important letters, usually the first letters of the principal words in it. If the result can only be pronounced letter-by-letter, we call it an **initialism**; if it can be pronounced as a word, we call it an **acronym**. (Some people use the term ‘acronym’ for both cases.) Examples of initialisms are *FBI* (for *Federal Bureau of Investigation*), *BBC* (for *British Broadcasting Corporation*), *TNT* (for *trinitrotoluene*), *DJ* (for *disc jockey*), *GCHQ* (for *Government Communications Headquarters*), and *PhD* (for *Philosophiae Doctor*, Latin for ‘Doctor of Philosophy’). Examples of acronyms are *NATO* (for *North Atlantic Treaty Organization*), *radar* (for *radio detection and ranging*), *scuba* (for *self-contained underwater breathing apparatus*), *AIDS* (*acquired immune deficiency syndrome*), and, of course, *laser* (for *light amplification by the stimulated emission of radiation*); this last has inevitably given rise to the back-formed verb *lase*. Computer people are particularly fond of acronyms: *RAM* (for *random-access memory*), *ROM* (for *read-only memory*), *DOS* (for *disk-operating system*), and *WYSIWYG* (for *what you see is what you get*).

The growing use of initialisms and acronyms is hardly surprising: who in her right mind would prefer to recite on every occasion the full name of the *BBC*, or of *AIDS*, or of *RAM*? How many of us can even remember just what *DDT* stands for, or *UNICEF*, or even *laser*?

Variation in usage is possible. The military term *AWOL* (for *absent without leave*) is pronounced by some as an initialism, by others as an acronym, and the same is true of *UFO*. In English, *CIA* is an initialism, but, in Spanish, it’s an acronym pronounced to rhyme with the Spanish word *día* ‘day’.

Some recent formations are impossible to classify, since they combine features of blends with features of initialisms or acronyms and possibly other devices. The military are particularly fond of these hybrids, with their *CINCPAC* (*Commander-in-Chief in the Pacific*) and their *UNPROFOR* (*United Nations Protective Force*), but technical terms like *CD-ROM* show the same complexity.

To the great exasperation of manufacturers, trade names may become so successful that they pass into the language as generic terms for products. Once upon a time *aspirin*, *cellophane* and *escalator* were all trade names, but now they are simply common nouns. The Hoover Company is not at all pleased to find *hoover* being used in Britain as another word for ‘vacuum cleaner’, nor are the manufacturers of Kleenex amused when people refer to

all paper tissues as *kleenex*. Equally, the American manufacturers of Scotch Tape, the British manufacturers of Sellotape and the Australian manufacturers of Durex are all appalled to find their trade names applied generically to sticky tape in their respective countries, and all manufacturers are prepared to go to legal and financial lengths to protect their brand names. Some years ago, the US courts stripped Parker Brothers of their copyright trade name *Monopoly*, ruling that the word had become a generic term for any board game.

Finally, one of the rarest of all ways of obtaining new words is simply to invent them, more or less out of thin air. The paragraph on the back of a book telling you how wonderful the book is and why you absolutely have to buy it used not to have a name in English; a publisher invited the American humourist Gelett Burgess to invent one, and he came up with the inspired creation *blurb*, which is now universally used. The word *nylon* (originally a trade name) was apparently also created in this way (the often-told story about New York and London appears not to be true). Some such formations may have a vague source: the Belgian chemist J. B. van Helmont invented the word *gas* by rearranging the Greek word *khaos* ‘chaos’ to his liking, and the Basque nationalist Sabino Arana, finding that Basque had only loan words for ‘write’, seized upon an archaic verb *iraatsi* ‘carve’ and twisted this around at his pleasure to produce *idatzi*, which is now the universal Basque word for ‘write’.

This survey by no means exhausts all the possible ways of obtaining new words. If you do [Exercise 2.3](#) below, you will come across some further devices, and the ‘Further reading’ section will suggest some more comprehensive accounts of word-formation in English.

2.5 Change in word-meaning

In [Chapter 1](#) we saw several examples of English words that have changed their meanings over the years. The word *with* meant ‘against’ in Old English; the word *condescend* meant ‘agree to a proposal; acquiesce’ for Chaucer; even the eighteenth-century writer Swift used *ascertain* to mean ‘fix, prevent from changing’ and *explode* to mean ‘drive out’.

Change in meaning is called **semantic change**, and it is just as common as other types of change. English words have been changing their meanings for centuries, and words are still changing their meanings today. Here are some examples.

Not so long ago, there was a clear difference in meaning between *uninterested* and *disinterested*: the first meant ‘apathetic’, while the second meant ‘having nothing to gain or lose from any outcome’. Hence a judge presiding over a civil case was expected to be disinterested, but he certainly wasn’t supposed to be uninterested. Today, however, many people use *disinterested* to mean exactly the same as *uninterested*: ‘I’m disinterested in opera.’ For such speakers, the word *disinterested* has changed its meaning; since they appear to be a majority, we may reasonably conclude that the word has changed its meaning in English, even though conservative speakers still find the new sense objectionable. Indeed, the change is gaining ground. I recently saw *disinterested* being used in its new sense on the BBC website where awareness of the BBC as a ‘national cultural institution’ would, we might assume, normally encourage a rather conservative usage.

Another case is the verb *transpire*. This used to mean ‘come to light’, ‘become known’. Thus, a sentence such as ‘It transpired that the councillors had been fiddling their expenses’ meant ‘It came to light that . . .’. But such sentences were easily misunderstood, and many people, on encountering them, took them to mean rather ‘It happened that . . .’. Consequently,

transpire is now commonly used to mean ‘happen, occur’, and now we often hear things like ‘We don’t know what transpired’, meaning ‘We don’t know what happened’, which would have been impossible not so long ago. The word *transpire* has changed its meaning.

This last example illustrates one way in which the meaning of a word can change: it is commonly used in a context in which a different interpretation of the whole sentence is possible and reasonable. Something similar happened with *cheer*. This formerly meant ‘state of mind’, but its frequent occurrence in sentences like ‘Be of good cheer’ induced hearers to assume that the word meant specifically a *good* state of mind, and that is the only sense the word now has.

This type of ‘constructive confusion’ can be particularly common in venerable phrases used regularly. Here’s one in English. ‘Time and tide waits for no man’ is a common phrase, which all native English-speakers recognize and understand. Its effectiveness stems from having the two alliterative words *time* and *tide*, which also share a medial diphthong. What is interesting is that the two words have changed meaning, but the phrase still means essentially the same thing. Nowadays, *time* means the great flow of time from the past, through the present, and into the future. It also has the sense of a measurement of time passing and of a particular time of day. *Tide*, on the other hand, refers to the twice daily lunar influenced rises and falls that most seas experience. So that makes sense: neither the force of time, nor the seasons of the sea, can be halted by anybody.

But let’s look at what these words mean in close relatives of English. In almost all other Germanic languages, the equivalent of *tide* (German *Zeit*, Dutch *tijd*, Norwegian *tid*, Icelandic *tið*) shares most of the meanings of English *time*. In Norwegian, on the other hand, *time* means ‘hour’. Even without historical evidence, it would not be impossible to suggest that *tide* originally meant ‘time’, but became associated with the sea through those cycles of rising and falling being particularly marked times. Indeed, elements of this remain in the English compounds *ebb-tide* ‘the time when seawater ebbs away from its highest point’ and *flow-tide* ‘the time when seawater is rising to its highest point’, never mind *noontide* or *eventide*, slightly archaic, but still without sea-based connotations.

If we consult the *Oxford English Dictionary*, it becomes apparent that just such a switch-over has taken place. In its earliest attestations, *tide* certainly means ‘time’, although even then it had a sense of a portion of time or even a specific point in time. By the fourteenth century the highly specific point in time of ‘tide of the sea’ was becoming common and, rather quickly in the Early Modern period, the default meaning for the word. *Time*, on the other hand, originally had the primary meaning of a particular period of time, often that of an hour’s duration. Gradually it extended meaning until, in the late fourteenth century, it began to be used to describe the linear progression of time itself.

So there is every chance that the proverb originally meant ‘Hour and time waits for no man’. But since the connotations are not dissimilar to how we now interpret it, it doesn’t really matter, except to linguists.

Another example: for centuries, the word *tennis* denoted a racquet-and-ball game played on an enclosed court embellished with sloping roofs and various types of obstacles off which or through which the players hit the ball. In the late nineteenth century, another racquet-and-ball game was invented that was played on an open grass court, and this was dubbed *lawn tennis*. Within a few years, the new game had become vastly more popular than the old, and the name *lawn tennis* was quickly shortened to *tennis*. Today, any English-speaker hearing the word *tennis* immediately thinks of the game played at Wimbledon,

and the handful of enthusiasts for the older game have been obliged to give it a new name, *real tennis*. (In North America, the same thing has happened to *hockey*: the newly invented ice version originally called *ice hockey* has completely eclipsed its older cousin, and a North American uses *hockey* for the ice game and *field hockey* for its grass counterpart. In Britain, where the grass version is still the more widely played, this has not happened.)

Much the same has happened to our word *car*. This ancient word long denoted a cart or wagon pulled by animals. When self-propelled vehicles with their own engines were invented in the late nineteenth century, the obvious compound *motor car* was coined to denote one of these new-fangled devices. Such was the success of the new invention, however, that the compound was soon shortened to *car*, and today no English-speaker who hears ‘I’ve just bought a new car’ is going to expect a shiny new oxcart with driver and passenger airbags and a built-in MP3 player.

Such examples represent one variety of what we call a **shift in markedness**: originally, the **unmarked** form of tennis was the variety played on an enclosed court, and the unmarked type of car was an oxcart, but the earlier **marked** varieties on grass and with a motor have now become the unmarked forms, while the old unmarked forms are now marked, and the language has been adjusted accordingly.

These relatively recent examples illustrate an important general point: sometimes we can understand the history of a word only by knowing something crucial about the society in which the word was formerly used. A famous example is the word *money*, which derives from the Latin word *monēta* ‘coins, cash’ (the Romans had no paper money). No problem there, but the Latin word had originally meant ‘one who admonishes’. This seems an incomprehensible change, until we learn that a famous mint was located in the Roman temple of the goddess Juno, and that Juno was nicknamed *Monēta* ‘the Admonisher’. A more recent example is the word *southpaw* ‘left-handed person’, which also seems mysterious at first, even though the use of *paw* for ‘hand’ is familiar enough. This usage derives from the American game of baseball, and it originally denoted a left-handed pitcher. A baseball diamond is traditionally laid out so that the afternoon sun shines into the eyes of the fielding side, including the pitcher; the pitcher therefore faces west, and the south is on his left – hence the origin of the word.

An area in which semantic change is particularly rapid is that involving subjects that are **taboo** (that is, subjects on which complete frankness is socially unacceptable). In English, taboo subjects include (or have included) sex, reproduction, excretion, death and the human body. Since taboos prohibit the use of plain language, speakers are constantly forced to resort to **euphemisms** (roundabout expressions that are socially acceptable); inevitably, the euphemisms themselves come to be regarded as blunt ways of speaking and have to be replaced by further euphemisms.

Consider words for copulation. The Latin word *copulate*, which originally meant only ‘join together’, itself originated as a euphemism for sexual activity, introduced to avoid the use of older English words that had come to seem unbearably crude. But *copulate* has now become unbearably crude in its turn: Jessica is hardly going to confide to her friends ‘I’m copulating with Mike’. Only a few years ago she would not have said ‘I’m having sex with Mike’, although she might, if not too shy, have ventured ‘I’m going to bed with Mike’ or ‘I’m sleeping with Mike’, using one of our now-familiar euphemisms. Most likely, however, she would have contented herself with ‘I’m seeing Mike’ or ‘I’m going out with Mike’. Such phrases could hardly seem more innocent or irrelevant, but

everyone would have understood them, and friends would not have assumed that Jessica and Mike were enjoying regular Scrabble matches. But this particular taboo has recently been losing its force, and today Jessica will very likely just announce to her friends 'I'm shagging Mike', or something similar, depending on which particular blunt term is currently in vogue.

The act of love itself has become next to impossible to talk about in English: we can choose between obscure medical terminology or words that would, at the very least, cause great offence, with little in between. As a result, speakers try desperately to find some word or phrase that will be readily understood without producing sniggers or glares, but no such word can be used for long. In the nineteenth century, the novelist Jane Austen could write of the very genteel Miss Anne Elliott and her haughty neighbour Captain Wentworth that 'they had no intercourse but what the commonest civility required'. The author would have been dumbfounded by the effect of this sentence on a modern reader; in her time, of course, the word *intercourse* meant nothing more than 'dealings between people'. In the twentieth century, however, the roundabout phrase *sexual intercourse* was created as a very delicate way of talking about copulation; this has now been shortened to *intercourse*, and this sexual sense is now so prevalent that we find it impossible to use the word in any other sense at all.

The effect of taboo can be very powerful. Several generations ago, the simple anatomical terms *leg* and *breast* came to be regarded as highly indelicate in American speech. The unacceptability of these words required euphemisms not only for talking about the human body but even for talking about roast chicken and Thanksgiving turkeys, with the result that Americans began to speak of *dark meat* and *white meat*, as they still do today, even though *leg* and *breast* have more recently lost their indelicate status. Similarly, the total unacceptability of *cock* in its anatomical sense has for Americans made the word unavailable for referring to a male chicken, and several euphemisms have been pressed into service, with *rooster* now having won out as the near-universal American word for the bird. Many Americans do not even know that *cock* is another word for a rooster. British speakers have not gone quite so far, but many now prefer the derivative *cockerel* for the bird.

Excretion is even worse. Our native English words for excretion are now widely regarded as crude to the point of obscenity, and even such Latinate words as *urinate* are too offensive for ordinary use, with the result that euphemisms come and go in this domain at a brisk pace. Our friend Jessica is not going to excuse herself by saying 'I have to urinate', nor, unless drunk, will she explain 'I have to piss'. Her mother might have said 'I have to powder my nose', or even 'I have to use the little girls' room', but these dated euphemisms are now no more than jokes. With people she doesn't know well, especially old people, Jessica will probably settle for something innocuous like 'Will you excuse me?' or 'I'll be back in a minute'. With close friends, though, she will very likely resort to nursery language (a common source of euphemisms) and announce 'I have to wee'.

Taboo can apply in other areas of the vocabulary. English *bear* (the animal) is related to the colour term *brown* and originally meant merely 'the brown one', and the Russian word for 'bear', *mēdvedev*, means literally 'honey-eater'. In both languages these curious words completely replaced an earlier name for the bear, and it is thought that this happened because the original name became taboo: presumably the bear was regarded with such awe by our remote ancestors that they could not bring themselves to utter its name, and resorted instead to euphemisms. Southern European languages show something similar with foxes: earlier names for the fox have been frequently replaced by curious new terms, many of

them derived from personal names. For example, in part of Spain the fox is called *el garcía*, from the familiar Spanish surname, and the standard French name for the animal is *renard*, derived from the personal name *Reginhard*.

Something of an extreme in tabooing is found in Australia. To begin with, every Australian language has a special **avoidance style** that must be used in the presence of certain relatives; these relatives always include a man's mother-in-law, and hence avoidance styles are sometimes called **mother-in-law language**. Mother-in-law language uses different words from ordinary speech: in this circumstance the everyday words are taboo. In some languages, only certain words are tabooed and replaced; in others, the *entire* vocabulary of the everyday language is replaced by different words, even pronouns and numerals. So far, this has nothing to do with language change, but there's more. In all indigenous Australian languages, when a person dies, his name becomes taboo, and not just his name, but all words similar in sound to his name. For example, when a man named *Djâyila* died in 1975, the common verb *djâl* 'want' became taboo in his community, and was replaced by *duktuk*-, apparently borrowed from a neighbouring language (native Australians are traditionally multilingual). Likewise, in about 1950 a man called *Ngayunya* died, and consequently the pronoun *ngayu* 'I' was tabooed in his community, and replaced by *nganku*, borrowed from the mother-in-law language; ten years later, another death made *nganku* itself taboo, and some speakers therefore revived *ngayu*, while others, with a knowledge of English, simply borrowed *mi* from English. (In Australia, obviously, speakers have no hesitation in borrowing even the most basic words when the need arises.) We will look again at taboo-avoidance strategies, on this occasion with Bantu languages, in [Chapter 11](#).

There is one type of euphemism that derives, not from taboo, but from a simple desire to be polite, and it involves the extension of a flattering word to cases where it is not literally appropriate. The English word *gentle* once meant 'of good birth', and hence a *gentleman* was a man who was well born, a man of quality. Over time, this word has come to be extended to any man, of whatever background, who is courteous and honourable, who knows how to behave in polite society, and this is still its most frequent sense. In some circumstances, however, it is extended further and applied to any man at all, as when you begin a speech with *ladies and gentlemen*, or when you say to a shop assistant *This gentleman is ahead of me*. The Spanish word *caballero* has had a similar history. Derived from *caballo* 'horse', it originally meant only 'horseman'. But, since only people of a certain social position could afford to own horses, *caballero* came to mean first 'knight, nobleman' and then 'man of quality, gentleman' (in the earlier English sense). Today, however, if you visit Spain, the first place you will encounter the word will almost certainly be in the form of *Caballeros* written on the door of a public toilet.

It is not always easy to understand why a word changes its meaning. The word *realize* formerly meant 'make real', and still sometimes does, as in *She finally realized her childhood ambition*. But the word has acquired two new senses: 'understand', as in *I realize that time is short*, and 'come to understand', as in *She suddenly realized that she had forgotten her keys*. It is not at all obvious how this change could have occurred, since the new senses actually require a different construction (a *that*-complement clause) from the old sense (a simple transitive construction). The change in meaning has been so dramatic that few people are now aware that *realize* is related to *real*. Certain types of semantic change, while not always easy to understand, are so frequent that they are given specific names; among these are **generalization** (or **broadening**) and **specialization** (or **narrowing**). Generalization is the spread of meaning from a narrower to a broader class of things. The word *dog* once denoted only a particular type of canine, but now it is our generic term

for all canines. Our word *arrive*, a loan from French, formerly meant ‘come to shore’, but now means more generally ‘come (to a place)’. The Basque word *akats* formerly meant only ‘nick, scratch’, but today it is used to mean ‘defect’ (of any kind). Specialization is the opposite change. Formerly, *girl* meant ‘young person (of either sex)’, but now it denotes only a young female person. The word *deer* once meant ‘animal (in general)’, but can now be applied only to a cervine animal; *hound* originally meant ‘dog’; now it means (mainly) ‘dog used in hunting’ (and *dog*, of course, has taken its place). The word *meat* formerly meant ‘food’ (as it still does in some Scottish dialects and the archaic phrase *meat and drink*), but otherwise it now means only ‘flesh food’. Curiously, specialization appears to be far more frequent than generalization.

Two other named types of semantic change are **melioration** and **pejoration**. Melioration is an ‘improvement’ in meaning. The words *queen* and *knight* formerly just meant ‘woman’ and ‘boy’, but today these terms are applied only to people occupying certain exalted positions. Pejoration is the opposite: the word *knave* also once meant only ‘boy’, but then came to be demoted to a term of abuse. All of the words *villain*, *churl* and *boor* once meant merely ‘farm-worker’ (and the last two had already dropped in rank from the quite high status ‘free farmer’), but, no doubt because of the city-slicker’s habitual contempt for his unsophisticated country cousin, all three have likewise become purely insults. Something similar is now happening to the word *peasant*: we can still refer to impoverished Third World farmers as ‘peasants’ without intending any slight, but we can equally say *You peasant!* when we want to insult someone. The word *mistress* was once a respectful term for addressing any woman, on a par with *mister* for men, but now it only means ‘woman kept by a man for sexual purposes’; this change has left the old abbreviation *Mrs* in the embarrassing position of being an abbreviation for nothing.

This last example illustrates a fact about semantic change that feminists understandably find very annoying: words pertaining to women undergo pejoration far more frequently than do words pertaining to men. Consider a brief list of words for men and women which were once entirely parallel:

master	mistress
sir	madame
governor	governess
bachelor	spinster
courtier	courtesan
working man	working girl

In each case, the word denoting the woman now represents some position at least much less important than the male term (*governess*) and possibly insulting or humiliating (*spinster*); very often the female term now means something like ‘woman available for sex’. Some words even have different senses when applied to men and to women. In American English, at least, when you describe a man as a *pro* you mean that he is experienced, competent, and reliable; when you describe a woman as a *pro* you mean she’s a prostitute. The frequency of such developments is a clear reminder of the longstanding subordinate position of women in our society.

One of the commonest of all types of semantic change is **metaphor**: applying a word to something it does not literally denote in order to draw attention to a resemblance. Metaphor is so frequent that it might reasonably be taken as the paradigm type of semantic change.

Our word *head* originally just meant the part of the body on top of the shoulders. But, since this is both the highest part of the body and the part that is perceived as being in charge of the whole body, *head* has come to be used as a metaphor for all kinds of things and people that are high, in front, in charge or just rather round: we speak of the *head* of a valley, the *head* of a nail, the *head* of a large corporation, the *head* of a flower, the *head* of a school, the *head* of a river, the *head* of a tape recorder, a *head* of garlic or cabbage and so on. Grammarians talk about the *head* of a construction. Body-part names are particularly subject to metaphorical use: we speak of the *eye* of a needle or of a hurricane, the *mouth* of a river, a cave or a jar, a *hand* of bridge, a *neck* of land, the *foot* of a mountain, the *teeth* of a comb and so on.

The Latin ancestor of our word *precocious* meant ‘ripening early’ and was applied to fruit; we have applied this term metaphorically to children who develop earlier than most. Our verb *govern* derives from a Latin verb that meant only ‘steer’ or ‘pilot’ (a boat); the metaphor here is obvious. The Romans themselves took their word *expressio* ‘squeezing out’, a word applied to activities such as squeezing oil out of olives, and extended it metaphorically to the ‘squeezing out’ of meanings from speech – hence our word *expression*, borrowed from Latin. Our word *field* originally denoted a fairly well-defined piece of land; today we commonly also use it metaphorically for a fairly well-defined area of activity: *She’s a leading scholar in her field*. And any reader who has studied a little syntax will be familiar with the two types of metaphors used in describing sentence structures: arboreal ones like *tree*, *root*, *branch* and *node*, and kinship terms like *mother*, *sister* and *daughter*. Almost any sort of resemblance, real or imagined, may cause a word to be pressed into service as a metaphor. An outstanding performer is a *star*; a person who publicly declares homosexuality *comes out of the closet*; small football teams facing powerful opponents are *minnows*; a defective car is a *lemon*; a political leader who no longer exercises effective power is a *lame duck*; an overwhelming winner has *demolished* or *shredded* the opposition; a terrified person is *petrified*; austere economic policies *bite*. A slovenly, a cunning, a rapacious, a capricious or a timid person may be described as a *pig*, a *fox*, a *wolf*, a *butterfly* or a *mouse*, reflecting the presumed characteristics of these creatures. The word *hot* can be applied to a currently fashionable or successful performer, to stolen money or goods, to an intense shade of red or pink, to a bad-tempered argument or discussion, to a sexually inviting woman (there we go again!), to spicy food, to a hard-hit ball, to recent and dramatic news, to an exciting style of jazz, to a live electrical wire, to a recent trail left by a game animal or a fugitive and doubtless to many other things; in each case, you can probably see the resemblance to heat that makes the metaphor possible.

Somewhat different from metaphor, but also common, are metonymy and synecdoche. **Metonymy** is the use of an attribute to denote the thing that is meant, as when we speak of the *crown* instead of the king (or the queen), when we say the *stage* to mean the theatrical profession, or when we say the *White House* to mean the American president – or, for that matter, when we say *anorak*, meaning ‘nerd’. Metonymy can be very deeply ingrained in our speech: if I say to you ‘I have to hurry; I’m parked on a double yellow line’, I certainly don’t mean that *I* am parked illegally, but rather that my car is. A metonymy may persist long after its motivation is forgotten: everybody knows what a *red-light district* is, but few people realize that the name derives from the former practice of putting red lamps in the windows of brothels to identify them. **Synecdoche** is the use of the whole to denote a part, or of a part to denote the whole. We say ‘Ireland play Italy in the first round of the World Cup finals’ when we mean only that the football teams representing those countries are meeting. A peculiarity of my part of Scotland is using *I’m* plus the name of

your county, town or village to describe where you're from. Thus, I could say *I'm Renfrewshire* or *I'm Elderslie*. Obviously I'm neither, but people from the area would follow what I meant. No doubt other people would also understand. I might get some strange looks, however. On the other hand, we say *hands* to mean 'workers' or 'sailors', as in 'We need to hire more hands' or 'All hands on deck'.

Metonymy and synecdoche are pervasive in certain fields, such as politics and diplomacy, but they are not rare elsewhere. We say *Downing Street* for the British prime minister and his political and administrative apparatus, *Brussels* for the administration of the EU, the *Quai d'Orsay* for the French Foreign Office, *Foggy Bottom* for the US State Department, *Scotland Yard* for the metropolitan London police, *Anfield* for Liverpool Football Club and *Washington* for the American government, all from their locations, although the London police have not actually been located in Scotland Yard for many years now.

Observe that, in many cases, a new meaning for a word may coexist happily with its older meanings. This does not always happen, however; in other cases the new meaning may completely displace an older meaning. This has happened, for example, with the words *with*, *cheer*, *ascertain* and *explode*, discussed above, and the same thing is probably going to happen with *disinterested*. In certain cases, a new meaning may drive out an older meaning very rapidly. This particularly happens when the new meaning is offensive, or at least capable of producing embarrassing misunderstandings if confused with the old meaning. We have already seen this with *intercourse*, whose new sexual sense has virtually driven the old neutral sense out of the language. This phenomenon is sometimes called **interference**, but some linguists, with mock seriousness, invoke what they call **Gresham's law of semantic change**, which asserts 'Bad meanings drive out good' (the field of economics has a Gresham's law that declares 'Bad money drives out good'). Interference is, however, more general than this light-hearted 'law' would suggest. Old English had the two verbs *laetan* 'allow, permit' and *lettan* 'hinder, obstruct', and both of these developed into the modern form *let*. Having identical verbs meaning 'allow' and 'hinder' was obviously a serious nuisance, and so we have dropped the one meaning 'hinder'. Today the verb *let* means only 'allow', although the other verb barely survives as the related noun *let* 'obstruction', which is confined to legal language (*without let or hindrance*), to certain sports, such as tennis and squash (a *let* is an obstruction of the serve or of a stroke) and in the now rather archaic British colloquialism *French letter*, 'condom'.

You will note that my discussion of semantic change has been somewhat anecdotal, and you may be wondering whether there are any principles involved. Certainly there are some interesting observations to be made. One of these is the metaphorical use of body-part names, discussed above. Another is the curious tendency of words denoting parts of the face to 'move around': for example, Latin *maxilla* 'jaw' has become *mejilla* 'cheek' in Spanish, and English *chin*, Old Norse *kinn* 'cheek' and Old Irish *gin* 'mouth' all derive from the same source.

But there have, in fact, been some attempts at identifying general principles of semantic change. In a famous article in his 1926 book, Meillet proposed three principles of semantic change. One of these is merely the occurrence of change in the world, which we have already discussed above with examples such as *tennis* and *car*. A second is change in linguistic context. This includes the cases of taboo that we have already discussed, in which new euphemisms are pushed into contexts in which they did not formerly occur, while older terms became relegated to undeniably vulgar contexts. But it also includes other types of cases, such as the narrowing of *cheer* from 'state of mind' to 'good state of mind' as a result of its frequent occurrence together with adjectives like *good*.

Meillet's third principle is change resulting from borrowing, in those cases in which a loan word induces a shift in the meaning of an earlier word. Here is an example of what he means. The Old English word *dōm* referred to any kind of judgement: civil, criminal or divine. In the aftermath of the Norman seizure of power in England in 1066, the existing Anglo-Saxon words for the legal and political process were replaced almost entirely by French words, one of which was the ancestor of Modern English *judgement*. In circumstances of this type, one of three things is likely to happen: the native word will force out the borrowed word, the borrowed word will force out the native word or both words will remain but with different meanings. It was, of course, the last of these alternatives which happened with English. *Doom* became associated primarily with divine judgement, while *judgement* became associated with civil and criminal judgement (although a judge would have pronounced someone's *doom* when giving a death sentence). Of course, over time, *judgement* has gradually trespassed upon *doom*'s semantic field, to the extent that *Judgement Day* is now probably more common than *Doomsday*. *Doom*, on the other hand, has gradually become more intimately connected to an individual's or a collective's fate.

Meillet's views have been developed and refined in the work of Traugott (1982, 1989). Traugott suggests three tendencies in semantic change, slightly reworded here:

Tendency I: external descriptions of reality become internal descriptions of perceptions and evaluations. Cases like the semantic shift of *boor* 'farmer' to 'oaf' illustrate this tendency, as does the observation that English *feel*, which once meant only 'touch' (an external description), now denotes the perceptions of the person doing the touching.

Tendency II: external and internal descriptions become textual meanings – that is, they acquire meanings that give overt structure to discourse. English *while* formerly meant only 'period of time', as it still does in cases like *Wait for a while*. But it eventually acquired the discourse function of 'the period of time (during which something happens)', as in *While my wife was away, I lived on pizza*. Later still, it acquired the more abstract discourse function of 'although': *While she's very talented, she's somewhat careless*. English *but* originally meant 'on the outside (of)'; it acquired the sense of 'except for', which it still has in a few cases like *everything but the kitchen sink*; today, however, it mostly occurs with the discourse function of contrast: *It's perfect, but it's too expensive*.

Tendency III: meanings become increasingly based in the speaker's subjective beliefs and attitudes. Here are several examples. The word *apparently* originally meant 'openly, in appearance'. It then acquired a weak sense of evaluation: 'to all appearances'. In the nineteenth century, it acquired the strong sense of evaluation of evidence which it now has, as in *She is apparently determined to pursue this*. Similarly, *probably* once meant only 'plausibly, believably', but today it also expresses the speaker's evaluation of evidence: *She is probably going to be promoted*. The verb *insist* originally meant 'persevere, continue'. In the seventeenth century it acquired a new sense of 'demand', as in *I insist that you come home early*. A century later, it acquired the sense of 'believe strongly': *I insisted that a mistake had been made*.

What all three tendencies have in common is a movement away from the external and the objective toward the discourse-internal and the subjective. Traugott's observations suggest that such movement is a pervasive force in semantic change, and they further suggest that there are indeed important general principles of semantic change that we are only beginning to understand.

Case study: *nice*

It's all very well for me to say that a word has changed meaning over time. But beyond our own experiences, how can we tell? The answer, as with so much historical linguistics, is that we don't *know*, in the sense that I know my home telephone number. What we can do, however, is combine a solid theoretical understanding of how language changes with, wherever possible, a corpus with both historical depth and synchronic breadth. From this we can, with considerable accuracy, construct a model for how the meaning of a particular word or phrase changed.

With English we are particularly lucky in having the *Oxford English Dictionary*, a multi-volume analysis of the corpus of English since the medieval period (words that occurred only in Old English and are not recorded after around 1250 do not appear in the *OED*). Like all dictionaries, the *OED* is not perfect. There is little doubt that (normally minor) errors have been committed. Unfortunately, however, its pronouncements (or rather their distillation in the smaller Oxford dictionaries) are often taken as absolute authority. This is not something that any lexicographer worth his or her salt would wish to happen. But bearing this caveat in mind, it is still one of the most impressive achievements in the field since the nineteenth century.

How do historical dictionaries help us to follow the ways that meaning changes? A 'nice' example to demonstrate this is by choosing a word that is notoriously difficult to define: *nice*. The following represents the general senses of the word over time, as defined by the editors of the *OED*, as well as the time when they determine that the word was first recorded with that meaning and, when appropriate, its last recorded use with that meaning. I have laid it out to follow that dictionary's practice as much as possible. We don't have the space to give examples for the various senses; this has been done by the *OED*, however. I have expanded most of the abbreviations. *Before* in the *recorded* section may sound unacceptably vague. Not so, however: we don't know precisely when a particular work was written, but it must have been before that particular author's death. We are talking, therefore, about a relatively circumscribed time-period.

So, with the analysis of one of the most impressive historical dictionaries in front of you, try now to reconstruct how *nice* came to mean what it does today. The † indicates that that particular meaning is now obsolete.

- †1. a. Of a person: foolish, silly, simple; ignorant. *Obsolete*. Recorded: c.1300–1617. b. Of an action, utterance, etc.: displaying foolishness or silliness; absurd, senseless. *Obsolete*. Recorded: before 1390–before 1657.
- †2. a. Of conduct, behaviour, etc.: characterized by or encouraging wantonness or lasciviousness. *Obsolete*. Recorded: before 1387–1665. b. Of a person: wanton, dissolute, lascivious. *Obsolete*. Recorded: before 1393–1605. c. Of dress: extravagant, showy, ostentatious. Also in extended use. *Obsolete*. Recorded: 1395–before 1771. d. Of a person: finely dressed, elegant. *Obsolete*. Recorded: c.1400–1540.

3. a. Precise or particular in matters of reputation or conduct; scrupulous, punctilious. *Now rare*. Recorded: c.1387–95. b. Fastidious, fussy, difficult to please, esp. with regard to food or cleanliness; of refined or dainty tastes. Recorded: c.1400–. †c. Particular, strict, or careful with regard to a specific point or thing. *Obsolete*. Recorded: 1584–1861. d. Refined, cultured; associated with polite society. Recorded: 1588–. †e. Fastidious in matters of literary taste or style. *Obsolete*. Recorded: 1594–1841. f. Respectable, virtuous, decent. *Now sometimes hard to distinguish from sense 14c (of a person)*. Recorded: 1799–. g. Of a topic of conversation, mode of conduct, etc.: in good taste, appropriate, proper. Usually in negative contexts. Recorded: 1863–.
- †4. a. *In early use*: faint-hearted, timorous, cowardly, unmanly. Later also: effeminate. *Obsolete*. Recorded: before 1393–1703. b. Slothful, lazy, sluggish. *Obsolete*. Recorded: before 1398–1604. c. Not able to endure much; tender, delicate, fragile. *Obsolete*. Recorded: c.1450–1813. d. Pampered, luxurious. *Obsolete and rare*. Recorded: 1621–1720.
- †5. Strange, rare, extraordinary. *Obsolete*. Recorded: c.1395–1703.
- †6. a. Shy, coy, (affectedly modest); reserved. *Obsolete*. Recorded: before 1400–1823. b. Shy, reluctant, or unwilling in regard *of* or *to*. Also with *in* or infinitive. *Obsolete*. Recorded: before 1560–1699.
7. That requires or involves great precision or accuracy. *Now rare*. Recorded: before 1522–.
8. a. Not obvious or readily understood; difficult to decide or settle; demanding close consideration; †intricate (*obsolete*). Recorded: before 1522–. b. Minute, subtle; (of differences) slight, small. Recorded: 1561–. c. Precise in correspondence; exact, closely judged. Recorded: 1710–.
- †9. a. Slender, thin, fine; insubstantial. *Obsolete*. Recorded: 1567–1749. b. Unimportant, trivial. *Obsolete*. Recorded: before 1594–1684.
10. †a. That enters minutely into details; meticulous, attentive, sharp. *Obsolete*. Recorded: 1589–1864. b. Of the eye, ear, etc.: able to distinguish or discriminate to a high degree; sensitive, acute. Recorded: 1593–. c. Delicate or skilful in manipulation; dexterous. Also figurative. Recorded: before 1631–. d. Of judgement, etc.: finely discriminative. Recorded: 1697–.
- †11. a. Critical, doubtful; full of risk or uncertainty. *Obsolete*. Recorded: 1598–1822. b. Requiring tact, care, or discrimination in handling. *Obsolete*. Recorded: 1630–1858.
12. a. Minutely or carefully accurate. Recorded: 1600–. †b. Of an instrument or apparatus: capable of showing minute differences; finely poised or adjusted. *Obsolete*. Recorded: before 1628–1875.
13. Of food or drink: dainty, choice; (later in weakened sense) tasty, appetizing; refreshing, restorative. Recorded: 1709–.
14. a. That one derives pleasure or satisfaction from: agreeable, pleasant, satisfactory; attractive. 1747–. b. Used as an intensifier with a predicative adjective or

adverb in *nice and* —, sometimes *ironically*. Recorded: 1796–. c. Of a person: pleasant in manner, agreeable, good-natured, attractive. Recorded: 1797–. d. Used *ironically*. Recorded: 1798–. e. Kind or considerate in behaviour; friendly (towards others). Frequently in *to be nice to*. Recorded: 1830–. f. Of a (finished) action, task, etc.: well-executed; commendably performed or accomplished. Now frequent in interjections, as *nice going!*, *nice try!*, *nice work!*. Also used ironically. Recorded: 1830–. g. colloquially *nice one*: expressing approval or congratulations for something done well. In later use also *ironically*. Recorded: 1973–.

An easy task? Well, actually, no. There is a lot of detail to take in and a great deal of material whose meanings appear to contradict other meanings found for the word. Indeed, it is one of the great ironies of semantic change that *nice*, arguably among the most semantically *bleached* of English words, should, some 300 years ago or so have been generally associated with precision! Another striking point is that an opposition between the word being used in a positive or negative light has been present since its first attestations (although nowadays this opposition is primarily expressed through the ironic use of the word in its positive sense in negative contexts).

Let's see if we can construct a pattern from the complex evidence. In the first place, we should note that the original 'silly' meanings include reference to a number of extravagant connotations and that these are, inevitably, connected to dress. But one person's extravagance in dress is another's elegance. It is relatively straightforward to see how an initially negative set of associations can become positive.

Another example of this can be seen in the ways in which elegance of dress becomes associated with preciseness of behaviour and, fairly quickly, strictness of thought, particularly when we recognize in meaning 3b this type of behaviour being treated in a much less favourable light, as it is in a range of other meanings, such as 5, 7, 8, 10, 11 and 12. This correctness of behaviour can also be interpreted – again showing Traugott's ideas to be insightful – as leading to the approval of particular character traits, such as respectability (meaning 3f) or reservedness (meaning 6a) (although, again, negative associations for these traits are also given).

The combination of these two traits – elegant dress and respectable behaviour – come together in the eighteenth century, where the word is also used for food and drink which is 'dainty' or 'choice' (meaning 13) and, indeed for anything 'one desires pleasure or satisfaction from' (meaning 14). In other words, the word can be used as a rather vague adjective of approval for any being or thing. This is now the dominant meaning of *nice*.

A couple of points to ponder with this example:

1. Why do you think it's possible for such a common word to have gone through so many changes in meaning in such a short time?
2. To what extent is it possible for us to carry a number of different meanings for a single word in our memories at the same time?

Further reading

There are many books on loan words in English; particularly detailed is Sheard (1966), while Manser (1988) is rather light-hearted. Most histories of English include chapters or sections on the same subject; try Strang (1970), Williams (1975), Baugh and Cable (2013) or Pyles *et al.* (2014). A classic book on contact between languages generally is Weinreich (1953); a more modern discussion can be found in Thomason (2001), of which more in [Chapter 11](#).

Two readable books on English word-formation are Adams (1973) and Bauer (1983). An approachable but more linguistically demanding book on the English vocabulary generally, including both loan words and word-formation, is Katamba (1994).

It is more difficult to find detailed accounts of changes in meaning, but the four histories of English just cited all have something to say about it. Several other textbooks of historical linguistics have chapters or sections on semantic change that you might find it helpful to consult: Bynon (1977), Anttila (1988), Lehmann (1992), Hock and Joseph (1996), Campbell (2013) and especially the very large Hock (1986). Much more substantial accounts can be found in Stern (1931) and Ullmann (1961). Sommerfelt (1962) emphasizes the sociolinguistic aspect of semantic change. Although Traugott and Dasher (2002) is an excellent study, Traugott (1982) and (1989) are still difficult to beat in terms of an attempt to describe semantic change.

I mention here a book that you should certainly get acquainted with if your interests lie chiefly in the Indo-European (IE) languages (the vast family of languages to which English belongs): Buck (1949). This book presents the words expressing a given meaning in dozens of IE languages, and it provides a wealth of data on semantic change and lexical replacement.

Exercises

Exercise 2.1

Consulting a dictionary that provides sources of English words, identify the language from which each of the following words is borrowed and, if possible, the approximate time it was borrowed. In some cases, you may find that the word is taken *ultimately* from one language but *directly* from another: that is, it was borrowed from one language to another to another.

- | | | |
|----------------|------------|--------------|
| (a) soprano | (f) celery | (k) sauna |
| (b) coach | (g) lemon | (l) caviar |
| (c) palaver | (h) tulip | (m) mustard |
| (d) sex | (i) tea | (n) cinnamon |
| (e) juggernaut | (j) yacht | |

Exercise 2.2

A few of the very numerous derivational suffixes of Basque are illustrated below. In each case, identify as accurately as you can the function of each suffix. Ignore any phonological alternations.

(a) -te			
<i>negu</i>	'winter'	<i>negute</i>	'wintertime'
<i>legor</i>	'dry'	<i>legorte</i>	'drought'
<i>aintzina</i>	'before'	<i>aintzinate</i>	'antiquity'
<i>izotz</i>	'ice'	<i>izozte</i>	'(a) frost'
(b) -keta			
<i>saldu</i>	'sell'	<i>salketa</i>	'sale'
<i>ibili</i>	'go about'	<i>ibilketa</i>	'(a) walk'
<i>garbitu</i>	'(to) clean'	<i>garbiketa</i>	'clean-up'
<i>ikasi</i>	'(to) study'	<i>ikasketa</i>	'study(ing)'
(c) -gaitz			
<i>aldatu</i>	'change'	<i>aldagaitz</i>	'invariable'
<i>sinetsi</i>	'believe'	<i>sinesgaitz</i>	'incredible'
<i>barkatu</i>	'forgive'	<i>barkagaitz</i>	'unforgivable'
<i>ulertu</i>	'understand'	<i>ulergaitz</i>	'incomprehensible'
(d) -kor			
<i>ahaztu</i>	'forget'	<i>ahazkor</i>	'forgetful'
<i>aldatu</i>	'change'	<i>aldakor</i>	'variable'
<i>hil</i>	'die'	<i>hilkor</i>	'mortal'
<i>eman</i>	'give'	<i>emankor</i>	'fertile'

What do you suppose are the meanings of the following additional Basque words?

<i>euri</i>	'rain'	<i>eurite</i>	?
<i>gose</i>	'hungry'	<i>gosete</i>	?
<i>zapaldu</i>	'oppress'	<i>zapalketa</i>	?
<i>erosi</i>	'buy'	<i>erosketa</i>	?
<i>ikusi</i>	'see'	<i>ikusgaitz</i>	?
<i>eskuratu</i>	'obtain'	<i>eskuragaitz</i>	?
<i>sinetsi</i>	'believe'	<i>sineskor</i>	?
<i>iragan</i>	'pass'	<i>iragankor</i>	?

Exercise 2.3

None of the English words below is strictly a loan word; each has been either constructed from English elements or obtained in a slightly unusual way. Consulting a good dictionary where necessary, explain the origin or formation of each; comment on any unusual features and, if possible, on the degree of productivity of the pattern. Be alert; some of these have more complex origins than might at first seem to be the case.

- | | |
|------------------|------------------------|
| (a) quixotic | (e) carbon-date (verb) |
| (b) eco-friendly | (f) noodle western |
| (c) software | (g) fattist |
| (d) ongoing | (h) magenta |

- | | |
|--------------------------|---------------------|
| (i) skyjack | (o) nosebleed |
| (j) astronaut | (p) dreads (hairdo) |
| (k) megalopolis | (q) callanetics |
| (l) she-goat | (r) vandal |
| (m) see-through (blouse) | (s) fax |
| (n) cardigan | (t) grok |

Exercise 2.4

Choose two passages each of around 100 words from two very different sources – say, a chemistry textbook and a popular newspaper. Using a dictionary, find out the origin of each word. For each passage, classify the words by origin, using such categories as ‘native English’, ‘Old Norse’, ‘Greek’, ‘Latin’, ‘French’ and ‘others’ (some words may be difficult to classify, but do your best). Count the words in each category, and calculate the percentage of words in the passage from each source. Important: count each different word only once, no matter how many times it occurs. Compare the results for the two passages. What conclusions can you draw?

Exercise 2.5

Each of the following is a quotation from a piece of English written three or four centuries ago. In each one, the word in boldface has changed its meaning rather conspicuously since that time. Consulting a dictionary where necessary, identify the earlier meaning represented in the extract. Where possible, comment on why the meaning change might have occurred.

- Doth she not count her blest ... that we have wrought so worthy a gentleman to be her **bride**? [Shakespeare, *Romeo and Juliet*]
- Thus we **prevent** the last great day, and judge ourselves. [Herbert, ‘The temple’]
- The exception **proves** the rule. [Proverb]
- If I attain I will return and **quit** thy love. [Arnold, ‘The light of Asia’]
- My ships are safely come to **road**. [Shakespeare, *The merchant of Venice*]
- I dreamt a dream **tonight**. [Shakespeare, *Romeo and Juliet*]
- So said she, and forebore not glance or **toy**, of amorous intent, well understood of Eve. [Milton, *Paradise lost*]
- This God is most mighty thing that may be, the most **witty** and most rightful. [*Lay folks’ catechism*]

Exercise 2.6

Each of the following Japanese words is a loan from English, and each has been modified to make it conform to the phonological structure of Japanese. Try to identify the English word that has been borrowed in each case. In the transcriptions used, <j> = [dʒ], <y> = [j], <sh> = [ʃ] and <ch> = [tʃ]; other symbols have approximately their usual phonetic values in the International Phonetic Alphabet (IPA). Here are a few examples to get you started: *jampaa* = ‘jumper’, *waffuru* = ‘waffle’, *miruku* = ‘milk’, *appuru pai* = ‘apple pie’. Note that Japanese *u* and final *o* are rather weakly pronounced. What conclusions can you draw about the phonological system of Japanese?

- | | |
|----------------------------|--------------------------|
| (a) <i>aisu kuriimu</i> | (m) <i>purezento</i> |
| (b) <i>torakku</i> | (n) <i>firumu</i> |
| (c) <i>kompyuutaa</i> | (o) <i>burondo</i> |
| (d) <i>gaarufurendo</i> | (p) <i>herikoputaa</i> |
| (e) <i>uetto suutsu</i> | (q) <i>hambaagaa</i> |
| (g) <i>nambaa pureeto</i> | (r) <i>sukaafu</i> |
| (h) <i>masukara</i> | (s) <i>teeburu</i> |
| (i) <i>tii-shatsu</i> | (t) <i>ai-rainaa</i> |
| (j) <i>basuketto booru</i> | (u) <i>doraiyaa</i> |
| (k) <i>saamosutatto</i> | (v) <i>shiito beruto</i> |
| (l) <i>eya-hosutesu</i> | (w) <i>erohikku</i> |

Exercise 2.7

About 2,000 years ago, an ancestral form of Basque, which I will call *pre-Basque*, came into contact with Latin, and a large number of Latin words were borrowed into pre-Basque. Table 2.3 shows some examples. The Latin forms are cited in what scholars believe to have been the spoken Latin forms of the time; note that Latin <c> and <g> invariably represent [k] and [g]. The Basque forms are given in their modern standard form; note that Basque <z> represents a voiceless sibilant [s]. What would you suggest might have been true of the plosive system in pre-Basque?

Table 2.3 Latin /c/ and /g/ in words borrowed by Basque

	Latin	Basque	Gloss
1.	<i>ballaena</i>	<i>balea</i>	'whale'
2.	<i>dominica</i>	<i>domeka</i>	(L) 'of the Lord', (B) 'Sunday'
3.	<i>domine</i>	<i>done</i>	(L) 'lord', (B) 'saint'
4.	<i>denariu</i>	<i>diru</i>	(L) 'denarius', (B) 'money'
5.	<i>granu</i>	<i>garau</i>	'grain'
6.	<i>gula</i>	<i>gura</i>	'desire'
7.	<i>gypsu</i>	<i>gisu</i>	'plaster'
8.	<i>pace</i>	<i>bake</i>	'peace'
9.	<i>pice</i>	<i>bike</i>	'pitch'
10.	<i>peccatu</i>	<i>bekatu</i>	'sin'
11.	<i>piper</i>	<i>biper</i>	'pepper'
12.	<i>tempora</i>	<i>denbora</i>	(L) 'times', (B) 'time'
13.	<i>causa</i>	<i>gauza</i>	(L) 'reason', (B) 'thing'
14.	<i>cella</i>	<i>gela</i>	(L) 'chamber', (B) 'room'
15.	<i>corpus</i>	<i>gorputz</i>	'body'
16.	<i>ludaeu</i>	<i>judu</i>	'Jew'
17.	<i>lege</i>	<i>lege</i>	'law'
18.	<i>rege</i>	<i>errege</i>	'king'
19.	<i>ripa</i>	<i>erripa</i>	'slope'
20.	<i>rota</i>	<i>errota</i>	'mill'
21.	<i>auditu</i>	<i>aditu</i>	'heard'
22.	<i>saccu</i>	<i>zaku</i>	'sack'
23.	<i>succu</i>	<i>zuku</i>	(L) 'juice', (B) 'soup'
24.	<i>necatu</i>	<i>nekatu</i>	(L) 'killed', (B) 'exhausted'
25.	<i>sabbatu</i>	<i>zapatu</i>	(L) 'Sabbath', (B) 'Saturday'
26.	<i>abbas</i>	<i>apaiz</i>	(L) 'abbot', (B) 'priest'

Phonological change I: change in pronunciation

All types of change in pronunciation are collectively known as **phonological change**, or, using a more traditional term, as **sound change**. Phonological change has been more intensively studied than any other type of language change; after nearly 200 years of scholarly investigation, we now know a great deal about the subject.

Here I find it convenient to divide the study of phonological change into two chapters, each looking at the subject from a different point of view. This [first chapter](#) deals with **syntagmatic change**: change in the sequence of speech sounds representing the pronunciation of a particular word or, more accurately, of groups of similar words. The next chapter will then go on to consider the consequences of such change for the phonological system of an entire language.

As a result of this long tradition of study, syntagmatic changes have been classified into a number of different types, and these types have been given names in the form of technical terms. You will have to learn these terms, but fortunately the task is not difficult. The great majority of sound changes are phonetically natural: they are easy to understand in terms of the structure and movements of the speech organs and the terms that label various types of change mostly reflect rather directly what the speech organs are doing.

3.1 The phonetic basis of phonological change

If you are reading this book, you should already know something about the organs of speech, about the ways in which they are used to produce speech sounds and about the conventional system for classifying and labelling meaningful sounds. For our purposes, the key point to remember is that the lips, the various parts of the tongue, the velum, the jaw, the larynx and the glottis can be manipulated during speech in ways that are partly independent but also partly interrelated. For example, you can round your lips or not, regardless of what the tongue is doing, but you can't round your lips tightly and keep your jaw lowered at the same time, nor can you produce a trill with your tongue while your mouth is closed. You can produce a uvular plosive or a palatal lateral, but you can't do them one right after the other: the organs just can't be moved fast enough. Moreover, even a possible manoeuvre is of little use if it produces no audible sound: you can certainly open your glottis, make an alveolar closure, lower your velum and expel air through your nasal cavity, but the result will produce nothing that anyone can hear. A great deal of phonological change (although not all of it) can be readily understood in terms of these limitations.

When we speak, we produce a stream of **speech sounds**, or segments, one after the other. Thus, for example, our word *cleaned* is conventionally represented at the phonological

level as a series of English phonemes /kli:nd/, and at the phonetic level by something with more detail included, such as [k^hli:nd]. In each case, the representation shows a series of segments. In fact, we know that these segments are more of a psychological reality than a physical one: physically, the various speech organs are all moving about at their own pace, and they do not all simultaneously and instantly jump from one configuration to another, as you move from one speech sound to the next. Instead, the organs spend a good deal of time moving away from one configuration and towards the next one, leaving and arriving at different times. When you say *cleaned*, for example, the velum is lowered to begin the nasalization required for /n/ well before the tongue is moved up to make the closure also required for that consonant, and the vibration of the vocal folds required for /d/ is stopped some time before the tongue stops making the closure for it.

In spite of such unsynchronized timings, our ears and brains still hear the individual segments that are ‘supposed’ to be there. All this being so, however, you might suspect that small changes in the movements of the speech organs, even small changes in timing, might have significant effects on what is heard, and you would be right: a great deal of phonological change derives merely from such small adjustments in the movements of the organs of speech.

3.2 Assimilation and dissimilation

One of the commonest types of sound change is **assimilation**: the process by which two sounds that occur close together in speech become more alike. This sort of change is easy to understand: moving the speech organs all over the place requires an effort, and making nearby sounds more similar reduces the amount of movement required, and hence the amount of effort. Here is a simple example: the spoken Latin word *nocte* ‘night’, pronounced [nokte], has become *notte* [notte] in Italian, which is a modern form of spoken Latin. The earlier [k] has turned into a [t] by assimilating to the following [t], thus reducing the amount of movement required. This is a case of **total assimilation**: the sound undergoing assimilation has become identical to the influencing sound. Most assimilations, however, are **partial assimilations**: the assimilated sound becomes only more similar, and not identical, to the influencing sound. For example, a town some 50 kilometres north-west of Aberdeen is spelled *Banff*, but pronounced /bʌmf/ (even /bʌmf/ by some local people). The nasal consonant has been retained; its means of articulation has changed, however, so that some of the labial nature of /f/ is already present. This partial assimilation of nasals to labial consonants seems particularly widespread in English. Modern English *hemp* is descended from Old English *hænep* (compare *cannabis*); once the <e> was no longer pronounced, so the argument goes, the /n/ would inevitably become /m/ through labialization. My favourite example of this concerns the name of an ancient town near where I grew up. The town council spells the town *Dumbarton*, while the county spells itself *Dunbartonshire*! The latter is more historically ‘correct’, the first element being Gaelic *dun* ‘fortress’; the present pronunciation, no matter the spelling, has /m/, however.

These are also examples of **contact assimilation**, in which the two sounds involved are directly adjacent, but we also often encounter **distant assimilation**, in which the sounds in question are separated by other sounds. The ancestor of German had a noun *gast* ‘guest’ [gast], whose plural was **gastiz* [gastiz] (the asterisk in this case marks a form that is not recorded, but that linguists are sure must have existed). The back vowel in the plural underwent assimilation to the front vowel in the following syllable, producing a variant **gestiz*

[gestiz]. As a result of other, later, changes, the word comes into modern German as *Gast*, plural *Gäste* [gestə], in which the vowel [e] is written <ä> in order to show the connection with the singular form. Another example of distant assimilation, this time total, is provided by the Latin word for ‘five’. This was originally *[peŋk^we], but the initial [p] underwent assimilation to the later plosive, yielding *[k^weŋk^we], which, after a later vowel change, produced the classical form *quīnque*.

All the examples we have seen so far involve the assimilation of an earlier sound to a later one; this very common type is called **anticipatory assimilation**, or sometimes **regressive assimilation**. But it’s also possible for a later sound to assimilate to an earlier one, and then we speak of **perseverative assimilation** or **progressive assimilation**. For example, the Basque words for ‘side’ and ‘sturdy’ were originally *alte* and *sento*, respectively, and these are still the forms in the eastern dialects. In all other dialects, however, the words have become *alde* and *sendo*: the plosive has been assimilated in voicing to the preceding sonorant. Similarly, the pre-Icelandic words **munθ* ‘mouth’ and **gulθ* ‘gold’ have undergone total perseverative assimilation to yield the modern forms *munn* and *gull*. (A cautionary note: while most linguists use the terms ‘regressive’ and ‘progressive’ as described here, more than a few use them exactly the other way round. I therefore advise you to avoid the use of these terms altogether: the terms ‘anticipatory’ and ‘perseverative’ are unambiguous and should be preferred.)

It is possible for assimilation to operate in both directions at the same time, and here we speak of mutual assimilation. For example, the Basque word for ‘blind’ is *itsu* in most dialects, but the Zuberoan dialect has *ütsü*, where <ü> represents a front rounded vowel. Here the vowel [i] has assimilated in rounding to the following [u], and that [u] has itself been assimilated in frontness to the preceding [i].

Any assimilation can therefore be classified as *partial* or *total*, as *contact* or *distant*, and as *anticipatory* (right-to-left), *perseverative* (left-to-right), or *mutual* (both directions at once). All possible combinations are found, though some are more common than others. Thus, when the word *orangutan* is pronounced (as it often is) *orangutang*, we have an instance of distant total perseverative assimilation. The combination of Welsh *yn* ‘in’ with *Cymru* ‘Wales’ yields *yng Nghymru*, where the [n] of the preposition becomes [ŋ] before the velar plosive and the [k] of the noun becomes a *voiceless* velar nasal [ŋ̥] after the preceding nasal: an instance of partial contact mutual assimilation.

Specialists in particular languages sometimes give distinctive names to particular types of assimilation that are important in those languages. For example, the type of anticipatory vowel assimilation shown in the example of German *Gast/Gäste* above is very important in the Germanic languages, and it is called **umlaut** by specialists in Germanic. As far as possible, I’ll try to avoid using such additional terms.

The opposite of assimilation is **dissimilation**: making sounds more different than they were before. Given what I have said about the naturalness of assimilation, you might wonder why dissimilation should ever occur at all. The explanation lies in what we might call the ‘tongue-twister effect’. One reason why a tongue-twister is hard to say is that our speech organs can get weary of making the same sound (or very similar sounds) repeatedly. This effect occasionally shows up in ordinary speech. For example, the Latin word *arbor* ‘tree’ has become *árbol* in Spanish (another modern form of Latin), in which the second of the two occurrences of [r] has been dissimilated to an [l]. On the other hand, Italian *colonello* ‘colonel’ appears in Spanish as *coronelo*: this time the first of the two occurrences of [l] has been dissimilated to [r]. (Note that English, bizarrely (but perhaps typically), uses the Italian-type spelling but the Spanish-type pronunciation.)

This kind of phenomenon regularly crosses greater linguistic barriers. For instance, the ancestor of Modern German *Herberge*, ‘hostelry’, most readily known by most of us through *Jugendherberge* ‘Youth Hostel’, was borrowed into a number of Romance languages as a word for ‘inn’. In Italian, for instance, the word occurs as *Albergo*. It would, I imagine, need an historical linguist to see the connection. Like all the Romance languages, Italian has gone through periods where [h] has been lost entirely; unlike some of its sisters, however, [h] has not ‘returned’ through borrowing or internal sound development. We can also see that the initial [r] has been altered to [l], while the second has been maintained, possibly as a form of dissimilation. The same thing happened in French. The problem is that the modern outcome of these changes – *Auberge* – has gone through an extra stage where the initial [l] – originally [r] – has been *vocalized*, a common process that can be seen as the assimilation of the consonant to a nearby vowel.

Dissimilation of liquid consonants is particularly common, but other types occur. Early Modern High German *Tartoffel* ‘potato’ is now *Kartoffel*, with the first dental plosive dissimilating from the second by becoming velar/palatal, and in Afrikaans, a distinctive offshoot of Dutch, Dutch [sxo:n] ‘clean’ has become [sko:n], in which the second of two fricatives has been dissimilated to a plosive.

Certain changes can be equally regarded as assimilations and dissimilations, such as the change of Basque *ingiru* ‘vicinity’ (a loan from Latin *in gyru* ‘around’) into *inguru* (now the more widespread form), in which the medial [i] can be regarded either as dissimilating from the preceding [i] or as assimilating to the following [u].

3.3 Lenition and fortition

Another major class of changes is represented by **lenition**, or **weakening**, which affects only consonants. Consonants can be classified as stronger or weaker on several different scales; the symbol ‘>’ here means ‘is stronger than’:

1. geminate > simplex
2. stop > fricative > approximant
3. stop > liquid
4. oral stop > glottal stop
5. non-nasal > nasal
6. voiceless > voiced

Each of these scales has a clear phonetic basis: the first four all reflect differing degrees of obstruction of the airflow in the mouth; the fifth reflects differing degrees of obstruction of the airflow through the nasal cavity; the last reflects differing degrees of distance from a vowel and often also differing degrees of tension in the speech organs. A ‘weaker’ consonant is thus one that involves less articulatory effort than a corresponding ‘stronger’ one, or that is generally less ‘consonantal’ and more ‘vocalic’.

Naturally, speakers, being human, prefer (although normally at most semi-consciously) to make less effort rather than more, and there is an understandable tendency for consonants to shift from left to right along one or another of these scales; this is what we call ‘lenition’. Lenition processes are pervasive, but they occur above all between vowels. The passage from a vowel to a consonant and then back to a vowel again typically involves a great deal of movement of the speech organs, and leniting the consonant generally has the effect of reducing that movement. In effect, the consonant becomes more ‘vowel-like’, and this type

of lenition can therefore be regarded as a kind of assimilation. Here are some examples involving my six scales; the symbol ‘>’ this time means ‘develops into’:

1. Latin *cuppa* ‘cup’ > Spanish *copa* ‘wine glass’
Latin *gutta* ‘drop’ > Spanish *gota*
Latin *siccu* ‘dry’ > Spanish *seco*
Latin *flamma* ‘flame’ > Spanish *llama*
This type of lenition is, for obvious reasons, called **degemination**.
2. Latin *habebat* ‘he had’ > Italian *aveva*
Latin *faba* ‘bean’ > Italian *fava*
The Italian examples illustrate a type of lenition called **spirantization** (conversion to a fricative; *spirant* is an old synonym for *fricative*, and *fricativization*, while used occasionally, is regarded by most linguists as clumsy and ugly).
3. English *wa[t]er* > General American *wa[r]er*
This is the well-known ‘t-tapping’ of American English, in which /t/ and /d/ between vowels develop into the tap [r] and hence the distinctive American pronunciation of words such as *city*, *Betty*, *metal*, *Italy*, *writer*, *rider*, *medal* and *body*. Some accents in Canada, England, Northern Ireland, Australia and New Zealand show the same phenomenon.
4. English *wa[t]er* > London, Glasgow, etc. *wa[ʔ]er*
And this is the equally well-known ‘glottalization’ of intervocalic /t/ in certain urban accents of Britain, and hence the distinctive Cockney and Glaswegian pronunciation of words like *little*, *bottle*, *better*, *city* and *bottom*. The development of an oral stop into a glottal stop is called **debuccalization**, a fancy Latinate word that just means ‘removal of activity from the mouth’. You can see why.
5. Latin *sabanu* ‘covering’ > pre-Basque **zabanu* > Basque *zamau* ‘table-cloth’
(The Basque word is borrowed from Latin.) This is the rarest of my six types in intervocalic position, and the example cited can readily be interpreted as an instance of assimilation of the plosive to the following nasal. This is one type of **nasalization**, a change in which the velum, formerly raised (closed) during a certain segment, comes to be lowered (opened). Later we will be seeing other examples of nasalization.
6. Latin *strata* ‘road’ > Italian *strada*
Latin *lacu* ‘lake’ > Italian *lago*
This type of lenition is called **voicing**, for obvious reasons.

It is possible for lenition to travel more than one notch to the right and to involve more than one of my six scales. Consider some examples of the development of Spanish from its Latin ancestor:

- Latin *cūpa* ‘barrel’ > Spanish *cuba* [kuβa] ‘wine vat’
- Latin *catēna* ‘chain’ > Spanish *cadena* [kaðena]
- Latin *sēcūru* ‘sure’ > Spanish *seguro* [seγuro]

Between vowels, the voiceless plosives of Latin have both become voiced (scale 6) and lenited all the way to approximants (scale 2).

Of course, it is possible for a lenition to continue to the point at which the affected segment disappears entirely, and several of my scales, especially (2), might reasonably have ‘zero’ added at the right-hand end. Such disappearance is called **loss** or **deletion**; here are some examples:

- Old English *hēafod* > English *head*
- Latin *catēna* ‘chain’ > pre-Basque **katena* > Basque *katea*
- Latin *regāle* ‘royal’ > Spanish *real*
- Latin *sedēre* ‘sit’ > Spanish *ser* ‘be’

Lenition and loss are by no means confined to intervocalic position, although they are particularly common there. Here are a few examples in other positions. (Proto-Indo-European (PIE) is the remote ancestor of most European languages.) Word-initially:

- pre-Japanese **pana* ‘flower’ > Japanese *hana*
- PIE **kel-* > English *hill*
- PIE **porko-* ‘pig’ > Irish *orc*
- PIE **sweks* ‘six’ > Ancient Greek *hex*

Word-finally:

- pre-Turkish **dag* ‘mountain’ > **day* > Turkish *dağ* [da:]
- Spanish *mismos* ‘same’ (plural) > dialectal Spanish *mi[h]mo[h]*
- Latin *nos* ‘we’, *vos* ‘you’ > Italian *noi*, *voi*

Note in particular the frequency with which other voiceless consonants develop into [h]. The sound [h] may be regarded as a kind of ‘minimal’ consonant, the last faint trace of anything that could be seen as a consonant at all. Phonetically, of course, [h] is nothing but a voiceless vowel, involving an absolute minimum of articulatory effort. Even a very slight further reduction in that effort will cause the articulation to disappear altogether, and hence [h] is typically a weak and unstable consonant and very frequently it does disappear.

Latin had an [h] in very many words, such as *habēre* ‘have’, *homō* ‘human being’, *honor* ‘honour’, *hōra* ‘hour’, *hortus* ‘garden’, *nihil* ‘nothing’ and *mihi* ‘to me’, but the consonant was completely lost at an early stage, and not one of these [h]s survives in any of the modern forms of Latin (it is true that <h> is sometimes still written today, as in Spanish *honor* and *hora* and French *homme* ‘man’, but this is purely for old times’ sake: these [h]s have been pronounced by no one for 2,000 years). Long after this loss of [h], both French and Spanish acquired a new [h]. Between the fifth and eighth centuries, French borrowed a number of Germanic words with [h], such as *hache* ‘axe’, *houx* ‘holly’, *hibou* ‘owl’ and *haie* ‘hedge’, and [h] thus rejoined the French phonological system, but by the sixteenth century these new instances of [h] were already disappearing, and, in spite of the bitter complaints of purists about ‘h-dropping’, the new [h]s had disappeared by the eighteenth century. Spanish acquired some new instances of [h] from the lenition of [f]: hence Latin *ficu* ‘fig’ became *higo*, *filiu* ‘son’ became *hijo*, *farīna* ‘flour’ became *harina*, and *facere* ‘do’ became *hacer*, and all these words were then pronounced with [h]. As in French, these new [h]s have more recently been lost, and modern Spanish again generally lacks [h], except in a few regional varieties that have retained [h] in this last group of words. However, in many varieties of Spanish spoken in the south of Spain and in Latin

America, the Spanish velar fricative [x], as in *general* ‘general’ [x]eneral, *juego* ‘play, game’ [x]uego, and *hijo* ‘son’ hi[x]o, has been lenited to [h], thus producing yet a third generation of [h]s in the language; it remains to be seen whether these new [h]s will also in turn disappear.

English, of course, has been losing [h]s for centuries. The Old English [h]s in words like *hnutu* ‘nut’ and *hlūd* ‘loud’ were lost centuries ago, and the [h] of *hit* ‘it’ has disappeared more recently (although retained in some Scots dialects). The [h]s in words such as *whine* ([hw]ine) and *where* ([hw]ere) have totally disappeared from England and are now rapidly disappearing from American speech (although they are still very much present in most Scottish and Irish speech): *whine* and *where* are thus becoming homophonous with *wine* and *wear*. We will discuss these developments in more detail in the case study at the end of this chapter. Indeed, very many speakers in England have now lost *all* their [h]s, and hence make no difference between *hair* and *air*, or between *harm* and *arm*. Just as in sixteenth-century France, purists in England constantly decry this ‘sloppy’ *h*-dropping, but there is every reason to suppose that [h] is now on the way out of English, at least in England, and perhaps eventually in the rest of the English-speaking world.

Instances of [h] in native English words generally derive from the lenition of an earlier *[k]: such words as *head*, *heart*, *help*, *hill* and *he* all began with [k] in a remote ancestor of English, spoken somewhere in northern continental Europe, but this [k] was lenited first to [x] and then to [h], and the modern lenition of [h] to zero merely completes a process of lenition stretching over several thousand years. You would doubtless be startled to hear somebody pronounce words like *key*, *kill*, *like* or *brick* with [h] or zero in place of [k], but lenition usually works slowly: there is no guarantee that the [k]s in modern English words will not also be ultimately lenited into oblivion. Indeed, the first faint signs of this have perhaps already appeared. In the English city of Liverpool, word-initial /k/ has become an affricate [kx], and [k] in other positions has been lenited to the fricative [x]. Liverpool speakers famously pronounce *key* as [kx]ey, *kill* as [kx]ill, *like* as li[x], and *brick* as bri[x]. We may here be witnessing the very first stages of a lenition process that, during the next thousand years or so, will once again remove the consonant [k] from the language. A similar development is found in the southernmost dialects of German. As part of a wider set of changes, /g/, in particular in initial position or in a stressed syllable, has come to be pronounced /k/. Standard High German *gehen* ‘go’, pronounced /geən/, would have [k] as initial consonant in the traditional dialects of this region. Original German /k/, as found in words like *Kind* ‘child’, pronounced /kint/ by more northerly speakers, is no longer pronounced as at least a ‘pure’ plosive. In the traditional dialects of Bavaria and all but the most westerly parts of Austria, an affricate [kx] has developed; in south-western Germany and in Switzerland, the original plosive has become a full fricative, [x]. This process is part of a chain shift (of which more in the next chapter); it also represents lenition, however.

Given that lenition is so natural and so frequent (and seemingly also so remorseless), you might begin to wonder why our languages have any consonants left at all. But, of course, lenition cannot be allowed to ravage our consonant systems unchecked: we have to communicate, and we would doubtless find it very difficult to communicate with nothing but vowels. Lenition must, therefore, be opposed by other processes that tend to maintain or restore consonants.

One of these is, obviously, borrowing. Centuries ago, Basque lost *all* instances of intervocalic [n], but since then it has borrowed hundreds of words from neighbouring languages with intervocalic [n], thus to some extent making good the loss. In Italian, intervocalic [b]

was generally lenited to [v] centuries ago, but borrowing has likewise restored intervocalic [b] in this language. Almost all instances of ancestral [k] in English were long ago lenited to [x] and then to [h] or zero, but new instances of [k] were introduced by the devoicing of [g], and later also by the introduction of loan words such as *sky*, *kilt* and *skin* from Old Norse, *carry*, *carrot* and *picture* from Norman French, *kinetic* from Greek, *actor* from Latin and *kayak* from Eskimo; all this has helped to restore the frequency of [k] in English.

In the Basque case, intervocalic [n] was also restored to some extent by a further lenition. Pre-Basque had words with geminate [nn] between vowels; after intervocalic [n] had been lost, these instances of [nn] were then lenited to [n] (scale 1), as in the case of **gonna* > *gon* ‘skirt’. Sometimes lenition can also be employed to express grammatical distinctions. This is particularly common in the Celtic languages. For instance, the plural of Gaelic *beann* ‘woman’ is *mná*.

There are various other processes, both phonological and morphological, which tend to oppose the effects of lenition, and we will be looking at some of them in this chapter and the next two. The most obvious one, however, is **fortition**, or **strengthening**: the evolution of a consonant from right to left on one of my scales.

Fortition is much less frequent than lenition, for the phonetic reasons described above, but it is by no means rare. Here are a few examples illustrating fortition on my six scales:

1. Latin *aqua* ‘water’ [akwa] > Italian *acqua* [akkwa]
 Latin *sapiat* ‘he knows’ > Italian *sappia*
 This type of fortition is **gemination**.
2. Latin *Maius* ‘May’ [majus] > Italian *maggio* [maddʒo]
 Old Norse *þar* ‘there’ [θar] > Swedish *där*
3. Pre-Basque **erur* ‘snow’ > western Basque *edur*
4. No examples found. The development of glottal stop into an oral stop is, at best, extremely rare.
5. Basque *musti* ‘moist’ (borrowed from Occitan, a language of southern France) > *busti* (in most dialects)
 This is **denasalization**.
6. Russian *xl’eb* ‘bread’ > *xl’e*[p]; Russian *sad* ‘garden’ > *sa*[t]
 Russian *drug* ‘friend’ > *dru*[k]
 Such **devoicing** of consonants at the end of a word is extremely common around the world; it might perhaps be regarded as a kind of assimilation to the following silence.

3.4 Addition and removal of phonetic features

As we have seen, most types of phonological change involve the redistribution of phonetic features on segments: a feature is added to a segment or removed from a segment, or it spreads from one segment to another. Certain particular types of such feature rearrangement are so common that they are given individual names; the majority of these can be regarded as varieties either of assimilation or of lenition.

If you have done some phonetics, you will know that the /k/ of English *key* is articulated much farther forward in the mouth than the /k/ of *cold*: because of the following palatal vowel /i/ in *key*, the closure for the /k/ is made closer to the palate, in order to ease the transition. In this case, the **palatalization** of /k/ involves only a minor articulatory adjustment, but palatalization can, and often does, go much further than this.

In an ancestral form of English, the words *cheese*, *child* and *chin* were all pronounced with an initial [k] (compare the German words *Käse* ‘cheese’, *Kind* ‘child’ and *Kinn* ‘chin’, which preserve this ancestral sound), and the word *church* was pronounced with two /k/-sounds (compare Scots *kirk*, borrowed from Old Norse). In these cases, however, the palatalization of the /k/ before a following front vowel (the word for ‘church’ anciently had an /e/ on the end: Old English *cyrice*) went so far that the closure moved all the way to the front of the palate, resulting in the palato-alveolar [tʃ] which we now use in these words. Less obvious is the phonetic motivation for **velarization**, in which the back of the tongue comes to be raised towards the velum during an articulation. In English, there has for centuries been a tendency to velarize the lateral [l] in syllable-final position. Unless you come from Wales, Ireland or the Caribbean, you should be able to notice that the lateral in words like *ball*, *feel*, *field* and *milk* is conspicuously ‘dark’ (velarized). (In fact, if you come from the Scottish Lowlands or North America, you will probably find that *all* your laterals are velarized.) Centuries ago, this velarization of [l], in certain positions, went so far that the consonant lost its alveolar articulation altogether and became a velar glide, more or less a [w]. This is the reason for spellings like *walk*, *talk*, *yolk* and *folk*: the earlier [l] was velarized all the way to [w], and since then the [w] has more or less merged into the preceding vowel. (The same thing happened in *calm* and *palm*, but here many speakers have restored the [l] under the influence of the spelling.) More recently, this process has been continuing: in the south-east of England *all* syllable-final [l]s have been reduced to [w], and a speaker from this area pronounces *ball* as *ba[w]*, *feel* as *fee[w]*, *field* as *fie[w]d* and *milk* as *mi[w]k*. This change is now common in many Central Scots dialects, including my own. Standard Polish has done the same thing to dark [l]s in all positions. The Polish consonant spelled <ł> was formerly a dark [l] but is now pronounced [w], so that *dlugo* ‘for a long time’ is [dwugo], and the city-name *Łódź* sounds something like *woods*.

Lowering of the velum during an articulation is **nasalization**, and this process chiefly affects vowels. Nasalization is most often induced by the presence of a neighbouring nasal consonant, especially a following one: the velum is lowered a little too ‘early’, and the preceding vowel acquires a nasal character. Many English-speakers, particularly in North America, have conspicuous nasalization of vowels before a nasal consonant, in words like *can’t*, *don’t* and *punt*, and it takes only a slight delay in making the alveolar closure for the [n] to disappear altogether. Hence many Americans pronounce these words as [kãt], [dõut] and [pãt] with the nasalization of the vowel solely responsible for distinguishing these words from *cat* [kæt], *dote* [dout] and *putt* [pʌt].

Exactly the same process happened on a massive scale in the history of French: vowels were nasalized before syllable-final [n] or [m], and then the nasal consonant was simply lost. This is the origin of the modern French pronunciations like *pain* ‘bread’ [pɛ̃], *faim* ‘hunger’ [fã], *langue* ‘tongue’ [lõg] and *bon* ‘good’ [bõ]. In this last case, the end result was that two segments – an oral vowel and a nasal consonant – combined into a single segment, a nasal vowel. Effectively, the redistribution of features was so great as to change the number of segments in a word, leading to results that almost belong to the next section. Such a combination of two segments into one is called **fusion**. Fusion is very common in English with sequences like /tj/, /dj/ and /sj/. Do you pronounce *nature* as *na[tj]ure*, with a [t] followed by a yod, or as *na[tʃ]ure*, with a single segment, an affricate? Do you say *e[dj]ucation* or *e[dʒ]ucation*? And is *tissue* for you *ti[sj]ue* or *ti[ʃ]ue*? Does *can’t you* come out as *can’[tj]ou* or *can[tʃ]ou*? The two-segment pronunciation was formerly usual for all of these, but fusion is now probably universal in *nature*, and it is normal for most (not all)

speakers in *education* and *tissue*. With *can't you*, even a single speaker may sometimes use one and sometimes the other. In Czech, the former sequence [rj], with a trilled [r], has fused into the single consonant spelled <ř>, as in the name of the composer *Dvořak*: the famous fricative trill of Czech. In Swedish, the post-alveolar [r] has undergone fusion with a following dental or alveolar consonant, producing a single retroflex consonant, so that *fart* 'speed' is pronounced [fa:tʃ], *korn* 'grain' is pronounced [kʊ:r̥] and *kors* 'cross' is pronounced [kʊʂ]. In the Scots dialects of most of northern Scotland, the original combination of the voiceless fricative /x/ with /w/, found in Old English in words like *hwæt* 'what', normally pronounced /ʍ/ elsewhere in contemporary Scotland (in my western dialect *what* is /ʍɪt/), have fused at /f/, so that *what* is /fit/. The presence until very recently of Gaelic speakers in these areas may explain its presence – Gaelic doesn't have /ʍ/ or /w/, but does have the unvoiced bilabial fricative /ɸ/, a similar sound to /f/. This contact-induced view is supported by pronunciations of this type being found occasionally in Ireland; they're probably not the sole explanation, however, since similar phenomena can be found in Basque and the northern dialects of Māori, where Gaelic influence is exceedingly unlikely. We will return to the <wh> forms in the case study at the end of this chapter.

The opposite of fusion is **unpacking**, also called **segmentalization**. Here the phonetic features formerly present in a single segment are split into a sequence of two segments. Unpacking is less common than fusion, but not rare. Basque *baño* 'than' and *ollo* 'hen', with a palatal nasal and a palatal lateral respectively, have become in eastern varieties *baino* [banjo] and *oilo* [ojlo], in which the palatal element has been removed from the nasal or lateral and converted into a distinct preceding segment, a palatal glide. Something similar is happening in contemporary French, but in the other direction. The French palatal nasal [ɲ], spelled <gn>, as in *gnon* '(a) blow' and *mignon* 'cute', has for many speakers been unpacked into the sequence [nj], producing [njɔ̃] and [minjɔ̃]. Unpacking is frequent when words are borrowed: for example, English-speakers, unable to reproduce the palatal nasal of Spanish *cañón*, have borrowed the word as *canyon*, with an alveolar nasal followed by a palatal glide; likewise unable to produce the front rounded vowel [y] of French *musique*, we have borrowed it as *music*, in which the front rounded vowel is unpacked into a front glide followed by a back rounded vowel. English-speakers learning Spanish or French often do the same things in trying to pronounce the unfamiliar words of those languages, producing a conspicuous English accent. Finally, before leaving this section, I will briefly note that there exist a few other labels for specific types of change that you may occasionally encounter, such as **affrication** (conversion of another sound into an affricate), **labialization** (addition of lip-rounding or lip-compression to a segment), **retroflexion** (conversion of another sound into a retroflex), **dentalization** (conversion of another sound into a dental), **glottalization** (addition of a glottal closure to a sound, or sometimes the conversion of another sound into a glottal stop), **rhotacism** (conversion of another sound into [r]) and **lambdacisms** (conversion of another sound into [l]). The last two of these derive from the names of the Greek letters equivalent to R and L, and the others are generally self-evident if you know some phonetics. You will find examples of some of these in the exercises.

3.5 Vowels and syllable structure

Unlike consonants, vowels are produced without an obstruction of the airstream, and hence they have no precisely defined place of articulation. Understandably then, vowels tend to be somewhat less stable over time than consonants in most languages – although it is reported that, in Pacific languages, vowels have historically been more stable than consonants.

The most frequent descriptive terms applied to changes in vowels are derived from phonetics in a very straightforward way. Here are these terms with examples:

- **raising**: Old English *ham* ([hɑ:m]), Modern English *home* ([ho:m] and its variants, such as Received Pronunciation [həʊm])
- **lowering**: pre-French *[vī] ‘wine’ > French *vin* [vɛ̃]
- **fronting**: Basque *dut* ‘I have it’ > Zuberoan *düt* [dyt]
- **backing**: pre-Old English **dægas* ‘days’ > Old English *dagas*
- **rounding**: Old English *wæter* > early Modern English *water*. At the time, the word was still probably pronounced [watər] (as it remains for many Scottish people). The present RP pronunciation is [wɒtə].
- **unrounding**: compare Modern German *Bücher* ‘books’ [byxə], descended from Old High German [bōxər], and Luxembourgish *Bicher* [bɪfə], from the same source.
- **centralization**: Latin *campu* ‘field’ > Romanian *cîmp* [kɪmp]
- **lengthening** (also called **tensing**): Old English *c[i]ld* ‘child’ > Middle English *ch[i:]ld*
- **shortening** (also called **laxing**): Old English *fi:fta* ‘fifth’ > English *fifth*
- **diphthongization**: Latin *bonu* ‘good’, *bene* ‘well’ > Spanish *bueno*, *bien*
- **monophthongization**: Old French *eux* ‘them’ [ew], *aube* ‘dawn’ [awb] > respectively French [ø], [o:b]

It is possible for more than one of these processes to affect the same vowel. Latin *demandare* ‘ask’ and *limaca* ‘slug’ give Italian *domandare* and *lumaca*, in which the first vowel has been both backed and rounded; Latin *ebriacu* ‘drunk’ yields Italian *ubriaco*, in which the first vowel has been backed, rounded and raised; Latin *rota* ‘wheel’ gives Italian *ruota* [rwɔ:ta], in which the first vowel has been both diphthongized and lengthened.

In many cases it is very difficult to see any particular phonetic motivation for such changes: it just looks as though vowels like to move around. More mysteriously still, vowels are far more stable in some languages than in others. On the one hand, the vowels of Basque and of Italian appear not to have changed significantly for 1,500 years at least. On the other hand, during that same period the vowels of English and of French have changed repeatedly and dramatically, and in many parts of the world the English vowels are changing rapidly at this very moment. A New York City pronunciation of *bad* can sound like *beard*: a New Yorker’s version of *Gee, that’s too bad* often sounds to everybody else something like *Chee, des too beard*. In the prestigious accent of England called *Received Pronunciation*, or *RP*, the vowels of *cat* and *cut* have been moving so close together that they are now nearly indistinguishable.

In some cases, however, we can see a clear motivation for changes in vowels. One of these is the effect of **stress**. The additional energy involved in stressing a syllable may cause its vowel to become longer, tenser, more peripheral, sometimes even higher; stress may also tend to diphthongize a vowel. An unstressed vowel, in contrast, may become shorter and more central. In languages with strong stress, like English, these effects are very conspicuous. Compare the qualities of the stressed and unstressed vowels in a set of words like *photograph*, *photography* and *photographic*. As is usual in English, most of the unstressed vowels lose the distinctive phonetic characteristics which they have when stressed and just appear as the indistinct central vowel schwa [ə]. Such conversion to schwa is a very common type of vowel **reduction**: reduction is the removal of some or all of the phonetic characteristics that distinguish one vowel from another. Reduction can even go as far as total loss of the vowel, as illustrated in the next section.

Another factor in vowel change is **syllable structure**. Languages seem universally to prefer certain types of syllables, with CV being the most frequent, or ‘unmarked’, syllable structure, followed by CVC. Very commonly also, we observe a tendency for a vowel in an open syllable (one with no final consonant) to be long and for one in a closed syllable (ending in a consonant) to be short: note the difference in the length of the vowel /i/ in *see* and *seat*. There is a particular tendency for a vowel to be short if it is followed by a consonant cluster: note that the long vowel of Old English *fi:f* ‘five’ was shortened before the cluster in *fifth*, and that the short vowel of *cild* ‘child’ was lengthened in the singular but not in the plural *children* (the original long vowel [i:] has been diphthongized to [ai], thereby exaggerating the earlier length distinction).

Particularly unstable are vowels in **hiatus**: two consecutive vowels with no intervening consonant. Such sequences are apparently uncomfortable, and languages employ a variety of strategies for eliminating the hiatus. Most of these strategies can be illustrated from Basque. The Basque definite article is *-a*, which is suffixed to a preceding noun. If that noun ends in a vowel, a hiatus is produced, and the various dialects of Basque have resolved the hiatus in several different ways.

Consider *asto* ‘donkey’ and *lore* ‘flower’. The definite forms of these are *astoa* ‘the donkey’ and *lorea* ‘the flower’ in the standard orthography. Many eastern dialects have resolved the hiatus by converting these forms into *ast[w]a* and *lor[j]a*. We call this **glide-formation**: one of the vowels (usually the higher one) is converted into a non-syllabic glide. Western dialects, however, do something different: they have *ast[u]a* and *lor[i]a*, in which the first vowel has merely undergone raising, thereby making it as different as possible from the adjacent vowel.

Now consider *zaldi* ‘horse’ and *buru* ‘head’, with definite forms *zaldia* and *burua*. Eastern varieties have left these unchanged, but western varieties have this time eliminated the hiatus in a rather different manner: they have *zaldi[j]a* and *buru[w]a*, in which glides have simply been inserted between the adjacent vowels, thus producing a CV structure. This is **glide-insertion**, and you can see that the glide matches the preceding high vowel in quality. In the case of *zaldia*, many western varieties have gone further: they have *zaldi[j]e*, *zaldi[ʒ]e* or even *zaldi[f]a*, in which the glide has been converted to a plosive or a fricative; this is called **glide-strengthening**, and it is a kind of fortition (some of these have also raised the final vowel).

Finally, consider *neska* ‘girl’. The expected definite form would be **neskaa*, but this is found nowhere. Most varieties have the definite form *neska*, in which the two identical vowels have simply combined into one, in a process called **coalescence**. Some western varieties, however, have instead either *nesk[e]a* or *nesk[i]a*, in which the first vowel has been raised.

An especially striking process is **compensatory lengthening**, in which a vowel is lengthened at the same time that another segment is lost from the word, thereby roughly preserving the total time required to pronounce the word. It is thought that the ancestral form of English *five* was something like **finf* or **fimf*, with a short vowel (compare German *fünf*), but that the [n] was lost early, and the preceding vowel was lengthened to [i:] in compensation. Old French *beste* ‘beast’, *feste* ‘festival’ and *maistre* ‘master’ were all pronounced with [ɛs], but syllable-final [s] was lost, and the vowel underwent compensatory lengthening, producing modern French *bête* [bɛ:t], *fête* [fɛ:t] and *maître* [mɛ:tr]. The diacritic in the spelling marks the vowel as long, but there is a recent tendency to shorten these long vowels, making *maître*, for example, homophonous with *mettre* ‘put’, which has always had a short vowel, and the French Academy proposed dropping the length mark from the

French spelling system; fear of losing distinctions between homophones (and a degree of conservatism) has meant that this has not been carried out in a thoroughgoing manner.

Other, rather different, cases of compensatory lengthening are represented by the change of pre-Hindi **satt* ‘seven’ into Hindi *sa:t* and by the change of Proto-Slavic **bogŭ* ‘God’ into early Serbo-Croatian *bo:g*.

Occasionally we find consonantal changes that also operate in such a way as to maintain a preferred syllable structure and avoid hiatus. A good example occurs in the *non-rhotic* accents of English, in which the historical /r/ has been lost everywhere except before a vowel, so that *far* and *dark* are pronounced [fɑ:] and [dɑ:k]. The /r/ is retained before a vowel, and so *far away* is realized as [fɑ:rəwei], thereby avoiding hiatus. Many speakers with non-rhotic accents have extended this **linking r** to cases in which no /r/ was historically present, producing the well-known **intrusive r** of much of England and New England: *Cuba[r]* and *China*, *the idea[r]* is, *I saw[r]* it, *this bra[r]* is made of. . . , *awe[r]*-inspiring, and sometimes also *draw[r]*ing and *withdraw[r]*al. This can be confusing for fully rhotic speakers: I can remember, as a child, asking my mother why English people called *America* ‘Americar’.

3.6 Whole-segment processes

Certain phonological changes are somewhat unusual in that they involve not just changes in the nature of segments but a change in the number or ordering of segments, and these we call **whole-segment processes**.

We have already seen instances of deletion as the end result of lenition, but not all deletions are like that: it is possible for a segment simply to disappear at one go. For example, the words *knee*, *knot* and *knife* were once pronounced, as the spelling still suggests, with an initial cluster /kn-/. Several centuries ago, however, people simply dropped the /k/, with no lenition via [x] and [h], although it should be noted that remnants of the pronunciation of a plosive before /n/ are still heard in traditional Scots dialects. A good example of this is the Shetland word *knappin* [knəpən], ‘to speak in an Anglicized pronunciation using Standard English lexis to a fellow Shetlander’ (a much frowned-upon activity). But I am not aware of there being many more <kn> words that have retained a ‘full pronunciation’, however. The iconic nature of the word and its meaning should probably be borne in mind.

The same thing has happened to a whole range of final consonants in French. French words like *lit* ‘bed’ /li/, *gros* ‘big’ /gro/, *soûl* ‘drunk’ /su/, *murs* ‘walls’ /myʁ/, *part* ‘leaves’ (verb) /par/ and *aimer* ‘love’ /ɛme/ were all formerly pronounced with the final consonants that are still there in the spelling, but all these consonants were simply dropped. Loss of an initial segment, as in *knee*, is called **aphaeresis** (less commonly **aphesis**), while loss of a final segment, as in French *lit*, is **apocope**.

Aphaeresis and apocope may also apply to vowels, and in fact some linguists apply these two terms *only* to the loss of vowels, but there seems little point in such a restriction. The word *especial* is now usually reduced to *special*, and *opossum* is commonly reduced in many areas to *possum*, both showing aphaeresis, and the words *make* and *time*, as the spelling suggests, once had a final vowel which has undergone apocope.

Word-medially, consonants are rarely lost abruptly except in the simplification of clusters, as illustrated by the loss of the first /d/ in *Wednesday*. Much more frequent is **syncope**: the loss of a medial vowel. English words like *chocolate* and *camera* have now lost the vowel in the second syllable for nearly all speakers, and many speakers in England have further

lost the first vowel in words like *police* and *correct*, the second vowel in words like *medicine* and *battery*, and the third vowel in words like *dictionary*. Such syncope was pervasive in late Latin: compare Latin *saeculu* and Spanish *siglo* ‘century’, Latin *littera* and Spanish *letra* ‘letter’, Latin *dominicu* and Spanish *domingo* ‘Sunday’, Latin *paupere* and Spanish *pobre* ‘poor’, Latin *asinu* and Spanish *asno* ‘donkey’.

It is also possible for entire new segments to be added to words, and again we have a collection of specific terms for such addition. Adding a segment at the beginning of a word is **prothesis**, and only vowels are commonly added in this position. In some varieties of late Latin, the vowel /e/ was added before any word-initial cluster beginning with /s/, and we can still see the result in Spanish: Latin *spatha* ‘sword’ > Spanish *espada*; *statu* > *estado* ‘state’; *scala* > *escala* ‘ladder’; *smeralda* > *esmeralda* ‘emerald’. Such prothesis is still regularly applied to loan words in Spanish today, producing results like *esnob* ‘snob’, *eslálom* ‘slalom’, *estricnina* ‘strychnine’ and *Estrasburgo* ‘Strasbourg’. In Basque, in which no word can begin with an /r/, loan words have for 2,000 years been borrowed with a prothetic vowel, ranging from *arrosa* ‘rose’ and *Erroma* ‘Rome’, borrowed from Latin *rosa* and *Roma*, down to such recent loans as *erradio* ‘radium’, *errubi* ‘ruby’ and *Errusia* ‘Russia’.

The addition of a segment to the end of a word is occasionally called **paragoge**, but only consonants are commonly added in this position, and usually only after another consonant, and most linguists prefer to call this **excrescence**. Middle English *amonges*, *amiddes* and *betwixt* have acquired an excrescent /t/, producing *amongst*, *amidst* and *betwixt*. In my dialect, we go further with this process: ‘once’ is /wanst/ and ‘twice’ /twəist/. A very odd example is the development of *no* into colloquial *nope*, presumably from our habit of closing our mouths after uttering this word. Final excrescence is not common, although it can be found elsewhere. Modern German *nein* ‘no’ demonstrates this. Most native speakers say /ne:/ in unemphatic situations.

When it comes to adding segments to the middle of a word, our terminology is in something of a muddle. This is widely called **epenthesis**, but some people would apply this term only to the insertion of a vowel between consonants, and exactly such vowel addition is also called both **anaptyxis** and **svarabhakti** (this last from Sanskrit, the classical language of India). (Moreover, some people use ‘epenthesis’ more broadly for *any* addition of a segment in any position.) The insertion of a consonant between consonants is once again called **excrescence**. Anaptyxis happens sporadically in English: you may have heard *athlete* pronounced as *athalete*, or *film* pronounced as *fillum* – not to mention the distinctive Cockney pronunciation of *Henry* as *Ennery* and *England* as *Engaland* (at least in the context of football). These have not so far become Standard English. In contrast, the early Latin words *facilis* ‘easy’ and *poculum* ‘goblet’ appear in standard classical Latin as *facilis* and *poculum*, with anaptyctic vowels matching the following vowels in quality. Anaptyxis may also affect loan words: Arabic *waqt* ‘time’ and *ism* ‘name’, with final clusters not permitted in Turkish, were borrowed into Turkish as *vakit* and *isim*. All these examples have the effect of reducing consonant clusters and of adjusting the forms of words towards the seemingly universally preferred CV structure.

Consonantal epenthesis is not rare in the history of English. Most of us pronounce *prince* just like *prints*, with a /t/ between the /n/ and the /s/. Once again, this is phonetically understandable: moving from [n] to [s] requires changes in the position of the vocal folds, the velum and the tongue, and it’s difficult to do all these simultaneously, so we leave the tongue movement for last, producing an automatic [t] as a result. Earlier examples in the same vein include the change of Old English *æmtig* and *þymel* to modern *empty* and

Table 3.1 Summary of whole-segment processes

	Initially	Medially	Finally
ADDITION	prosthesis	epenthesis	paragoge
REMOVAL	aphaeresis	syncope	apocope

thimble, and of Middle English *nemel* and *thuner* to *nimble* and *thunder*. Table 3.1 sums up this terminology.

A rather unusual type of whole-segment process is **metathesis**: changing the order of segments in a word. This is not common in English, but a good example is Old English *wæps*, which has become *wasp* in modern English, with metathesis of the last two consonants (in fact, some regional varieties have *wops* today). Since the Old English period, speakers have been vacillating between *ask* and *aks*; the first has finally won out, but again some regional varieties have *aks* (often spelled *ax*: *He axed me a question*). In the traditional dialect of the area around Aberdeen, *grass* is often *girse* [gɪrs]. Metathesis is frequent in the history of Spanish. The Latin words *crepare*, *parabola*, *miraculu*, *periculu* and *crocodilu* should, by the regular developments, have yielded Spanish **crebar* ‘break’, **parabla* ‘word’, **miraglo* ‘miracle’, **periglo* ‘danger’ and **crocodile* ‘crocodile’, but the actual forms are *quebrar*, *palabra*, *milagro*, *peligro* and *cocodrilo*, all showing metathesis. (In some cases two consonants have exchanged places; in others, one consonant has just moved to a different position.)

More dramatic still is **haplology**, in which one of two consecutive identical or similar syllables is lost. The combination of the Latin stem *nutri-* ‘give milk to’ with the female agent suffix *-trix* should have yielded **nutritrix*, but the actual form is *nutrix* ‘wet-nurse’, in which one of the two *-tri* sequences is dropped. Similarly, the combination of Basque *sagar* ‘apple’ with *ardo* ‘wine’ should give **sagar-ardo*, but the word is *sagardo* ‘cider’, also with haplology, and Basque *maite* ‘beloved’ plus *-tasun* ‘-ness’ should give **maitata-sun*, but the result is *maitasun* ‘love’. In English, the regular adverbs **gentle-ly* and **simple-ly* are reduced by haplology to *gently* and *simply*.

The opposite of haplology, the repetition of a syllable, does occur and is called *reduplication*, but this is strictly a morphological process, and not a phonological one, and hence is not treated here.

3.7 The regularity issue: a first look

Here I will introduce for the first time an issue that will be a recurrent theme in this book: is phonological change *regular* or not? That is, when a change in pronunciation is introduced into a language, does it apply to all words of a relevant form, or only to some of them? This question has been a central issue in historical linguistics for well over 100 years, and the answer is neither obvious nor simple. Certain changes are conspicuously not regular at all, such as metathesis. Latin *miraculu* ‘miracle’ has undergone metathesis in producing Spanish *milagro*, but most Latin words underwent no metathesis. Metathesis is almost always a **sporadic change**: a change that happens once in a while to this word or that, in a seemingly arbitrary manner, and no more.

But most changes do not appear to be like this. If you have some experience of the vernacular speech of London, you will have noticed that the consonant /t/, at the beginning

of a word, is pronounced as an affricate [tʰ]. And this happens with every single word beginning with /t/ followed by a vowel: *time*, *take*, *two*, *tell*, *tooth* and so on are all pronounced with [tʰ]. In this case, it appears that the change of the historical [tʰ] to [tʰ] has been completely regular: it has applied to every relevant word.

Many of the other changes mentioned in the chapter appear to have been equally regular. The Latin geminates were invariably reduced to single consonants in the development of Spanish, as in *cuppa* > *copa* ‘cup’; not a single geminate survived. American speakers who use a tapped /t/ between vowels do so in every single case (providing the second vowel is not stressed; such stress blocks the change, as in *attack*). Old Japanese /p/ has developed into modern /h/ in every single word containing it (except when it was geminated; this also blocked the change). The former Turkish /g/ has been lenited after a vowel in every relevant word in the language.

All word-final obstruents in Russian have been devoiced, without exception. And so it goes: thousands and thousands of pronunciation changes have been identified in the histories of many hundreds of languages, and they almost always appear to be highly regular: they have applied to every relevant word.

But there are exceptions. Latin *strata* ‘street’ and *lacu* ‘lake’ have yielded Italian *strada* and *lago*, with voicing of the intervocalic consonant, and dozens of other words show the same voicing, but the majority of Italian words have not undergone such voicing: Latin *rota* ‘wheel’ and *ficu* ‘fig’ give Italian *ruota* and *fico*, and not **ruoda* and **figo*. This is a puzzle that has long vexed Italianists, especially since in Spanish, another modern form of Latin, every single word has undergone this voicing: Spanish has *rueda* and *higo* for the last two words, and so on throughout the vocabulary.

It is, therefore, too much to claim that ‘ordinary’ sound changes (that is, those other than the purely sporadic ones like metathesis) are invariably regular, and that’s all there is to it. It is only very recently that linguists have managed to learn enough about the mechanisms of language change to provide plausible explanations for why many changes are regular but others not, and these explanations will have to wait until much later in the book. For now, I will merely adopt a policy as a basis for further discussion: sound change is normally regular, and the cases that are not regular are puzzles calling for an explanation. This policy has proved to be of great benefit in historical linguistics, and it will provide a firm foundation for our discussion in this book, in spite of the fact that it is not strictly true. By the time you have finished this book, you will understand both why it is both not true and nonetheless an excellent working hypothesis.

Case study: Germanic */xw/ in the present-day dialects

We have touched on a number of occasions in this chapter on changes in Old English /xw/ or /ɰ/ in that variety’s descendants, discussing both considerable variation in pronunciation and a general trend towards /w/ becoming /w/ with the <wh> words. These changes should not be viewed in a vacuum, however. Let’s see what happens in the other Germanic languages.

Almost all of the English <wh> words are descended from Germanic */xw/ (a few, such as *whisky*, are not, and will not concern us here). */xw/ itself developed largely from Indo-European */k^w/, as part of a set of changes discussed in greater depth at the end of the next chapter. The change /k/ > /x/ is, of course, an example of lenition. But what happens to */xw/ in the surviving Germanic dialects?

In all of the continental West Germanic languages, the sole contemporary reflex is /v/, normally spelled <w>, as in German *was* ‘what’. None of the ancestors of these languages from which we have written witness evinces the initial velarized/aspirated sound, although it is likely that <w> was pronounced /w/ in some varieties well into modern times.

In Danish, Swedish and eastern Norwegian, */xw/ is also generally /v/ or a near approximant equivalent (again, an example of lenition). Interestingly, however, the */xw/ words are spelt <hv> in Danish and Bokmål (one of the two standard varieties of Norwegian), so that, in the latter, *hvit* ‘white’ is /vi:t/. Even without the evidence from other North Germanic varieties and from an historical corpus going back almost 1,000 years, this spelling might make us wonder if aspiration was not previously present in the languages. The change /w/ to /v/ is very ancient in Scandinavia, however. There is no written evidence for /w/, although we assume that the sound must have been lost in the period before 1000 CE. In western varieties of Norwegian, Icelandic and Faeroese, */xw/ is pronounced /kv/ (although interestingly, the sound is spelt <hv> in Icelandic and Faeroese, as it was in Old Norse). Here the fricative /x/ has become the plosive /k/, a form of fortition. Nevertheless, the change, while apparently working against the mainstream trend in the Germanic languages, can be explained through the internal workings of the languages.

One of the features of the early North Germanic dialects was their loss of medial and final /x/, so that Old Norse *dóttir* ‘daughter’ is equivalent to Modern High German *Tochter*. The exception to this change was initial /x/, which lenited to /h/ and was maintained as a separate phoneme. Initial /x/ before other consonants was not immediately jettisoned either. In the continental West Germanic languages, /x/ was quite quickly lenited in these contexts; in the North Germanic languages they were maintained for some time, particularly in common words like *hring* ‘ring’ (as they were in Old English also). But the lack of /x/ in any other contexts inevitably led to their being reinterpreted as having the similar sound /k/. Remnants of this with words which had a /x/ combination which was not */xw/ can be found in Norwegian *omkring* ‘around’, where *kring* is descended from *hring* ‘ring’. The merger with /k/ also meant that the /x/ + consonant words were ‘protected’ by a larger number of /k/ + consonant words, such as *kvinne* ‘woman’.

Interestingly, however, a lenited version of this /x/ > /k/ change is found in traditional dialects spoken along the /kv/ – /v/ isogloss in central Norway. In the village in which I used to live, Bø i Telemark, older people said /gva:r/ ‘where’, while people to the west said /kva:r/ and people to the east said /vu:r/.

As we saw earlier, */xw/ in the English-speaking world is in a state of change, with /w/ replacing /ɹ/ (or /hw/). Although the latter is found in many places outside England and (to a large extent) its linguistic colonies founded in the late eighteenth and early nineteenth centuries, its heartland is Scotland. Indeed, there is some evidence that, some 500 years ago, the initial element of the descendant of */xw/ was still /x/ rather than /h/ (Scots has maintained /x/, although it is only regularly heard in words like *eneuch* ‘enough’ in the usage of older traditional speakers today). The /w/ pronunciation is beginning to spread in southern Scotland, however. I hear it occasionally in my own speech, in particular in unstressed contexts. This change is a form of lenition too, since a complex sound has been simplified and an unvoiced sound been voiced.

In northern Scotland and the Northern Isles, however, some rather unusual changes have taken place. As we’ve already seen, */xw/ has become /f/ in north-east Scotland. This also happens in the Scots dialects of Caithness. There is probably some Gaelic influence upon this change; it is also a form of lenition, however.

In Orkney and in some dialects of Shetland, /ɹ/ has been retained. /kw/, however, has merged with /ɹ/, thus making *when* ‘a large amount’ and *queen* homophones: /min/. In other parts of Shetland, on the other hand, the opposite has happened, with /kw/ and /ɹ/ merging at /kw/. I have heard northern Shetlanders say /kwatno/ for ‘whatnot’. It is very striking that this archipelago, Scandinavian-speaking well into the modern era, should have developed */xw/ in a similar fortified way to its Faeroese and Norwegian neighbours.

Northern Scotland also contains the most radical development of */xw/ found anywhere. In the small fishing villages of the Black Isle (a peninsula to the north of Inverness), historically Scots-speaking islands in a Gaelic-speaking sea, */xw/ has become literally nothing in traditional dialects. Thus ‘what’ is /at/. It is difficult to explain this unique change (although it also counts as an example of lenition). These communities are almost unique in Scotland in ‘dropping’ /h/ consistently, however.

What can we make of this? In the first place, it is apparent that */xw/, along with its similar initial geminates with /x/, was disfavoured in the development of the Germanic languages. Where it survived best – the British Isles and to some extent the Norse North Atlantic world – the speech communities involved were situated either on islands or in mountainous regions, encouraging the retention of ‘peculiarities’. This was never more the case than in northern Scotland and the Northern Isles, which can be seen as a relict area within a relict area.

Moreover, while the favoured development for most of the languages was the lenition of /xw/ > /hw/ > /w/ (> /v/ for many languages), alternative strategies included fortition (/xw/ > /kv/ or /xw/ > /kw/) or other forms of lenition (/xw/ > /f/ or even > nothing). These strategies were at their most successful in tight-knit, small-scale communities with limited contact with the outside world.

3.8 Summary

In this chapter we have surveyed phonological change from a syntagmatic point of view: that is, from the point of view of changes in the sequence of speech sounds making up the pronunciations of particular words, or occasionally sequences of words. We have seen that the majority of such changes can be understood in terms of the movements of the vocal organs during speech, and sometimes more particularly in terms of a tendency to reduce articulatory effort. We have learned a no doubt depressing number of technical terms that will allow us to label economically almost any sound change we are likely to encounter. Finally, we have had our first brush with the idea that a phonological change may be regular – that is, that it may apply without exception to every word in the language of a relevant form. You should keep this idea at the back of your mind while reading the following chapters; I will return to it at intervals.

Further reading

Wells (1982) is a comprehensive survey of the various accents of English, including an account of the changes that have occurred in the different regional varieties of English around the world and those that are happening now. A wealth of data on the changes occurring in English pronunciation today can be found in Labov (1994, 2001 and, to a lesser extent, 2008). The standard histories of English, French, German, Spanish, Italian and Portuguese listed in the ‘Further reading’ section in [Chapter 1](#) all include detailed descriptions of the major changes in pronunciation which have occurred in those languages during the past 1,500 or 2,000 years. Some other textbooks of historical linguistics devote considerably more space to phonological change than I am doing here, notably Hock (1986) – although note that almost all of Hock’s examples are taken from very ancient languages indeed, and you might prefer to read his several chapters in small chunks. Bloomfield (1933) is a classic textbook of general linguistics whose chapter on phonological change is still eminently readable. Hock and Joseph (1996) and in particular Campbell (2013) discuss and exemplify sound change admirably. Lass (1997) is especially interesting on these matters.

Exercises

Note: If you are familiar with the standard notation for writing phonological rules, you may find it convenient in attempting these exercises to write out rules for the phonological changes you identify. Some of these exercises introduce topics that will be discussed in the next chapter.

Exercise 3.1

This exercise is designed merely to let you test your command of the technical terms introduced in the chapter. How would you label each of the following changes?

- pre-Icelandic *bro[θ]er > Old Icelandic bro[ð]er ‘brother’
- pre-Greek *g^wous > Greek bous ‘cow’
- Basque *bake* ‘peace’ > western Basque *pake*
- pre-Latin *flo:ses > Latin flo:res ‘flowers’
- English *Deborah* (three syllables) > *Debra* (two syllables)
- pre-Finnish *käti > Finnish käsi ‘hand’
- English *furor* (three syllables) > American English *furor* (two syllables)
- Latin *lege* ‘law’ [lege] > Italian *legge* [leddʒe]
- This is thought to be the history of the French word *cent* [sā] ‘hundred’ over the past 6,000 years or so; if you don’t find a suitable label for a particular step, try to coin one from your knowledge of phonetics:

[kmtom] > [kemtom] > [kentom] > [kentum] > [kentũ] > [kentu] > [kento] > [k'ento] > [tsento] > [tsent] > [sent] > [sen] > [sē] > [sā].

Exercise 3.2

Certain English words which were formerly pronounced with a /t/ have lost that /t/, although we retain a <t> in the spelling. Among these are *soften*, *listen*, *fasten*, *hasten*, *castle*, *bustle*, *bristle* and *mistletoe*. On the other hand, the /t/ has not been lost in words such as *muster*, *blister*, *foster* and *custom*, nor has it been lost in cases like *astound* and *extend*. Describe as accurately as you can the circumstances in which the /t/ was lost. Now note the peculiar case of *often*. Some people pronounce a /t/ in this word while others do not. What do you suppose might have happened in this case?

Exercise 3.3

Old English had both long and short vowels, and the long vowels have changed in systematic ways during the development of modern English. Table 3.2 shows some typical examples; the Old English vowel letters have approximately their IPA values. Explain what has happened to the long vowels.

Table 3.2 OE long vowels and their history

	Old English	Modern English
1.	<i>bru:n</i>	<i>brown</i>
2.	<i>de:man</i>	<i>deem</i>
3.	<i>do:m</i>	<i>doom</i>
4.	<i>du:n</i>	<i>down</i>
5.	<i>æ:l</i>	<i>eel</i>
6.	<i>æ:fen</i>	<i>even(ing)</i>
7.	<i>fi:f</i>	<i>five</i>
8.	<i>he:</i>	<i>he</i>
9.	<i>hæ:p</i>	<i>heath</i>
10.	<i>ha:m</i>	<i>home</i>
11.	<i>hu:s</i>	<i>house</i>
12.	<i>i:s</i>	<i>ice</i>
13.	<i>læ:ce</i>	<i>leech</i>
14.	<i>me:d</i>	<i>meed</i>
15.	<i>mu:p</i>	<i>mouth</i>
16.	<i>mi:n</i>	<i>my, mine</i>
17.	<i>a:c</i>	<i>oak</i>
18.	<i>ra:d</i>	<i>rode</i>
19.	<i>ro:st</i>	<i>roost</i>
20.	<i>ro:t</i>	<i>root</i>
21.	<i>so:p</i>	<i>sooth</i>
22.	<i>sta:n</i>	<i>stone</i>
23.	<i>te:p</i>	<i>teeth</i>
24.	<i>ti:d</i> 'time'	<i>tide</i>
25.	<i>to:p</i>	<i>tooth</i>
26.	<i>hwi:t</i>	<i>white</i>

Exercise 3.4

Historically, intervocalic /n/ was categorically lost in medieval Basque, so that, for example, **ardano* 'wine' became *ardao*, **ini* 'reed' became *ih* and **katena* 'chain' became *kate* (the [h] in the second serves only to prevent hiatus). In some cases, however, the result was different:

- | | |
|---|--|
| (a) <i>*zani</i> > <i>zain</i> 'watchful' | (g) <i>*initz</i> > <i>ihintz</i> 'dew' |
| (b) <i>*garanu</i> > <i>garaun</i> 'grain' | (h) <i>*bedenikatu</i> > <i>bedeinkatu</i> 'bless' |
| (c) <i>*seni</i> > <i>sein</i> 'boy' | (i) <i>*zizani</i> > <i>zizain</i> 'worm' |
| (d) <i>*zunai</i> > <i>zuhain</i> 'hay' | (j) <i>*arrani</i> > <i>arrain</i> 'fish' |
| (e) <i>*usani</i> > <i>usain</i> 'odour' | (k) <i>*lehone</i> > <i>lehoin</i> 'lion' |
| (f) <i>*azkone</i> > <i>azkoin</i> 'badger' | (l) <i>*arrazone</i> > <i>arrazoin</i> 'reason' |

Explain as clearly as you can what has happened in these cases. Note that this is not a metathesis: the development involved more than one step, and each step was a process discussed in the chapter.

Exercise 3.5

The Latin consonant /k/ was spelled <q> before <u>, and <c> in all other cases. In the development of Latin into Spanish, this [k] has developed in an interesting way. In some cases, it remains [k] today. In other cases, it has changed into a voiceless fricative. That fricative is [θ] in standard European Spanish (Castilian) but [s] in most other varieties of Spanish, including all types of American Spanish. In still other cases, [k] has developed into a voiced velar fricative or approximant [ɣ]. Table 3.3 lists some Spanish words illustrating these developments. Identify the circumstances in which each development occurs, and try to propose plausible phonetic reasons for the changes, in terms of what you have learned in the chapter. Is it possible to decide the order in which the various changes must have occurred? How satisfactory do you find your account?

Table 3.3 Latin /k/ in varieties of Spanish

	<i>Latin</i>	<i>Castilian</i>	<i>American</i>	<i>Orthography</i>	<i>Gloss</i>
1.	<i>saccu</i>	[sako]	[sako]	<i>saco</i>	'bag'
2.	<i>caecu</i>	[θjeɣo]	[sjeɣo]	<i>ciego</i>	'blind'
3.	<i>caule</i>	[kol]	[kol]	<i>col</i>	'cabbage'
4.	<i>certu</i>	[θjerto]	[sjerto]	<i>cierto</i>	'certain'
5.	<i>cuna</i>	[kuna]	[kuna]	<i>cuna</i>	'cradle'
6.	<i>corona</i>	[korona]	[korona]	<i>corona</i>	'crown'
7.	<i>aquila</i>	[ayila]	[ayila]	<i>águila</i>	'eagle'
8.	<i>facile</i>	[faθil]	[fasil]	<i>fácil</i>	'easy'
9.	<i>pisce</i>	[peθ]	[pes]	<i>pez</i>	'fish'
10.	<i>iocu</i>	[xweɣo]	[hweɣo]	<i>juego</i>	'game'
11.	<i>capra</i>	[kaβra]	[kaβra]	<i>cabra</i>	'goat'
12.	<i>centu</i>	[θjento]	[sjento]	<i>ciento</i>	'hundred'
13.	<i>lacu</i>	[layo]	[layo]	<i>lago</i>	'lake'
14.	<i>facere</i>	[aθer]	[aser]	<i>hacer</i>	'make'
15.	<i>circa</i>	[θerka]	[serka]	<i>cerca</i>	'near'
16.	<i>vicinu</i>	[beθino]	[besino]	<i>vecino</i>	'neighbour'
17.	<i>dicit</i>	[diθe]	[dise]	<i>dice</i>	'says'
18.	<i>caelu</i>	[θjelo]	[sjelo]	<i>cielo</i>	'sky'
19.	<i>calcea</i>	[kalθa]	[kalsa]	<i>calza</i> [obs.]	'stocking'

Exercise 3.6

Like some other Australian languages, Yinwum has historically undergone some highly unusual phonological changes that are neither easy to classify nor easy to understand in phonetic terms. However, the changes were extremely regular, and all words were apparently affected in the same way. Table 3.4 shows some typical data. The first column gives the (asterisked) form each word is thought to have had in the ancestor of Yinwum, and the second the modern form. Describe the changes in as much detail as you can. If you are writing phonological rules, you may find the formalism somewhat stretched by these data (data from Hale 1976 and Dixon 1980).

Table 3.4 Sound change in Yinwum

	Ancestral	Modern	Gloss
1.	*kalma-	ima-	'arrive'
2.	*wuna-	nwa-	'be lying down'
3.	*t ^h ugku	ŋke	'black'
4.	*gula	lwa	'by-and-by'
5.	*ruŋka-	ŋkwa-	'cry'
6.	*wari-	te-	'dig'
7.	*kuta	twa	'dog'
8.	*kuna	nwa	'excrement'
9.	*kaalka-	aki-	'fall, die'
10.	*puula	ulwa-	'father's father'
11.	*piin'a	in'a-	'father's older sibling'
12.	*piimu	imu-	'father's sister'
13.	*t'aru	tju	'foot'
14.	*t'ampa-	mpi-	'give'
15.	*jana-	ni-	'go'
16.	*n'ilu	lju-	'he'
17.	*n'ugu-	ŋju-	'(to) him/her'
18.	*ŋaju	aju-	'I'
19.	*t'ipa	pja	'liver'
20.	*ŋan'i	n'i	'me'
21.	*min'a	n'a	'meat, animal'
22.	*papi	pe	'mother's father'
23.	*ŋat'i	n'ti-	'mother's father'
24.	*kami	me	'mother's mother'
25.	*mukur	n'kur	'mother's older brother'
26.	*t'alan	lin	'mouth'
27.	*kuŋka	ŋkwa	'north'
28.	*n'ipi	n'pi	'one'
29.	*pama	ma	'person'
30.	*n'at'i-	n'ti-	'see'
31.	*n'iina-	ina-	'sit'
32.	*n'uugka-	i'kwe-	'smell'
33.	*jiipa	ipja-	'south'
34.	*kalka	ika	'spear'
35.	*jinta-	nti-	'spear' (verb)
36.	*t'uku	ke	'tree'
37.	*kuut'i-	ut'i-	'two'
38.	*kumpu	mpu	'urine'
39.	*maji	aji	'vegetable food'
40.	*ŋan'i	n'i	'we'
41.	*ŋana	na	'we all'
42.	*ŋali	le	'we two'
43.	*ŋaani	ani	'what'
44.	*waari	ate-	'who'
45.	*n'ipul	n'pju	'you' (pl.)
46.	*n'untu	n'ti	'you' (sing.)
47.	*ŋali	li	'you and I'
48.	*japu	pju	'younger brother'

Phonological change II: change in phonological systems

As I pointed out in [Chapter 3](#), changes in the sequence of speech sounds making up the pronunciation of particular words are termed ‘syntagmatic change’. Change in the phonological system of a language, in contrast, is called **paradigmatic change**. Recall from [Chapter 2](#) that both French and English have undergone paradigmatic change – they have acquired new consonant phonemes – by borrowing words from each other: that is, the phonological system of each language has changed as a result of borrowing. Much more commonly, however, phonological systems change as a result of changes in pronunciation of the sort discussed in [Chapter 3](#). In this chapter, we’ll be looking at the various ways in which this can happen, and we’ll also be asking whether we can understand such system changes in terms of linguistic theory.

4.1 Conditioning and rephonologization

Recall from the previous chapter that I am going to assume that a phonological change is normally regular, that it normally applies to every single relevant word. But what is a ‘relevant word’? To answer this, I must introduce a fundamental distinction between two kinds of phonological change: **conditioned** and **unconditioned** changes.

An unconditioned change is one that applies to every single occurrence of a particular segment in the language, regardless of its position in a word and regardless of the nature of any neighbouring segments. For example, every single instance of the vowel /i:/ in Middle English has changed into the diphthong /ai/ in Modern English. And, in the Gipuzkoan dialect of Basque, every single instance of earlier /j/ has somewhat unexpectedly developed into /x/. Unconditioned changes are fairly common with vowels but much less common with consonants.

A conditioned change, in contrast, is one that applies to a particular segment only in certain positions in a word – for example, only intervocalically or only word-finally or only in a stressed syllable or everywhere except after /s/. Thus, Latin /p t k/ became voiced in Spanish between vowels but remained voiceless in all other positions, and English /l/ was delateralized several centuries ago only when followed by a consonant and preceded by one of certain vowels, as in *folk* and *talk*, but not as in *milk* or *fall*, although this second change has now happened or is happening in a number of dialects. Conditioned changes are much more frequent than unconditioned ones.

In the majority of cases, an unconditioned change generally has only modest consequences for the phoneme system of the language undergoing it. The number of phonemes remains the same, and their distribution in words remains the same; all that changes is the phonetic

character of one or more phonemes. So, in my Gipuzkoan Basque example, the former /j/ has simply been replaced by /x/, which didn't exist before, and every word that was formerly pronounced with [j] is now pronounced with [x]: hence *jan* 'eat' and *jaun* 'lord', formerly [j]an and [j]aun, are now [x]an and [x]aun in Gipuzkoan. But that's all: there have been no other consequences. Still, this kind of unconditioned change can be viewed as a very simple type of **rephonologization** (or **rephonemicization**): the reorganization of the phonological system of a language.

There are just two cases in which an unconditioned change can affect the number of phonemes in the system. First, one phoneme may undergo unconditional merger with another one, so that what were formerly two different phonemes are combined into a single phoneme. For example, an ancestral form of Spanish had the two phonemes /b/ and /v/, but these two have merged into a single phoneme in almost all modern varieties of Spanish. The ancient spelling distinction is still retained, so that Spaniards write *boto*, meaning 'dull', but *voto*, meaning 'vote', but these words are pronounced identically (in isolation, as [boto]), and Spanish-speakers simply have to learn, one by one, which words are conventionally spelled with *b* and which with *v*. This merger has reduced by one the number of phonemes in the language. (Merger is a particularly interesting sort of change; it will be discussed further in [Chapter 10](#).)

Second, the unconditioned loss of a segment naturally reduces the number of phonemes by one. As we saw in the previous chapter, both French and Spanish have lost the /h/ that they formerly had, thereby reducing the number of phonemes. Some linguists would interpret such loss as a kind of merger, a 'merger with zero', but I will distinguish loss from merger. Conditioned changes, in most cases, have more complex effects upon the phonological system of a language. Let's begin with the simplest type of conditioned change, illustrated once again from Basque. Basque has two voiceless sibilants, a laminal sibilant notated <z> and an apical sibilant notated <s>. The language has no voiced sibilants. In certain circumstances, notably before a nasal, the two Basque sibilants have become voiced, however. Thus, while *sasi* 'bramble' and *zazen* 'bull' have voiceless sibilants, *esne* 'milk' and *ozmin* 'biting cold' are pronounced with voiced sibilants. But this development has had no consequences at all for the phonological system: all that has happened is that the two sibilants have acquired voiced allophones before nasals.

But let's now turn to a similar case that has gone further. Pre-Old English had a velar plosive /k/, which was pronounced [k] in all positions, although doubtless with a more fronted allophone before a front vowel, just as in modern English *key* and *cold*. At some time this slight palatalization was exaggerated, until /k/ was pronounced as an affricate [tʃ] before /i/ or /e/ or before a diphthong /ea/ or /eo/. Since there was no other [tʃ] in the language, this change again had no phonological consequences: the phoneme /k/ simply had two allophones, [tʃ] before a front vowel and [k] elsewhere. But then something else happened: the first element of the diphthongs /ea/ and /eo/ was lost after [tʃ]. As a result, the affricate [tʃ], which had formerly occurred only before front vowels, now found itself in some cases followed by a back vowel. In this position it therefore now contrasted with [k]. As a result, [tʃ] was no longer a predictable allophone of /k/: instead, it was itself a phoneme /tʃ/ contrasting with /k/. These developments are summarized in [Table 4.1](#).

Such a development is called **loss of the conditioning environment**. In this case, the front vowel that had formerly conditioned the allophone [tʃ] was lost, and hence the distribution of [k] and [tʃ] was no longer predictable; thus the former phoneme /k/ split into two phonemes /k/ and /tʃ/. We call this **phonemic split**, or **split** for short, and you can see

Table 4.1 The split of Old English /k/

	'cat'	'chaff'	'chin'
Stage I	[katt] /katt/	[keaff] /keaff/	[kinn] /kinn/
Stage II	[katt] /katt/	[tʃeaff] /keaff/	[tʃinn] /kinn/
Stage III	[katt] /katt/	[tʃaff] /tʃaff/	[tʃinn] /tʃinn/

Table 4.2 The split of Latin /s/

	'dear' (fem.)	'flower'	'flowers'
Stage I	[ka:ra] /ka:ra/	[flo:s] /flo:s/	[flo:sɛs] /flo:sɛs/
Stage II	[ka:ra] /ka:ra/	[flo:s] /flo:s/	[flo:zɛs] /flo:sɛs/
Stage III	[ka:ra] /ka:ra/	[flo:s] /flo:s/	[flo:res] /flo:res/

that split is the opposite process to merger. This kind of split, in which one phoneme simply divides into two phonemes, is sometimes given the rather curious name **secondary split**.

There is another, more complex, type of split that does not increase the number of phonemes in the language. Consider Latin rhotacism. Pre-Latin had the phonemes /s/ (a voiceless sibilant) and /r/ (a voiced liquid). At some stage, /s/ became voiced to [z] between vowels (a common assimilation). Since Latin had no phoneme /z/, this was a purely allophonic change with no phonological consequences at all. But then this new [z] was lenited to a liquid [r]. In the process, it became identical to the existing /r/, and hence all words formerly containing intervocalic /s/ now had intervocalic /r/ instead. These developments are summarized in Table 4.2.

As a result, some instances of /s/ turned into instances of /r/. The number of phonemes did not change, but the distribution of /s/ and /r/ *did*: the number of words containing /r/ increased, the number of words containing /s/ decreased, and all occurrences of intervocalic /s/ disappeared, so that /s/ could no longer occur between vowels in Latin. Overall, the original phoneme /s/ split; one member of the split simply continued /s/, while the other underwent merger with the existing /r/. This scenario of split plus merger is called **primary split**. Figure 4.1 shows this graphically. In primary split, then, one result of the split merges with a second pre-existing phoneme; in secondary split, it finds nothing to merge with, and hence simply becomes a new phoneme by itself.

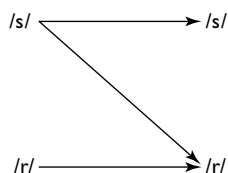


Figure 4.1 Primary split

This rhotacism had important consequences for the structure of Latin: it introduced **alternations** in the forms of certain words. For example, as we have just seen, the noun *flōs* ‘flower’, which had formerly had the perfectly regular plural *flōses*, now came to have the irregular plural *flōres*, and the stem meaning flower acquired an alternation between the forms *flūs*- and *flōr*-, with the second occurring before a vowel and the first elsewhere. This kind of outcome is very typical of conditioned phonological changes: though the change itself is regular, it introduces irregularities into the morphology. In [Chapter 5](#) we will examine the consequences of such changes for the morphology.

There is a further point, very important. If you have studied Latin, you will know that classical Latin has a number of words with intervocalic /s/, such as *casa* ‘house’, *rosa* ‘rose’, *causa* ‘cause’, *caseus* ‘cheese’, *esox* ‘salmon’, *ecclēsia* ‘assembly, congregation’, later ‘church’, *quasi* ‘as if’, *vīsum* ‘seen’, *vīsiō* ‘vision’ and, of course, the name *Caesar*. But how can those words be there, when I’ve just told you that sound change is normally regular, and that Latin intervocalic /s/ changed to /r/ without exception? Am I already in such trouble that I must abandon any claims that sound change is regular, and just confess that a change occurs sometimes but not other times?

No; far from it, as I’ll explain in a moment. But first suppose that I did give up my claim that phonological change is regular. Suppose I just shrugged and said ‘Ah, well, sometimes Latin intervocalic /s/ changed to /r/ and sometimes it didn’t.’ If I did that, then there would be nothing left to explain, no puzzles to solve, no further work to be done. This wouldn’t be very interesting.

But I am in fact going to insist that the change of intervocalic /s/ to /r/ in Latin was absolutely regular. I therefore have a problem: how am I going to explain all those Latin words that have intervocalic /s/? How did those words come to be there?

There are at least two obvious explanations for them. Maybe, before reading further, you’d like to pause a moment and see if you can think what might have happened. The first possible explanation is easy: the words were not in the language when the change occurred. We know that the Latin rhotacism of /s/ was completed by the fourth century BCE; after that, all the instances of intervocalic /s/ had vanished from the language. This was several centuries before the time of classical Latin, and Latin-speakers therefore had plenty of time to coin or borrow some new words containing intervocalic /s/. And that’s what they did. The word *ecclēsia* ‘assembly’ was borrowed from Greek in the first century BCE, and *esox* ‘salmon’ was borrowed from some other source, probably a Celtic language, at around the same time. The words *caseus* ‘cheese’ and *Caesar* appear to have been borrowed from a neighbouring Italic language, probably Sabine. By the time these words were borrowed, the change of /s/ to /r/ was history, and the new words were not affected by it.

The second possible explanation is slightly less obvious: the words were already in the language when the change occurred, but they didn’t contain intervocalic /s/ at the time, and hence could not undergo the change to /r/. The simplest case is *causa* ‘thing’. In Old Latin, this word is well attested in the form *caussa*, with a geminate /ss/. Unlike single /s/, geminate /ss/ did not undergo lenition to /r/: it remained unaffected by the change – unsurprisingly, since neither /s/ in *caussa* was intervocalic. Later, after the change to /r/ was completed, the geminate /ss/ in *caussa* underwent another, quite different, change: it was lenited to /s/, producing the classical form *causa*.

Slightly more complex is the case of *quasi* ‘as if’. This is thought to have originated as a compound of *quam* ‘how, as’ and *sī* ‘if’ – just like its English equivalent. The original **quamsī* had probably been assimilated to something like **quansī* by the time of the

rhotacism, but this form, too, did not contain intervocalic /s/ and hence was not rhotacized. Later, after rhotacism was finished, the cluster was simplified, and the classical form *quasi* was the result.

Most complex of all is the case of *vīsum* ‘seen’. Apart from its intervocalic /s/, this form is strange in other respects. It derives from the verb *vidēre* ‘see’, whose stem is *vid-*, not **vīs-*. Moreover, the participial suffix in Latin is normally *-tum*: compare *amātum* ‘loved’, the participle of *amā-* ‘love’. Therefore, we might have expected the participle of ‘see’ to be something like **vid-tum*. But the awkward cluster /dt/ is never found in classical Latin, and it seems that this cluster was simplified to something more pronounceable, probably /ss/. Hence, at the time of rhotacism, this word too contained /ss/, or at least something different from /s/, and this was again reduced to /s/ after the rhotacism was finished.

The word *vīsiō* ‘vision’ illustrates both of my explanations. This word did not exist at the time of rhotacism; it was coined by Roman scholars at a late date from the participle *vīsum* just described, at a time when educated Romans were trying to expand the vocabulary of their language to match that of the intellectually more sophisticated Greeks. That leaves *rosa* ‘rose’, and this one is a puzzle. The word is widely attested in other languages with /d/ instead of /s/, as in Greek *rhodos* (the source of our word *rhododendron*, literally ‘rose-tree’). So maybe this word too had something other than /s/ when rhotacism occurred. On the other hand, the change of intervocalic /d/ to a sibilant is well attested in Oscan and in Etruscan, two other neighbours of Latin. So maybe the Latin word was simply borrowed from one of these languages. Scholars are still not sure which explanation is correct in this case, but they’re certain that one of them must be right.

There are two important lessons here. First, a sound change normally happens at some particular time in the history of a language, and then stops. Consequently, the phonological history of a language consists of a series of changes, each acting on what’s left over from the last change. As a result of these accumulating layers of changes, the effects of earlier changes may be increasingly obscured by the effects of later ones. In our Latin example, various later changes reintroduced intervocalic /s/ into the language after the rhotacism had eliminated it; as a result, we can’t immediately tell by looking at classical Latin that the language had, centuries earlier, lost every single intervocalic /s/. We know this only because of patient and careful investigation by historical linguists.

Second, our policy of insisting that sound change must be regular is *fruitful*. If scholars had thrown their hands in the air and declared the troublesome words to be mere exceptions to rhotacism, there would have been no reason to worry about them. By insisting on regularity, however, they were forced to find explanations for the odd cases, and, as you can see, they have been very successful in finding those explanations – and, as a result, they have wound up knowing rather more about the history of Latin than might otherwise have been the case. Even the few really nasty cases like *rosa* remain as puzzles to be investigated, and perhaps a future scholar will manage to find definitive solutions to these, too. But, without the regularity hypothesis as a guiding principle, there would be no reason for anybody even to look for such solutions.

4.2 Phonological space

If you have done some phonology, you will perhaps be acquainted with the conventional manner of laying out the phoneme system of a language. For example, [Figure 4.2](#) illustrates the consonant system and the vowel system of standard Modern Greek. Modern Greek has

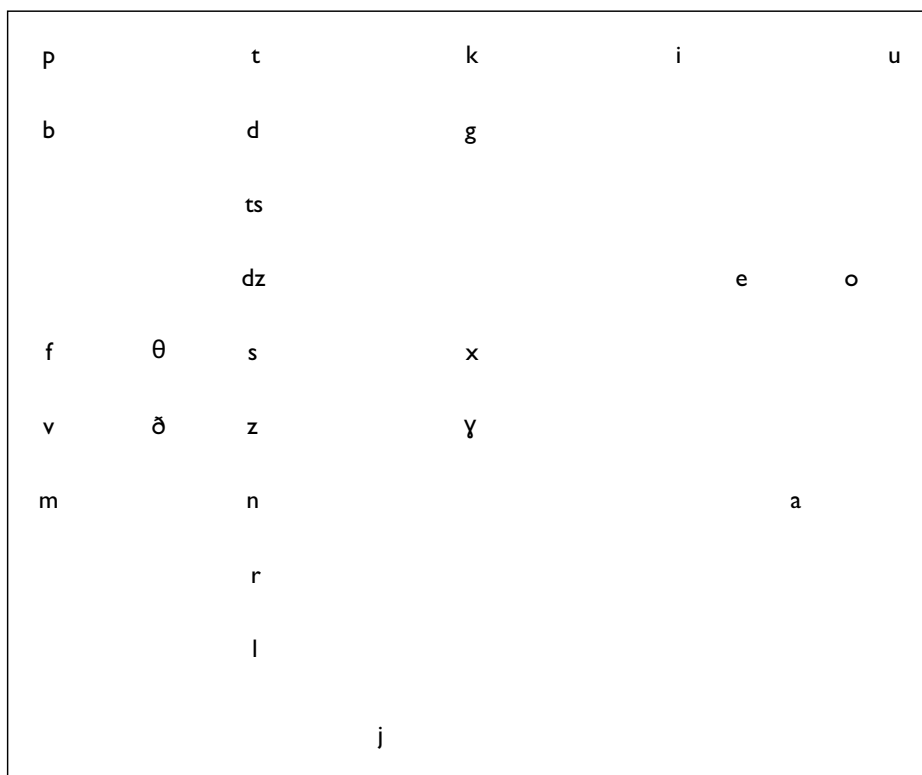


Figure 4.2 The phoneme system of Modern Greek

a fairly typical phoneme system. Note in particular the high degree of symmetry in the system: all obstruents occur in voiced–voiceless pairs, most vowels come in front–back pairs, and so on. Of course, the symmetry is by no means perfect: there is no velar nasal, affricates and liquids occur only in coronal position, the fricatives distinguish an extra place of articulation, there is only a single low vowel, and the glide /j/ is isolated. The departures from symmetry are easy to understand: the vocal organs themselves are far from symmetrical, and some of the missing segments that would fill the gaps are difficult or even impossible to produce.

In fact, when you think about it, it is the *presence* of so much symmetry that really calls for an explanation. Why should Greek, or any language, have so much symmetry in its phoneme system? Why do we find so much symmetry in phoneme systems generally? Why don't we find many languages with very unsymmetrical phoneme systems like, say, /p d ts v s x m w i y u e/?

This is a question for a phonologist, not for an historical linguist (your phonology teacher should be able to say something interesting about it). For our purposes, we need to know only that languages show a strong preference for symmetry in their phoneme systems, since this preference appears to play a part in phonological change.

Diagrams like Figure 4.2 are laid out in a two-dimensional representation of **phonological space**. Phonological space is the sum of all the different parameters that are available in constructing speech sounds. Especially in the vowel diagram, our figure takes

obvious advantage of the front–back dimension and the top–bottom dimension in the mouth, but there are many other dimensions that we can represent on paper only by using extra lines: the sideways dimension that distinguishes /r/ from /l/, the activity of the vocal folds, the position of the velum, the presence or absence of aspiration, affrication, or lip-rounding, the duration of segments, and others. Even so, phonologists have found such diagrams useful for certain purposes, and the same is true of historical linguists. For one thing, these diagrams can be convenient in representing graphically the effect of any phonological change which involves some degree of rephonologization, change in the phoneme system. But, as we will see later, these diagrams may at times actually help us to *explain* why certain changes have occurred.

Let's consider some changes in English. Old English had a set of contrasting voiceless and voiced plosives and affricates: /p t k b d g tʃ dʒ/. But it had only voiceless fricatives: /f θ s ʃ h/ (you might prefer to write /x/ instead of /h/ for the last one, but this decision is immaterial here). Most of them had voiced allophones between vowels, but there were no contrasting voiced fricatives (Old English had [ɣ], the voiced velar fricative, in words like *boga* 'bow (for firing arrows)', but this appears to have been primarily an allophone of /g/). Now recall from [Chapter 2](#) that, during the Middle English period, the language acquired a new voiced fricative /v/ as a result of borrowings from French. This new fricative disrupted the symmetry of the system: now there was a voicing contrast in just one position, and the new set of voiced fricatives consisted of /v/ plus a lot of blank spaces.

But things didn't remain like that. During the next couple of centuries, there were several further changes. English also acquired a second voiced fricative /ʒ/ in loans from French, and, very interestingly, the two fricatives /θ/ and /s/ split into contrasting voiceless and voiced phonemes: /θ/ and /ð/, and /s/ and /z/, respectively. As a result, the fricative system of modern English now looks like this:

/f θ s ʃ h/
/v ð z ʒ/

Observe that symmetry has been restored by the introduction of a complete set of voiced fricatives matching the voiceless ones, except for /h/. Particularly interesting is the introduction of /ð/. The contrast between /θ/ and /ð/ carries a very low **functional load** – that is, we hardly ever make use of it to distinguish one word from another. It takes a bit of work to come up with rare and marginal minimal pairs like *thigh* and *thy*, *ether* and *either* (some pronunciations only), the Scottish towns *Beath* (/biθ/) and *Beith* (/bið/), and *wreath* and *wreathe*. Why do English-speakers bother to pronounce these two fricatives differently? It would scarcely make the slightest difference to comprehension if we just pronounced all of them with /θ/.

The answer appears to lie in that drive for symmetry. Old English already had the distinctive feature [± voice] for plosives and affricates, and we might reasonably conclude, therefore, that this feature was potentially available also for the fricatives. Once this feature was extended to one pair of fricatives, then not only was there no reason for it not to be extended to the others, but there was perhaps even a tendency to favour such a development, in order to get the maximum phonological work out of the feature. Indeed, some linguists would argue that it is precisely such a tendency to maximize the use of features that is responsible for the observed degree of symmetry in phoneme systems generally. In the English case, then, we might reasonably conclude that such pressures on the system

strongly favour the maintenance of the /θ/–/ð/ contrast, even though this contrast does practically no work.

I can put this another way. If English had not acquired /ð/, our fricative system would look like this:

/f θ s ʃ h/
/v z ʒ/

There would therefore be a **gap in the pattern**. And there is clear evidence that languages dislike having gaps in their phoneme systems and tend to fill those gaps. (Forgive my anthropomorphic language, but it's convenient.)

Examples comparable to the English case are easy to find. Most dialects of Basque, like Old English, have only a set of voiceless fricatives: /f/, /s/ (laminal), /s̺/ (apical), and /ʃ/ (though some of these, as we saw above, have voiced allophones in certain positions). Loan words from French containing voiced fricatives are borrowed either with voiced plosives or with voiceless fricatives. In the Zuberoan dialect, however, the former glide /j/ some centuries ago underwent fortition into a voiced fricative /ʒ/, thereby providing a voiced partner for /ʃ/. Since that time, the two fricatives /s/ and /s̺/, just as in English, have split into pairs of voiceless and voiced fricatives, and French words are now borrowed into Zuberoan with voiced fricatives. Consequently, Zuberoan, like English, has acquired a complete set of voiced fricatives to match the voiceless ones (except for /f/); just as in English, the functional load of some of the new voicing contrasts is extremely low, but is apparently maintained by the pressure for symmetry. Dialects of Basque in which /j/ has not changed to a voiced fricative, in contrast, have shown no sign of acquiring any other voiced fricatives. (And we might wonder whether Zuberoan will one day soon fill the remaining hole in its pattern by acquiring a /v/.)

While we're here, we might note something interesting: the conflict between various kinds of phonological pressures. The glide /j/ is a weak sort of consonant, not very consonant-like at all, and in most dialects of Basque it has undergone strengthening to some kind of obstruent. From a syntagmatic point of view, this strengthening has the agreeable effect of making syllables containing this consonant conform better to the preferred CV-type of syllable. In the Zuberoan case, however, the strengthening of /j/ to /ʒ/ produced asymmetry in the consonant system, and the further changes in that system have served to restore symmetry. In other words, the resolution of a syntagmatic pressure (towards preferred syllable structure) at the same time introduced a paradigmatic problem (an asymmetrical system), which then had itself to be resolved by further changes. This type of development regularly happens in languages: it's impossible to optimize everything at the same time, and any change that optimizes one thing is likely to disrupt something else, leading to the possibility of further changes to repair the damage, which in turn introduce yet further strains on the system. It can be very illuminating to view phonological change as a ceaseless effort to keep responding to conflicting pressures, to keep fixing things that are not quite as neat as they might be. But perhaps now I really am becoming too anthropomorphic.

4.3 Chain shifts

That part of phonological space containing vowels is called the **vowel space**, and changes in vowel space often exhibit some remarkable behaviour. Let's consider the dramatic set

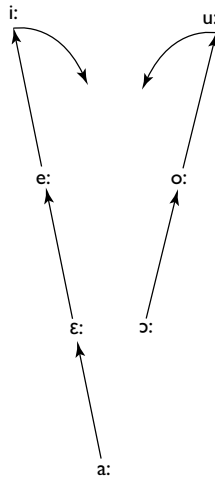


Figure 4.3 The English Great Vowel Shift

of changes which affected the English system of long (tense) vowels at about the end of the Middle English period: the so-called *Great Vowel Shift* (GVS) of English.

Middle English had a symmetric system of seven long vowels: /i:/ e: ɛ: a: ɔ: o: u:/. These vowels occurred, for example, in the seven words *ride* /ri:də/, *gees* ‘geese’ /ge:s/, *bead* /bɛ:d/, *name* /na:mə/, *gote* ‘goat’ /gɔ:tə/, *goos* ‘goose’ /go:s/ and *doun* ‘down’ /du:n/, respectively. As you can see, all these words have changed their pronunciation drastically. What happened was this. The two high vowels /i:/ and /u:/ were diphthongized to /əi/ and /əu/, respectively. The two high-mid vowels /e:/ and /o:/ were raised into the /i:/ and /u:/ slots. The two low-mid vowels /ɛ:/ and /ɔ:/ were raised into the /e:/ and /o:/ slots. And the low vowel /a:/ was raised into the /ɛ:/ slot. All this is shown schematically in Figure 4.3.

As you can see, there have been further changes for most of these vowels, most obviously in the vowels of *bead* and *name*, but those additional changes happened later and need not concern us for the moment. What we’re interested in just now is the fascinating little dance illustrated in Figure 4.3. As you can see, during the GVS all the long vowels moved around the vowel space in a very orderly manner, with each non-high vowel occupying the place vacated by its neighbour, while the two high vowels moved out of the set of long vowels altogether by becoming diphthongs. This elaborate set of movements seems almost to have been orchestrated, but of course it wasn’t: it was just a response to some kind of pressure on the vowel system. As we will see in Chapter 10, however, this apparent symmetry was destroyed by a series of mergers in the front of the mouth, partly triggered by diphthongs not mentioned here.

A set of related changes like this one is called a **chain shift**, and you can see why we call it that. Chain shifts are by no means rare in vowel systems, and they occasionally even happen in consonant systems. But why should such an amazing rearrangement occur at all? What started the GVS, and why did it keep going until all seven vowels had moved to different places in the vowel space?

There are at least three possible ways in which the GVS might have proceeded. First, it could have started with the diphthongization of the two high vowels (we know that tense

high vowels tend to diphthongize fairly readily). This diphthongization would have left two gaps in the pattern where the high vowels had formerly been, and the two high-mid vowels could have been attracted upwards to fill those gaps. This, in turn, would have left gaps behind in the high-mid positions, inducing the low-mid vowels upwards to fill these new holes, leaving two more holes behind again, with the low vowel then rounding things off by moving up into one of those gaps, leaving a final unfilled gap behind it. This kind of chain shift is a **drag chain**: a chain that starts with the introduction of some holes which ‘drag’ other segments into them, thereby creating more holes which in turn drag other segments into them, and so on.

But there’s another possibility. The GVS could have started with the raising of /a:/ toward /ɛ:/, thereby threatening a merger of these two vowels. The vowel /ɛ:/ might have reacted to this threat by moving upwards, away from the incoming /a:/, but thereby threatening /e:/ in the same way. And /e:/ could have reacted similarly by moving up toward /i:/, which, unable to move any higher, got out of the way by diphthongizing. In this view, the back vowels, though not directly threatened, would simply have moved upwards in the same manner in order to maintain symmetry in the system. This sort of chain shift is a **push chain**: a chain that starts with a movement of one segment dangerously close to a second one, causing that second one to move out of the way and do the same thing to a third segment. Finally, it’s also possible, of course, that both these things happened. The shift might have started with the raising of /e:/ and /o:/, pushing /i:/ and /u:/ out of the way and dragging the other vowels upwards behind them.

Since the available data are rather sparse, it’s not easy to decide just what did happen in this case. Some scholars have preferred to see the GVS as a drag chain, while others have argued for just the sort of push–drag combination I’ve just described. The issue is still being debated. The investigation of other chain shifts suggests that both pure drag chains and mixed push–drag chains are fairly common, while pure push chains are comparatively rare. All chain shifts, though, however they start, can be plausibly interpreted as continuing in order to maximize the use of the available phonological space: the farther apart the contrasting segments are in phonological space, the easier it is to tell them apart when listening to speech, and the less likely are misunderstandings.

Now note that the GVS produced a very odd and unbalanced system of long vowels: three front vowels, but only two back vowels, and no low vowel at all. This last is very strange: low vowels are the most vowel-like of all vowels and are virtually universal in languages. You might therefore expect that such an unfortunate gap in the system would have been quickly filled, and you’d be right. To start with, the short /a/ which had remained unaffected by all this activity was lengthened in many varieties in a few words, as in *father*, thereby providing some new instances of /a:/ – but not very many. More recently other things have happened, but, interestingly, different things have happened in different varieties of English.

To begin with, /l/ was lost in certain circumstances, in words like *calm*, *palm*, *half* and *calf*. These words have since undergone complex and variable developments (including the restoration of /l/ by some speakers in some of them, under the influence of the spelling), but most speakers have wound up with a long low /a:/ in some of these words, and some speakers have this vowel in all of them.

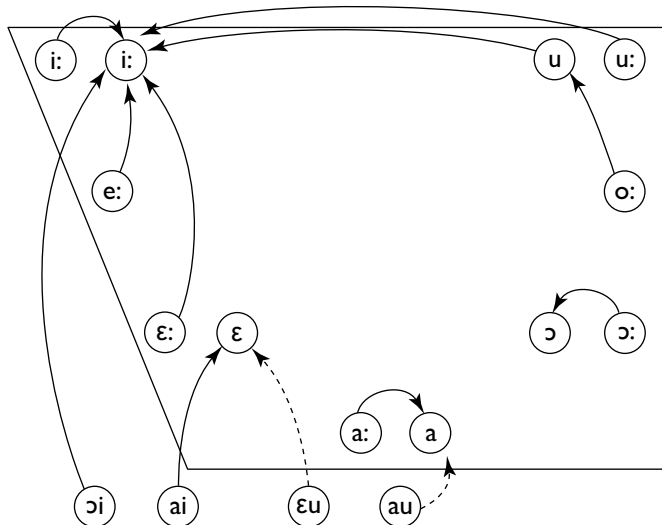
Next, the short vowel /ɒ/, as in *not* and *pot*, was unrounded and lowered in some (not all) accents, and the resulting /a/ was then lengthened to /a:/. This kind of pronunciation is now typical of North America: most Americans and Canadians pronounce *not* and *pot* with the long low vowel of *father* in most pronunciations. This change has not affected most of the rest of the English-speaking world.

More recently still, the consonant /r/ has been lost everywhere except before a vowel in parts of England, in Wales, in the eastern and southern USA, in the Englishes of South Asia and in almost all native speaker varieties from the Southern Hemisphere. A preceding short /a/ has undergone compensatory lengthening, and hence words like *far* and *dark* now have /a:/ for these speakers, and *farther* is pronounced just like *father*. One way or another, then, that vanished /a:/ has been replaced in the English vowel system, providing yet another example of the way in which a change that resolves one problem introduces new problems which must then be resolved by yet further changes.

As for the imbalance between the three front and two back vowels resulting from the GVS, that too was eventually resolved, but the story of how this was done is so unusual that I reserve it for [Chapter 10](#).

Not all chain shifts are as spectacular as the English GVS, and not all complex vowel changes are chain shifts, but it is nonetheless often useful to track vowel changes on a diagram of the vowel space to get an overall picture of what has happened.

Consider the history of the vowel system in Greek, a language whose vowels have undergone very substantial changes during the last three millennia. Recall from [Figure 4.2](#) that Modern Greek has only the very simple vowel system /i ε a ɔ u/. Around 2,800 years or so ago, the Greek of Athens (the ancestor of the modern language) had a much more elaborate system, with seven long vowels /i: e: a: ɔ: o: u:/, five short vowels /i ε a ɔ u/, and four diphthongs /ɔi ai eu au/. (I omit the so-called ‘long diphthongs’ here and the fact that Greek at one time had something rather like tone.) The development of these twelve vowels and four diphthongs into the five vowels of Modern Greek is mostly well understood. It is possible to display all of the changes simultaneously in a diagram like [Figure 4.4](#), but I’m sure you’ll agree that such a display is not terribly enlightening, though it does at least show that no fewer than seven different vowels and diphthongs have merged into the single vowel /i/, a development called **iotacism**, from the name of the Greek letter equivalent to I. (The dotted lines represent some rather peculiar developments explained below.)



[Figure 4.4](#) The history of the Greek vowel system

We can get a better idea of the history of the Greek vowel system if we work through it step by step. Since I lack the space here to display every single step, I suggest you get a large sheet of paper and a pencil and draw the vowel system at each step, in the conventional manner, to keep track of what's happening. (There is some minor disagreement among specialists as to the details; here I follow Allen 1968.)

- Step 1:* We have the seven long vowels, five short vowels, and four diphthongs of the archaic period. The system is highly symmetrical.
- Step 2:* The two high back vowels /u: u/ are fronted to /y: y/. (The motivation for such fronting is not obvious, but it's a fairly common change.) Symmetry is destroyed, as there are now gaps in the high back position.
- Step 3:* The vowel /o:/ is raised to /u:/. This fills one of the two new gaps, but leaves a new hole behind: /e:/ no longer has a back counterpart.
- Step 4:* The vowel /e:/ is raised to /i:/, merging with the existing /i:/. This restores symmetry, and the new system is once again perfectly symmetrical apart from the absence of /u/.
- Step 5:* The vowel /ε:/ is raised to /e:/, wrecking the symmetry once again.
- Step 6:* The diphthong /ai/ is levelled to /ε:/, replacing the vanished /ε:/ and restoring a measure of symmetry.
- Step 7:* The diphthong /ɔi/ is levelled to /y:/, merging with the existing /y:/. There are no consequences for the system except the loss of a diphthong.
- Step 8:* Like its predecessor, the new /e:/ is raised to /i:/ and merges with the existing /i:/. Apart from the loss of two diphthongs, the system has returned to exactly the form it had at step 4, perfectly symmetrical apart from the lack of /u/.
- Step 9:* The front rounded vowels /y: y/ are unrounded and merge with /i: i/, respectively. Greek now has a nearly symmetrical system of five long vowels and four short vowels, plus the diphthongs /eu/ and /au/.
- Step 10:* Vowel length is lost: all vowels become short, and every long vowel merges with its short counterpart, except for /u:/, which has no short counterpart. Greek now has a perfectly symmetrical five-vowel system, plus those two diphthongs.
- Step 11:* The diphthongs /eu/ and /au/ are converted to the sequences /εv/ and /av/. Since Greek already has a phoneme /v/, the diphthongs are effectively reduced to /ε/ and /a/, respectively, thus merging with the existing /ε/ and /a/. The sixteen nuclei of archaic Greek have been reduced to just five.

Only a few of these steps can plausibly be viewed as chain shifts: the fronting of /y:/ followed by the raising of /o:/ (steps 2 and 3), and perhaps the raising of /ε:/ followed by the levelling of /ai/ (steps 5 and 6). But there are other points of interest. First, observe the enduring tendency for tense vowels to be raised. We saw the same raising in the English GVS, and it appears to be a universal tendency in languages (something demonstrated convincingly in Labov 1994). In English, the vowels that were maximally high to start with diphthongized out of the system; in Greek, the high back vowels were fronted, but the high front vowels didn't go anywhere: instead, the high front position has historically acted as a sink, collecting and keeping vowels from other positions.

In most cases, these repeated raisings of tense vowels have helped to restore symmetry lost by earlier changes, but the exception is step 5, in which the raising wrecked the existing

The feature specification [–friction] is required to exclude affricates, which were not affected by the change, and this rule therefore simply states that all segments (except

affricates) involving a complete oral closure become voiced between vowels. In the usual manner, this rule also applies to voiced plosives and to nasals, which are also [–continuant], but these were voiced to begin with, so the rule just applies to them harmlessly and vacuously. The only effect of the rule is to voice voiceless plosives in this position, which is what we require.

In the generative approach, then, the voicing of intervocalic plosives in Spanish is viewed as the addition of Rule 4.1 to the phonology of Spanish. Such **rule addition** is seen as a major pathway of phonological change, but other types of rule change are also attested.

If we can have rule addition, than perhaps we can also have **rule loss**: the disappearance of a rule from a language. Something like this must indeed have happened with Rule 4.1 in Spanish. At some stage, it stopped applying, and new instances of intervocalic /p t k/ entering the language, from whatever source, no longer underwent it. Hence modern Spanish is full of words with intervocalic /p t k/, like *copa* ‘wine glass’, *mito* ‘myth’, and *boca* ‘mouth’. Rule 4.1 is now only a historical event in Spanish; it is no longer part of the language. The majority of sound changes are like this: they apply only for a while, and then disappear. But there are perhaps more interesting cases of rule loss.

Consider Yiddish. Yiddish is a distinctive offshoot of Middle High German (MHG), which is also the ancestor of modern standard German. MHG is itself descended from the earlier Old High German (OHG). Now in OHG, words could end in a voiced obstruent, for example, OHG *tag* ‘day’. But, on the way to MHG, a change was introduced: all word-final obstruents were devoiced. We can represent this as Rule 4.2:

Rule 4.2: [+obstruent] = [–voice]/_____ #

Hence, the earlier *tag* changed to *tac* /tak/, and so on for all other relevant words in the language: *weg* ‘way’ became *wec*, *aveg* ‘away’ became *avec*, *ab* ‘off’ became *ap*, *lied* ‘song’ became *liet*, and so on. A voiced plosive which was not word-final did not devoice: hence the plural forms like *tage* ‘days’, *wege* ‘ways’, and *lieder* ‘songs’ retained voiced plosives, producing as a result of set of alternations like /tag-/ ‘day’ (non-finally) ~ /tak/ (finally). Unlike the Spanish rule, Rule 4.2 has never been lost from standard German: though modern German orthography chooses to use spellings like *Tag* ‘day’, *Weg* ‘way’, *weg* ‘away’, *ab* ‘off’, and *Lied* ‘song’, all these words are in fact pronounced with final voiceless plosives.

Yiddish is descended from MHG, which already had Rule 4.2, but the modern Yiddish forms of the nouns are in fact *tog* ‘day’, *veg* ‘way’, and *lid* ‘song’, with final *voiced* plosives. On the other hand, grammatical words like *avek*, in which there are no alternations, have voiceless plosives in Yiddish. So what has happened?

We might suggest that Yiddish has added another new rule *voicing* final plosives and reversing the effect of Rule 4.1, but that would not explain why the final voiced plosives are found only in words that formerly had alternations: MHG *tac* ‘day’, *tage* ‘days’, but *avec* ‘away’; Yiddish *tog*, *toge*, but *avek*. A more plausible scenario is this: non-alternating words like *avek* were first reanalysed as containing underlying final voiceless plosives, since there was no evidence from alternations to suggest otherwise. Alternating words like **tok* ~ **toge*, in contrast, continued to be regarded as having underlying voiced plosives and continued to undergo Rule 4.2. But then Rule 4.2 was simply *lost* from the phonology of Yiddish, thus restoring the final voiced plosives in all cases except those, like *avek*, which had already been reanalysed.

Such striking instances of rule loss are far less frequent than instances of rule addition, but cases like the Yiddish one suggest that rule loss is nonetheless a possible type of rule change.

A further, and very striking, type of rule change is **rule reordering**. Here is an instance from the Bizkaian dialect of Basque. All varieties of Bizkaian possess the dissimilation Rule 4.3, which raises a mid-vowel before a non-high vowel:

Rule 4.3: V [-low] = [+high]/_____V [-high]

This rule is responsible for the typical Bizkaian alternations induced by the addition of the article *-a*: *asto* ‘donkey’ but *astua* ‘the donkey’, *lore* ‘flower’ but *loria* ‘the flower’.

All varieties of Bizkaian also raise the vowel /a/ before /a/, but the details are not everywhere the same. Many varieties have Rule 4.4:

Rule 4.4: V [+low] = [-low, -back]/_____V [+low]

Rule 4.4 raises /a/ to /e/ before /a/, and hence these varieties have alternations like *neska* ‘girl’ but *neskea* ‘the girl’.

Observe that, in order to get the right result with underlying forms like *neskaa*, Rule 4.3 must precede 4.4, since, with the opposite ordering, Rule 4.4 would create new cases of /ea/ for Rule 4.3 to apply to. We might surmise, therefore, that Rule 4.3 entered the phonology of Bizkaian earlier than Rule 4.4.

In some other varieties of Bizkaian, however, while everything else is the same, the result is different with cases of underlying /aa/. In these varieties, *neska* has the definite form *neskia*. What has happened in these varieties?

We might, of course, argue that Rule 4.4 has simply been changed, so that its output, instead of bearing the feature specification [-low], bears the specification [+high]. This would give the right result (check it), but such an analysis would be rather puzzling: why should this rule undergo such a seemingly arbitrary modification?

There is, however, another way of interpreting the Bizkaian case, one which does not require any changes at all in either rule: we can posit that Rules 4.3 and 4.4, in the second group of varieties, have simply *changed their order*, so that 4.4 now applies before 4.3. [Table 4.3](#) shows the result in the (conservative) first group of varieties, and in the (innovating) second group, in which the rules have changed their ordering. Such **rule reordering**

[Table 4.3](#) Rule reordering in Bizkaian Basque

	<i>‘the flower’</i>	<i>‘the girl’</i>
<i>Conservative</i>		
underlying	lore+a	neska+a
Rule 4.3	loria	neskaa
Rule 4.4	loria	neskea
<i>Innovating</i>		
underlying	lore+a	neska+a
Rule 4.4	lorea	neskea
Rule 4.3	loria	neskia

is now widely recognized as another important type of rule change. Now note something important: the rule reordering in Bizkaian has had the effect of creating new instances of /ea/ for Rule 4.3 to apply to. That is, 4.4, when it comes first, **feeds** 4.3, and the order '4.4 precedes 4.3' is therefore called **feeding order** for these rules. In a series of publications, Kiparsky has argued that there is a universal tendency for rule reordering to take place so as to produce exactly this result: the maximization of feeding order. The Bizkaian case conforms entirely to Kiparsky's prediction: the **counterfeeding order** of the conservative varieties has been replaced, in the innovating varieties, by feeding order.

Yet another type of rule change is **rule simplification** (also called **rule generalization**). Here a rule simply loses one or more feature specifications, so that the new version looks simpler, and applies more generally, to a wider range of cases. Here is an example.

All varieties of English have undergone a historical change by which a morpheme-final voiced plosive /b/ or /g/ is lost after a nasal. Hence words like *lamb*, *climb* and *comb* have lost the final /b/ which they formerly had, and words like *long*, *sing* and *fang* have likewise lost the final /g/ which they once had. In fact, this rule is still in the language today: no English morpheme can end in /mb/ or /ŋg/ (except, in the latter case, for many speakers from the English Midlands). On the other hand, the morpheme-final cluster /nd/ has been unaffected: words like *land*, *hand*, and *find* retain their final plosive. For most varieties of English, then, we can write Rule 4.5:

Rule 4.5: [–continuant, –friction, +voice] = Ø/[+nasal, –coronal]_____+

(The symbol Ø means zero – that is, no consonant at all; the specification [–friction] is necessary because affricates are not lost in words like *singe*, *lounge* and *range*.) In some American accents, however, particularly in the south, final /d/ has been lost after /n/, so that *find* is pronounced like *fine*, *stand* is pronounced like *Stan*, and so on (a feature also present in many Scottish varieties). For these varieties, the appropriate rule is 4.6:

Rule 4.6: [–continuant, –friction, +voice] = Ø/[+nasal]_____+

Rule 4.6 represents a simplification, or generalization, of Rule 4.5: the feature specification [–coronal] has been lost, so that the rule is simpler to write and applies to a wider range of cases.

Finally, there is one more type of rule change, rather more complex than the other types. This is **rule inversion**. This concept needs a little explaining.

In a rule-based approach to phonology, recall, we assume that each morpheme or word has an underlying form, and that this underlying form may be altered by the application of rules to produce the surface phonetic form. This surface form may be significantly different from the underlying form, and we say that the surface form is a **derived form**. If we confine our attention to just one rule at a time, we may represent all this schematically, as follows: underlying form = [rule] = derived form.

What happens in rule inversion is that speakers reanalyse this whole business, taking the original derived form as underlying and the original underlying form as derived from it. The original rule, therefore, must be 'turned around', or **inverted**, so that it now applies in the opposite direction. Here is an example from Basque. Centuries ago, Basque underwent a change by which intervocalic /l/ was changed to /r/. We can represent this change by Rule 4.7:

Rule 4.7: $l = r/V \text{ ______ } V$

For example, original **gali* ‘wheat’ became *gari*, and **haizkola* ‘axe’, a loan from Latin *asciola*, became *haizkora*. In word-formation, however, the final vowel of a first element has since ancient times been lost in Basque in most circumstances. Consequently, in word-formation, these nouns anciently appeared as *gal-* and as *haizkol-*, respectively. As a result, they form compounds and derivatives like *galbahe* ‘wheat sieve’ (*bahe* ‘sieve’), *galgorri* ‘a species of wheat’ (*gorri* ‘red’), and *haizkolbegi* ‘hole in the axe-head for inserting the handle’ (*begi* ‘eye’). Since the */l/* in these formations was not intervocalic, it did not change to */r/*, and these are the modern forms. Historically speaking, then, the underlying forms of these words are *gali* and *haizkola*, and *gari* and *haizkora* are the derived forms, obtained by the action of Rule 4.7. So far this is all perfectly straightforward.

But now comes the complication. Basque also has words in which inter-vocalic */r/* was historically present, such as *zamari* ‘horse’, a loan from Latin *sagmariu* ‘pack-horse’. And this word, when it enters into word-formation, not only loses its final vowel as usual but further shows a combining form in */l/*, as in *zamaldun* ‘horseman’ (*-dun* ‘who has’). Forms like *zamaldun* cannot possibly result from the application of Rule 4.7, and neither can forms like *zamari*, which we know had */r/* to begin with. The only possible conclusion, then, is that Basque-speakers have inverted Rule 4.7. That is, forms like *gari*, with an */r/* originally derived by 4.7, have been reinterpreted as underlying, while forms like *galbahe*, originally representing the underlying form **gali* rather directly, have come to be reinterpreted as derived by rule. The rule that relates forms in */l/* and forms in */r/* can no longer be 4.7; instead, this has been replaced by an inverted rule something like 4.8:

Rule 4.8: $r = l/V \text{ ______ } + C$

Observe that, whereas the original Rule 4.7 was a purely phonological rule, applying in a purely phonological environment, the new Rule 4.8 is at least partly a morphological rule: its environment contains a morpheme boundary, and hence it only applies in word-formation, and not otherwise. The conversion of phonological rules to morphological rules is, in fact, a common phenomenon, and we shall be examining this phenomenon in the next chapter.

Case study: the Germanic consonant system: ‘Grimm’s Law’ and ‘Verner’s Law’

As what we now term Historical Linguistics was placed on an increasing systematic footing in the early decades of the nineteenth century, the largely Germanic-speaking scholars who were in the vanguard of this systematization began to attempt to explain the process by which their languages became phonologically distinct from the other Indo-European languages. Primarily, they were interested in the consonant correspondences between the earliest Germanic languages and other early Indo-European varieties, as demonstrated in Table 4.4 (in which I am following the excellent discussion of these matters in Hock and Joseph [1996]).

Table 4.4 Consonant correspondences between Germanic and other IE varieties (adapted from Hock and Joseph 1996: 115)

	Greek	Latin	Sanskrit	Gothic	Old English	
a.	patēr treîs (he-)katón	pater trēs centum	pitā trayas śátām	fadar þreis hund	fæder þrī hund	'father' 'three' 'hundred'
b.	déka geúomai	decem gustus	dása džōs	taihun kiusan	tēon cēosan	'ten' 'taste, test, choose'
c.	phérō (é-)thē-ka kheúō	ferō fēci fu-n-d-ō	bharāmi (a-)dhām ho-tar	baira (ga-)dēþs giutan	beoru dæd gēotan	'I carry' 'put/do, deed' 'pour'

(Don't get too caught up in the various length and stress marks shown with some languages. For most of what is to follow, they don't matter – although they do matter a great deal if you choose to study one of these languages in depth, of course.)

The Germanic languages are not alone in having strikingly altered consonant systems: Latin and, in particular, Sanskrit, appear to have passed through significant changes in comparison with Greek. But it is the systematic and thoroughgoing nature of the changes which mark off the Germanic languages from the others. In work published by Rasmus Rask in 1818 and made more widely known in the second edition of Jakob Grimm's *Deutsche Grammatik* ('German Grammar') of 1822, an analysis of the manner in which these correspondences represented historical change was attempted. Later historical linguists generally termed the resulting pattern *Grimm's Law*. What is this law, therefore?

Interpreted in modern terms, the Law suggests that, in the first place, Proto-Indo-European voiceless plosives became voiceless fricatives in the Germanic languages (as represented in set a. in Table 4.4). Second, Proto-Indo-European voiced plosives became voiceless plosives (as represented in set b. in Table 4.4). Finally, Proto-Indo-European aspirates became voiced plosives or fricatives, depending on the contexts. Now, a number of these changes have been rendered less transparent by later changes. For instance, the change from voiceless stop to voiceless fricative, still present today in English *three* in comparison with French *trois*, is no longer obvious in German *drei*, where a voiced plosive has replaced the voiceless fricative. But the point is that, according to those who promulgated the set of changes as a 'Law', the earliest recorded Germanic varieties supported an acceptance of its wholesale nature.

When Grimm discussed the change, he saw it as cyclical, as a matter of sounds starting off as one type, becoming another and, eventually, returning to something like the first position. But this only really works with High German (in particular in its southern dialects), where a further set of changes has meant that many of the specifically Germanic outcomes have been reshaped. For the other Germanic languages, however, we have to assume a half-completed cycle.

Nevertheless, it is apparent that a linguistic slot, such as *voiceless plosives*, appears to have been abandoned by a particular set of words and then filled by another group

whose consonants had previously been pronounced in a different manner. This could be represented as:

voiced aspirates > voiced plosives (or fricatives) > voiceless plosives > voiceless fricatives

with the first category ceasing to exist and the last category coming into being. But this analysis poses as many questions as it answers. There is a longstanding (and often heated) debate over whether the change is an example of a drag-train (where the first change drags all the other pronunciation units in an attempt to maintain systemic symmetry) or a push-chain (where the last change encroaches on its neighbour's space, thereby 'pushing' it into another unit's space, and so on). It's quite possible that both apply. And we haven't even started on why there weren't mergers between units rather than a chain development.

More importantly, Grimm's Law doesn't work as we have discussed it here. There is a major exception. By the 'Law', we would expect the second consonant in Old English *fæder* not to be <d>, but <þ>, since other early Indo-European languages have <t>, as in Latin *pater* (in the West Germanic languages, /ð/ created by the consonant shift merged with /d/; it was reintroduced into English in these positions in the fifteenth and sixteenth centuries). And the apparent exception isn't confined to this one word. Since the Latin word for 'mother' is *māter*, we would expect Old English **mōþor*; instead we have *mōdor*. But equivalent to Latin *frāter* is not Old English **brōdor*, but rather *brōþor*! These patterns are found in all the early Germanic languages. How can we make sense of this?

And matters can become even more complex. In Old English (and, of course, its Germanic sisters), variation is actually possible within the paradigm of a particular word (in its case and number forms with a noun; in its tense and number forms with a verb). For instance, the paradigm of *cwiþan* 'to speak, say' is *cwæþ* 'he/she said' but *cwædon* for 'they said' and (*ge-*)*cweden* for the past participle. Of course we can assume that variation of this type was in some way abnormal for English-speakers by the fact that none of these alternations – with a couple of very important exceptions – has survived into Modern English (or, indeed, all but the earliest of early Middle English); this doesn't explain why the system developed in the first place, however.

So the debate stood until 1875, when Karl Verner published a solution which was as erudite as it was elegant. Essentially he employed a form of lateral thinking. In the Germanic languages, native words are governed by a rigid stress pattern: stress falls on the first element of the root of the word (in other words, not on a prefix). We say *fāther*, not *fathér*, *bróther*, not *brothér*, *agróund*, not *áground*, and so on (English stress patterns have been changed immeasurably by the borrowing of French and Latin lexis, but this need not concern us here). Verner looked at the other Indo-European languages and found that this rigidity was not present for many other sub-families, becoming less so the further back in time you looked (Indo-European

Table 4.5 Verner's Law and Sanskrit stress (adapted from Hock and Joseph 1996: 119)

	<i>Sanskrit</i>	<i>Old English</i>	
a.	vártate vavárta	weorþan wearþ	'turn, become' (present) (past singular)
b.	vavrtúr vrtaná	wurdon (ge)worden	(past plural) (past participle)

is blessed with having a number of early languages – Sanskrit pre-eminently, but also Avestan, Greek and Latin – where the recitation and memorization of texts, particularly holy texts, long after people had stopped speaking in a similar way to the written form, meant that a precise literature on the stressing of words, along with pronunciation, developed). Verner postulated from this that the Germanic languages had once had the same, or similar, stress patterns as ancient varieties of other IE varieties had. What did this mean, however?

Again following the examples in Hock and Joseph (1996), let's compare the paradigm for the same verb in Sanskrit and Old English, bearing in mind that Sanskrit stress may differ according to the particular form of the verb (and this is shown), while Old English only has stress on the first root syllable (Table 4.5).

What we see here is very revealing. When the Sanskrit (and therefore probably the Indo-European) stress fell before the <t> (and other consonants, of which more in the next chapter), the expected Grimm's Law <p> was realized in Old English. But, when the stress fell after the <t>, the anomalous <d> was present. Using a large amount of evidence, Verner was able to show that wherever these apparent anomalies occurred in the early Germanic dialects, stress preceded rather than followed the consonant in question in other early Indo-European varieties. Therefore, we can assume that Grimm's Law and what we can now call Verner's Law – this voicing of consonants in pre-stress position – occurred before the change to rigid stress patterns. We can also say that Grimm's Law did not have an anomaly; rather, a further law worked upon its results in a completely predictable manner. In the next chapter we will discuss a couple of phonological anomalies which Verner's Law created, and analogy (largely) neutralized.

4.5 Summary

In the previous chapter we saw that phonological changes can often be understood as syntagmatic phenomena affecting the sequences of speech sounds within words and phrases. In this chapter we have seen further that many phonological changes have significant consequences for the phonological system of a language, and that these can often be illuminatingly investigated by examining the system of consonant and vowel phonemes arranged in phonological space. The maintenance or restoration of symmetry appears to be a powerful force in sound change, and chain shifts in particular can be more readily

understood in terms of movement within phonological space. A crucial observation has been that there are always competing phonological pressures, both syntagmatic and paradigmatic; it is impossible to satisfy all of these at once, and a great deal of phonological change can be understood as endless attempts at satisfying these competing pressures, with each resulting change typically introducing new strains into the system. We have further seen evidence that the principle that sound change is regular is a very fruitful basis for examining the phonological history of a language, since clinging to this principle allows us to identify problematic data with great precision and often to find explanations for them, explanations that increase our understanding of the history of the language in question. Finally, while some changes apply only to particular segments, others apply instead to entire natural classes of segments, and these changes can often be considered most profitably within a rule-based framework like generative phonology, with each such change being interpreted as some kind of rule change.

Further reading

The study of phoneme systems and of phonological space was pioneered by the Prague School linguists almost 75 years ago, notably in Trubetzkoy (1939). Useful surveys of phoneme systems can be found in Hockett (1955), Sedlak (1969), O'Connor (1973: [Chapter 7](#)), Crothers (1978), Nartey (1979), Maddieson (1980a, 1980b, and especially 1984), Lass (1984: [Chapter 7](#)) and Lindblom (1986). The use of these ideas in exploring phonological change, and the notions of holes in the pattern and chain shifts, were chiefly developed by André Martinet, especially in Martinet (1955); more recently the American William Labov has been pursuing the investigation of chain shifts, especially in Labov (1994, 2001 and 2008). The classic work on the application of generative phonology to phonological change is King (1969). The leading figure in the field has long been Paul Kiparsky, who has developed his ideas in a series of publications, among the more important of which are Kiparsky (1968a, 1968b, 1971 and 1973). Kiparsky (1988) is an overview of phonological change including some topics discussed later in this book. Smith (2009) is an excellent non-generative treatment of English historical phonology.

Exercises

Wherever possible (it may not always be possible or helpful), you may like to write phonological rules for the changes you identify in each of the following problems and to put those rules into an appropriate historical order.

Exercise 4.1

Most varieties of Basque have the five oral vowels /i e a o u/. The Zuberoan (Souletin) dialect has six, the extra vowel being a front rounded vowel /ü/. [Table 4.6](#) shows some Basque words, given both in their standard form, which represents the vocalism of most other dialects, and in Zuberoan. Try to explain what has happened in Zuberoan. Ignore any differences in the consonants; they are not relevant here. The data have been selected to avoid one or two complications.

Table 4.6 Vowel patterns in Zuberoan and other Basque dialects

		Standard	Zuberoan
1.	'cuckoo'	<i>kuku</i>	<i>kükü</i>
2.	'debtor'	<i>zordun</i>	<i>zordün</i>
3.	'foot'	<i>oin</i>	<i>huñ</i>
4.	'gold'	<i>urre</i>	<i>ürhe</i>
5.	'good'	<i>on</i>	<i>hun</i>
6.	'head'	<i>buru</i>	<i>bürü</i>
7.	'he has me'	<i>nau</i>	<i>nai</i>
8.	'help'	<i>lagundu</i>	<i>lagüntü</i>
9.	'hold'	<i>eduki</i>	<i>edüki</i>
10.	'hundred'	<i>ehun</i>	<i>ehün</i>
11.	'hut'	<i>ola</i>	<i>olha</i>
12.	'I have it'	<i>dut</i>	<i>düt</i>
13.	'island'	<i>uharte</i>	<i>üharte</i>
14.	'long'	<i>luze</i>	<i>lüze</i>
15.	'man'	<i>gizon</i>	<i>gizun</i>
16.	'night'	<i>gau</i>	<i>gai</i>
17.	'red'	<i>gorri</i>	<i>gorri</i>
18.	'short'	<i>motz</i>	<i>mutz</i>
19.	'sole'	<i>zola</i>	<i>zola</i>
20.	'take'	<i>hartu</i>	<i>hartü</i>
21.	'we'	<i>gu</i>	<i>gü</i>
22.	'when?'	<i>noiz</i>	<i>nuiz</i>
23.	'who?'	<i>nor</i>	<i>nur</i>
24.	'you have it'	<i>duzu</i>	<i>düzü</i>

Exercise 4.2

Hawaiian has undergone a number of unconditioned changes in the consonant system of its Proto-Polynesian ancestor. Table 4.7 lists some examples of these changes illustrating all the Proto-Polynesian consonants and their Hawaiian descendants. Identify the changes, and comment where possible on the order in which they occurred. Compare the resulting consonant system of Hawaiian with that of its ancestor, and comment on the degree of naturalness of the changes and on the degree of symmetry of the original phoneme system and of the resulting Hawaiian system (data from Crowley 1992).

Exercise 4.3

Spanish has the five vowels /i e a o u/. In some stems containing /e/ or /o/, these vowels alternate with the diphthongs /ie/ and /ue/ when stressed (the position of the stress is marked by an acute accent):

<i>tenér</i> 'have'	<i>tiéne</i> 'has'
<i>cerrár</i> 'close'	<i>ciérre</i> 'fastener'
<i>certitúd</i> 'certainty'	<i>ciérto</i> 'certain'
<i>contár</i> 'count up'	<i>cuénta</i> 'account, bill'
<i>podér</i> 'be able to'	<i>puédo</i> 'I can'
<i>venezoláno</i> 'Venezuelan'	<i>Venezuéla</i> 'Venezuela'

Table 4.7 The consonants of proto-Polynesian and Hawaiian (adapted from Crowley 1992)

		Proto-Polynesian	Hawaiian
1.	'back of canoe'	*takele	kaʔele
2.	'blow'	*pusi	puhi
3.	'branch'	*maja	mana
4.	'canoe'	*vaka	waʔa
5.	'constant'	*maʔu	mau
6.	'cry'	*taji	kani
7.	'dew'	*sau	hau
8.	'dodge'	*kalo	ʔalo
9.	'faeces'	*taʔe	kae
10.	'fermented'	*mara	mala
11.	'fire'	*afi	ahi
12.	'firemaking'	*sika	hiʔa
13.	'fish'	*ika	iʔa
14.	'forbidden'	*tapu	kapu
15.	'four'	*faa	haa
16.	'fruit-picking pole'	*lohu	lou
17.	'gall'	*ʔahu	au
18.	'hear'	*rogo	lono
19.	'leg'	*vaʔe	wae
20.	'man'	*tagata	kanaka
21.	'mouth'	*ʔutu	nuku
22.	'navel'	*pito	piko
23.	'nose'	*isu	ihu
24.	'octopus'	*feke	heʔe
25.	'quieten'	*naʔa	naa
26.	'root'	*aka	aʔa
27.	'scrotum'	*laso	laho
28.	'sea'	*tahi	kai
29.	'side'	*tafa	kaha
30.	'sit'	*nofo	noho
31.	'slap'	*paki	paʔi
32.	'tail'	*siku	hiʔu
33.	'thatch'	*kaso	ʔaho
34.	'two'	*rua	lua
35.	'up'	*hake	aʔe
36.	'wave'	*nalu	nalu
37.	'yam'	*ʔufi	uhi

In other words containing /e/ or /o/, however, there is no such alternation:

<i>crecér</i> 'grow'	<i>créce</i> 'grows'
<i>meritório</i> 'worthy'	<i>mérito</i> 'merit'
<i>pelár</i> 'cut the hair of'	<i>pélo</i> 'hair'
<i>ponér</i> 'put'	<i>póne</i> 'puts'
<i>soledád</i> 'solitude'	<i>sólo</i> 'alone'
<i>costéño</i> 'coastal'	<i>cósta</i> 'coast'

Propose a possible explanation for this difference in behaviour in terms of the phonological history of Spanish. You might like to compare your idea with the explanation given in a standard history of Spanish.

Exercise 4.4

Hungarian has the front vowels /i e ü ö/ and their long counterparts /i é ü ő/; it also has the back vowels /u o a/ and their long counterparts /ú ó á/. Hungarian has front-back **vowel harmony**: normally a word contains only front vowels or only back vowels, and the vowel of any suffix must harmonize in backness with the stem. Here are some examples:

<i>kettő</i> 'two'	<i>tanuló</i> 'pupil'
<i>fehér</i> 'white'	<i>sárga</i> 'yellow'
<i>ügyes</i> 'skilful'	<i>súlyos</i> 'heavy'
<i>kert</i> 'garden'	<i>kertben</i> 'in the garden'
<i>ház</i> 'house'	<i>házban</i> 'in the house'
<i>hozunk</i> 'we bring'	<i>ülünk</i> 'we sit'
<i>varrunk</i> 'we sew'	<i>verünk</i> 'we beat'

But the vowels /i í e é/ behave strangely. First, they can occur in words that otherwise contain only back vowels:

<i>virág</i> 'flower'	<i>kocsi</i> 'coach, car'
<i>gyertya</i> 'candle'	<i>vékony</i> 'thin'

Second, when they occur in back-vowel words, they are ignored in determining the backness of a suffix:

kocsiban 'in the car' (**not** **kocsiben*)

Third, some words containing *only* these four vowels take front-vowel suffixes, while others take back-vowel suffixes:

<i>víz</i> 'water'	<i>vízben</i> 'in the water'
<i>kés</i> 'knife'	<i>késben</i> 'in the knife'
<i>kín</i> 'torture'	<i>kínban</i> 'in the torture'
<i>cél</i> 'target'	<i>célban</i> 'in the target'

Propose a possible explanation for this curious behaviour in terms of the phonological history of Hungarian.

Exercise 4.5

Many urban accents of the northern USA exhibit a set of clearly related changes in the qualities of certain vowels; these changes have been collectively dubbed the *Northern Cities Shift*. Table 4.8 lists the six different changes involved, in the order in which they appear to have occurred, from earliest to most recent. For each of the six vowels, I provide a representative word containing it, a conservative pronunciation from an American accent in which the shift has not occurred, and an advanced pronunciation from an accent in which the shift is maximally prominent. Note that

Table 4.8 The 'Northern Cities Shift' (adapted from Labov 1994)

1.	/æ:/	<i>hand</i>	[æ:]	[i:(ə)]
2.	/a:/	<i>got</i>	[a:]	[æ:]
3.	/ɔ:/	<i>talk</i>	[ɔ:]	[a:]
4.	/e/	<i>head</i>	[ɛ]	[ʌ]
5.	/ɪ/	<i>sing</i>	[ɪ]	[ɛ]
6.	/ʌ/	<i>bus</i>	[ʌ]	[ɔ]

/æ:/ is a tense (long) vowel in most American accents (data from Labov 1994). These shifts are quite dramatic. Speakers who have not undergone the shifts, when listening to speakers who have undergone them, often mishear *Ann* as *Ian*, *socks* as *sax*, *chalk* as *chock*, *steady* as *study*, *sing* as *sang*, *bus* as *boss*, and so on.

Plot the movements of these six vowels on a diagram of the vowel space, and comment on what seems to have happened in these accents, in terms of the ideas introduced in the chapter.

Exercise 4.6

The Swiss German dialect of Schaffhausen has a back vowel /o/. Historically, this /o/ has been lowered to [ɔ] when followed by any non-lateral coronal, but not otherwise. Thus Schaffhausen has *holts* 'wood', *xopf* 'head', *bogə* 'bow' and so on, with a following labial, velar, or /l/, but *horn* 'horn', *bɔdə* 'floor', *pɔft* 'post' and so on, with a following coronal other than /l/. Write a rule that accounts for this lowering.

In certain circumstances, most notably in the plural, the vowel /o/ is fronted to [ø], in the familiar Germanic process of *umlaut*. Thus, for example, the plural of *bogə* is *bøgə*, and the plural of *bɔdə* is *bødə*. Write a rule that accounts for this, citing the environment merely as [Plural].

In the neighbouring dialect of Kesswil, both the lowering of /ø/ and umlaut are also present, but the results are slightly different. Nouns which have [ɔ] in the singular have in the plural not [ø] but its lowered counterpart [œ], and hence *bɔdə* has the plural *bœdə*.

Now, both Schaffhausen and Kesswil possess a small number of forms containing front rounded [ø] in their stems followed by a coronal, such as *pløtsli* 'biscuit(s)' and *frøff* 'frog'. All such words, in both dialects, have only [ø] and never [œ].

Given these facts, propose an explanation of the phonological histories of Schaffhausen and Kesswil (data from Kiparsky 1968a).

Morphological change

In this chapter we will be examining **morphological change**, changes in the morphological structure of lexical items and of inflected forms, and changes in morphological systems. Morphological change has been extensively studied, and we now know a good deal about how it occurs. Drawing sharp lines between the various types of possible morphological change is not straightforward, however, since many individual changes exhibit features of two or three of the different types we would like to recognize; nor is it always easy to separate morphological change from syntactic change, the topic of the next chapter. Nevertheless, the central ideas in the study of morphological change are generally easy to understand.

5.1 Reanalysis

The simplest possible type of morphological change is **reanalysis**: a word that historically has one particular morphological structure comes to be perceived by speakers as having a second, quite different, structure.

Some of the examples of the coining of new words which we considered in [Chapter 2](#) illustrate reanalysis very well. The word *bikini* was originally a single morpheme, but it was reanalysed by somebody as having a structure along the lines of *bi-* ‘two’ plus *-kini* ‘swimming costume’; as a result, the ‘prefix’ *bi-* could be replaced by a different prefix *mono-* ‘one’ to derive the new word *monokini* ‘bikini with no top’. The Latin word *minimum* consisted in Latin of the morphemes *min-* ‘little’ (also found in *minor* and *minus*) and *-im-* ‘most’, plus an inflectional ending; however, thanks to the influence of the unrelated *miniature*, English-speakers have apparently reanalysed both words as consisting of a prefix *mini-* ‘very small’ plus something incomprehensible, leading to the creation of *miniskirt* and all the newer words that have followed it.

Observe something important. In each of these cases, an observer would not be able to tell that a reanalysis had taken place until speakers began producing new forms that had not previously existed. This is commonly the case with reanalysis. Take the colloquial British word *grotty* ‘dirty, nasty, shabby’. In origin, this is merely a clipped form of *grotesque*, but it now has a rather different meaning from *grotesque*, and it is unlikely that many speakers feel the two words to be closely related. Now *grotty* is an adjective, and it happens to end in what *looks* like the familiar suffix *-y*, which forms adjectives from nouns: *dirt/dirty*, *filth/filthy*, and so on. It is therefore possible that some speakers might reanalyse *grotty* as having the same kind of structure: *grot* + *-y*, with the meaning ‘full of grot’. It is even possible that some speakers have already done this – perhaps even you. But, short of

going around interrogating people, we have no way of knowing whether this reanalysis has occurred or not – until we hear somebody say something like *This place is full of grot*, which was not previously possible. Once we hear such an innovating utterance, we know that reanalysis has taken place.

The history of English provides some nice examples of reanalysis involving nothing more than the movement of a morpheme boundary, a type of change impressively called **metanalysis**. On the one hand, the former English words *naddre*, *napron* and *noumpere* have become *adder* (a type of snake), *apron* and *umpire*; on the other hand, the former *ewt* and *ekenname* ‘also-name’ have become *newt* and *nickname*. What caused these odd changes? It was the English article *a(n)*. Forms like *a napron* and *an ewt* were apparently misheard as *an apron* and *a newt*, producing the modern forms. This was also the case with the possessive pronouns of English some 500 years ago, when, like *a(n)*, a following vowel required the use of /n/: *my/mine* and *thy/thine*. That’s why people named *Edward* can also be called *Ned* (*mine Edward* > *my Nedward*). The same is true for *Nelly* from *Eleanor*, and a few other names. It also explains why, in Shakespeare’s play, the Fool calls King Lear *Nuncle Lear* (*mine uncle* > *my nuncle*). Witness also Arabic *nāranj*, which has come into English as *orange*, although in this case the *n* was lost in the Romance dialects of southern France, in a rather similar way, before the word was borrowed into English.

French provides a very striking case of multiple meta-analysis. Our word *unicorn* derives from Latin, in which it is composed of *uni-* ‘one’ and *cornu* ‘horn’. In English, nothing much has happened to this word, except that most speakers, knowing nothing of Latin, probably don’t assign any internal structure to it: they just regard it as a single morpheme, on a par with *horse* or *giraffe*. Most European languages have the identical word, but the French word is the curious *licorne*. Where did this come from?

The original word, of course, was *unicorne*, a grammatically feminine noun. But the French word for ‘a’ with a feminine noun is *une* – and hence *unicorne* was misinterpreted as *une icorne*, and *icorne* therefore became the French name of the beast. But the French word for ‘the’ before a noun beginning with a vowel is *l’*. Hence ‘the unicorn’ was expressed as *l’icorne* – and this form in turn was reanalysed as a single noun *licorne*, producing the modern form.

By using the techniques to be described later in the book, linguists can often work out that a reanalysis must have occurred in some language long ago. Here is an example from Basque, unravelled by de Rijk (1995).

Basque anciently had a word **dan* ‘now’. At some stage, however, Basque acquired a second word for ‘now’, *orain*. This consists of the Latin loan *hora* ‘hour’ plus a Basque case-suffix meaning ‘at’; its original literal meaning was ‘at the hour’, entirely parallel to modern English ‘at the moment’. Now Basque readily forms *dvandva* compounds (copulative compounds) like *zuri-beltz* ‘black-and-white’, literally ‘white-black’, and *aita-mak* ‘parents’, literally ‘father-mothers’. It appears that the synonymous *orain* and *dan* were combined into just such a dvandva: **oraindan*, literally ‘now-now’, but probably comparable in sense to English ‘right now’. Like any adverb of time, this could take the ablative case-suffix *-dik* ‘from’, producing **oraindandik*, which underwent phonological simplification to *oraindanik* ‘from now on’, a word that still exists in modern Basque.

This formation was perfectly regular and transparent. With time, however, the old word **dan* simply dropped out of the language in favour of the newer form *orain*, and the structure of *oraindanik* therefore became opaque to native speakers. Consequently, the original structure *orain-dan-ik* ‘now-now-from’ was reanalysed to *orain-danik* ‘now-from’, with the

opaque sequence *-danik* being reinterpreted as meaning ‘from, since’. At first this reanalysis would not have been visible. But then speakers began attaching the new morpheme *-danik* to other adverbs of time, like *orduan* ‘then’ and *iaz* ‘last year’, producing as a result things like *orduandanic* ‘since then’ and *iazdanik* ‘since last year’, which had not previously been possible. As a result of this reanalysis, Basque has acquired a new suffix, *-danik* ‘since’, whose origin in the ancient **dan* ‘now’ has been completely lost.

In the Basque case, it was the loss of **dan* as an independent word that triggered the reanalysis of the phrase containing it, and this is a common phenomenon. Recall from Chapter 2 the case of English *bryd-guma* ‘bridegroom’: it was the loss of *guma* ‘man’ as an independent word that led to the folk etymology in which the now opaque *bryd-guma* was reformed into *bridegroom*. Reanalysis can, however, take place without the loss of any elements. Ronald Langacker has presented some interesting cases from the Uto-Aztec languages of south-western North America (Langacker 1977). Let’s consider Uto-Aztec reflexives.

At some ancient stage of the development of the Uto-Aztec family, there was apparently a reflexive element **na*. This, however, did not occur in isolation, but only in longer phrases of certain kinds. In particular, to express a meaning like ‘He is working by himself’, the ancestral language used two complete clauses: ‘He is working; he is by himself.’ This was expressed as follows: **pt-na-kw-a-yi* ‘he-self-by-be’, with the usual Uto-Aztec word order.

Now, even though none of these four elements was lost from the language, Langacker demonstrates that this probably common sequence was reanalysed as consisting of only two elements: **pi-* and **-nak^wayi*. Since the Uto-Aztec languages are postpositional, the meaning ‘self’ was transferred to **pi-*, while **-nak^wayi* was reinterpreted as a single postposition ‘with, by’. That such a reanalysis must have occurred is shown by the fact that, in the Numic branch of the family, we find *pi* being used as the ordinary reflexive pronoun, while the new postposition **-nak^wayé* has simply been lost in that branch. Other languages underwent different reanalyses; for example, in Tarahumara the whole sequence **pinak^wayé* was reanalysed as a single intensive pronoun ‘himself’, which in turn has lost its intensive status and become the ordinary third-person pronoun ‘he’, though the form is now *binoy* by regular phonological change.

Cases like *an ewt > a newt* show that morpheme boundaries can be moved so as to shift a segment from one morpheme to another. But reanalysis can be more drastic: it can move entire morphemes from one word to another. Here’s an example from Basque.

Basque anciently did not distinguish interrogative pronouns from indefinite pronouns, and hence *nor* meant both ‘who?’ and ‘somebody’, while *zer* meant both ‘what?’ and ‘something’. (This is in fact very common in languages.) When one of these was used as the subject of a verb, however, the verb took the prefix *bait-* to indicate that the indefinite meaning was intended (this prefix also had other functions). Thus, ‘Who is coming?’ was **nor dator*, while ‘Somebody is coming’ was **nor bait-dator*. These pronouns took the ordinary case-suffixes, including the ergative case-marker *-k* to mark the subject of a transitive verb: hence **nork dakar* ‘Who is bringing it?’ but **nork bait-dakar* ‘Somebody is bringing it’.

What happened is that forms like **nor bait-dator* were reanalysed so that the morph *bait-*, instead of being a prefix on the verb, was taken instead as a suffix on the pronoun, and hence new indefinite pronouns *norbait* ‘somebody’ and *zerbait* ‘something’ were created. It is possible that such pronouns at first had the very odd case-inflected forms like

ergative **norkbait* as a result, but such forms, if they did exist, were quickly replaced by more normal forms with the case-marking on the end. Hence today, ‘Somebody is bringing it’ is not **norkbait dakar* but rather *norbaitek dakar*; reshaped forms like these confirm that the reanalysis has taken place.

Reanalysis is not confined to morphology. In the next chapter we will see that it is also a common process in syntactic change. For now, however, let us turn to a different kind of morphological change, the one which has attracted the most attention of all.

5.2 Analogy and levelling

Suppose I tell you (truthfully) that *ziff*, *zo* and *zax* are all obscure English nouns denoting things that can be counted. What do you suppose their plurals are? Easy, I’m sure you’ll agree: *ziffs*, *zos* and *zaxes* – although notice that the plural ending is pronounced differently in each case. In these circumstances, you can effortlessly produce the correct plural form without thinking about it. How can you do that? You do it by invoking **analogy** – that is, you assume that the required plurals are formed according to a pattern that is already familiar to you from large numbers of other English nouns. Of course, this is something we have touched upon already in this book, but in the following we will discuss the processes involved in greater depth.

In this case, the pattern for forming plurals is so widespread and regular that it actually constitutes a *rule* of English grammar, just one of the many rules you acquired when you were learning English many years ago. But analogy does not always operate on such a large scale. Very often, speakers create forms by invoking an analogy with a much smaller number of existing forms, perhaps only a dozen or two, perhaps even only a single form. And such use of analogy is a very common and powerful pathway of language change generally, but most particularly of morphological change.

Let’s begin with a simple example. English has a small class of nouns derived from Latin and commonly used with irregular plurals derived from Latin: *cactus/cacti*, *radius/radii*, *succubus/succubi*, and some others. All of these have singulars ending in *-us*. Now English also has a noun *octopus*, but this word is not derived from Latin: it’s of Greek origin, and its Greek plural, if we used it in English, would be *octopodes*. In fact, however, the plural form which is used by many speakers is *octopi* – perhaps you even use this form yourself. But where did it come from?

It came from analogy with the Latin nouns. Noticing the *-us/-i* pattern in the Latin nouns, many speakers have created an analogical plural for the Greek word. We can represent the process by a proportion:

cactus: *cacti*
octopus: ?

The missing term required to complete the proportion is, of course, *octopi*, and that form, which formerly did not exist, has therefore been brought into the language.

This is the simplest type of analogy; for obvious reasons, it is sometimes called **proportional analogy** or **four-part analogy**. Examples of proportional analogy are very easy to find. English verbs provide a wealth of examples. Here’s one:

drive: *drove*
dive: ?

As a result of this analogy, the past tense of *dive*, *dived* for most speakers, has become *dove* for many eastern American speakers. This new form has not become standard, but here's another example:

teach: *taught*

catch: ?

Apparently as a result of this analogy, the past tense of *catch*, which was formerly *caught* for all speakers, has become *caught*. This time, the innovating form *caught* has become standard and nearly universal, and the few speakers who still say *catched* are regarded by some as rustic or ignorant (although these categories obviously include me, since I occasionally use this form!).

(Incidentally, you may occasionally come across the term *false analogy* applied to some of these cases, such as that of *dive/dove*, but this term is never used in linguistics, since it means nothing more than an instance of analogy that somebody dislikes. No doubt *caught* was once regarded as a 'false analogy' too.)

Proportional analogy is perhaps particularly conspicuous in inflected forms, but it also turns up in other circumstances in which it is perhaps a little less conspicuous, such as word-formation. On the analogy of *land* and *landscape*, we have recently created such forms as *seascape*, *moonscape* and, with additional layers of meaning, *soundscape*, a form of musical experience where the music is not necessarily linear, but rather a space where both musician and audients exist and think. By analogy with cases like *Japan* and *Japanese*, we have recently begun coining a large number of words with the general sense 'language typical of', such as *journalese*, *motherese*, *Americanese*, *headlinese* and *officialese*. Simple analogy of this kind is a common factor in word-formation.

Cases like *soundscape* and *motherese* are sufficiently striking that you might notice one of these the first time you come across it. Some other cases, however, are much harder to spot, simply because the analogy in question has already become highly productive. A good example is the suffix *-able*. The Latin suffix *-bilis* occurs in a large number of words that have found their way into English: *imaginable*, *edible*, *invincible*, *portable*, *credible*, *tolerable* and hundreds of others. In some cases, we have also borrowed the related Latin verb, as with *imagine* and *tolerate*. The existence of pairs like *imagine/imaginable* has induced English-speakers to extend the suffix *-able* to all sorts of other verbs not of Latin origin, including native English verbs, and so we now readily coin adjectives like *washable*, *likeable*, *lovable*, *burnable*, *unkillable* and even *kissable*, as well as more elaborate forms like *machine-washable* and *biodegradable*. It is most unlikely that you would notice the first time you came across *unscratchable* or *varnishable*: this particular analogy has now become so widespread that it is effectively a rule of English word-formation.

The construction of new words by any of these analogical processes is sometimes called **analogical creation**, although this term is equally applied to instances of the construction by analogy of new inflected forms, like *octopi* and like some other cases we shall consider below.

A key fact about analogy is that it can sometimes block or reverse the effect of a regular phonological change. For example, there was a change in English by which /w/ was lost after /s/ and before *o*: hence *sword* has lost its /w/ in speech, although we still retain the traditional spelling. The same thing should have happened in forms like *swore* and *swollen*, but these are nonetheless pronounced with /w/ today. We are not sure quite what happened,

but we know the reason is the existence of the related forms *swear* and *swell*. Either the analogy of these forms, which always retained their /w/, prevented the regular sound change from affecting *swore* and *swollen*, or the change did apply but the /w/ was later restored by the analogy with *swear* and *swell*. In the first case we speak of **analogical maintenance**; in the second, of **analogical restoration**.

These last examples bring us to an important point. Regular phonological changes very often disrupt regular inflectional paradigms, but at the same time the pressure of analogy tends to maintain or restore those regular paradigms. There is thus a fundamental conflict between sound change and analogy. This conflict is neatly summed up by a dictum often called **Sturtevant's paradox**, after Edgar Sturtevant, who first stated it over a century ago: sound change is regular, but produces irregularity; analogy is irregular, but produces regularity.

For instance, the majority of Latin verbs had perfectly regular inflectional paradigms, with each verb exhibiting a single constant stem taking a regular set of endings. However, Latin had a stress rule that assigned stress by counting syllables from right to left, so that the stem of a Latin verb was stressed in some forms but unstressed in others, depending on the length of the ending. During the development of spoken Latin into Old French, stressed vowels developed differently from unstressed vowels; in particular, stressed /a/ was diphthongized to /ai/, while unstressed /a/ was unaffected. This produced Old French verbal paradigms in which formerly regular verbs showed stem alternations. At a later stage, however, analogy intervened: the numerically fewer forms with /a/ were analogically replaced by forms in /ai/. This once again made the paradigms perfectly regular, as they are in modern French. All these developments are summarized in [Table 5.1](#), in which the stressed vowels of Latin are marked with an acute accent and the forms undergoing analogical change are marked in boldface. This kind of analogical development illustrates Sturtevant's paradox particularly well. It is called **analogical levelling**, or **levelling** for short. Such levelling is extremely frequent in languages. Here is another example.

Recall from [Chapter 3](#) that early Latin underwent a change in which intervocalic /s/ developed to /r/, and recall also that this change introduced alternations into previously regular paradigms, so that, for example, earlier *flōs* 'flower', plural **flōses*, became classical *flōs*, plural *flōres*, with an /s/ ~ /r/ alternation in the paradigm. This same change affected a number of other nouns, such as *honōs* 'honour', plural **honōses*, which became *honōs*, *honōres*. These are the forms found in our pre-classical Latin texts, but in the classical texts the forms of this noun are *honōr*, *honōres*. What happened? In this case, the /r/ found between vowels was generalized by analogy to all forms of the noun, thereby eliminating the alternation and once again producing a fully regular paradigm. In this case too, a regular sound change disrupted a perfectly regular paradigm; an irregular analogical levelling then restored a regular paradigm.

[Table 5.1](#) Analogical levelling in French

	<i>Latin</i>	<i>Old French</i>	<i>Mod. French</i>
1Sg	ámo	aim	aime
2Sg	ámas	aimes	aimes
3Sg	ámat	aimet	aime
1Pl	amámus	amons	aimons
2Pl	amátis	amez	aimez
3Pl	ámant	aiment	aiment

Observe that the levelling applied to only some nouns, like *honōs*; others, like *flōs*, were never affected by it and continued to have paradigms with alternations. This may seem odd, but the occurrence of analogy is generally quite unpredictable.

In Chapter 4 we discussed the stress patterns which created fricative voicing in Proto-Germanic before the stress changed to the rather more rigid ‘first stem syllable’ pattern that the earliest extant Germanic texts show, generally termed Verner’s Law. One fricative we didn’t look at then (largely because it was not affected by Grimm’s Law) is /s/. The explanation of what happened to this sound is helpful in explaining a number of anomalies in the phonologies of the Germanic languages. For instance, it helps us explain how German *frieren* ‘freeze’ and English *freeze* can possibly be related to each other, as etymological dictionaries tell you. The modern paradigms for these verbs bear only passing resemblance.

	INFINITIVE	PAST SINGULAR	PAST PLURAL	PAST PARTICIPLE
English	<i>freeze</i>	<i>froze</i>	<i>froze</i>	<i>frozen</i>
German	<i>frieren</i>	<i>fror</i>	<i>froren</i>	<i>gefroren</i>

The resemblance is much greater when we go back 1,000 years, however:

	INFINITIVE	PAST SINGULAR	PAST PLURAL	PAST PARTICIPLE
Old English	<i>frēosan</i>	<i>frēas</i>	<i>fruron</i>	<i>froren</i>
Old High German	<i>friusen</i>	<i>frōs</i>	<i>frurun</i>	<i>gifroren</i>

This alternation of /s/ and /r/ is not confined to this verb. It is also found with the ancestors of English *lose* (German *verlieren*) and English *choose* (archaic German *kuren*, as found in *Kurfürst*, literally ‘choice prince’, Imperial Elector). Indeed, the old past participle of *lose* survives today in the – now fully independent – *forlorn* (the past participle of the lost verb *forlose*). Verner’s Law supplies an explanation, however. In words where original /s/ followed the pre-Germanic stress, the unvoiced form was retained. When /s/ preceded the stress, however, it was voiced to /z/ (the voicing of /s/ to /z/ in *freeze*, *lose* and *choose* is much more recent). This same voicing was also happening in a number of intervocalic environments unconnected to this change. Over time, rhoticization took place, just as it did in Latin to produce *flōres* from *flōses*. In the first attested Germanic writing (apart from Gothic, which had the voicing, but not the rhoticization), the runes, the /z/ > /r/ words were distinguished orthographically from the original /r/, suggesting that the former was in some kind of medial stage, perhaps a bit like the Czech /ř/. By the time Old English began to be written, this distinction was no longer being made.

As I’ve already suggested, however, this handful of ‘mixed’ s/r paradigms appear to have troubled native speakers, with either the <s> or <r> forms taking over. It is striking that German and English – such close relatives – should appear almost always to make diametrically opposite choices. But remnants of the old diversity remain, not only in *forlorn*, as we have already discussed, but also in *is* versus *are* and *was* versus *were*.

And this is the nub of it. Sturtevant’s paradox is true. But analogy is never fully complete. The evidence of past linguistic changes is carried on often in the minor and curious exceptions in our speech.

Let’s look at just one more example of levelling in English, a particularly interesting one that has not so far been extended to every possible case. Old English had the voiceless

fricatives /f s θ/, which had voiced allophones [v z ð] between vowels or between a liquid and a vowel. As we saw in [Chapter 4](#), English later acquired a set of contrasting voiced fricative phonemes /v z ð/, but the alternations remained. In the case of /f/ ~ /v/, the alternation still survives today in a number of cases, such as *leaf/leaves*, *knife/knives*, *wife/wives*, *life/lives*, *shelf/shelves*, *elf/elves* and *wolf/wolves*. On occasion, it has even been extended to loan words, as in *scarf/scarves* (*scarf* is a loan from Old French), although most loan words, like *chief* and *mischief*, do not show it (though note *mischievous*). No doubt the spelling difference has helped to maintain the alternation in these cases. But even some of these cases have been lost, or partly lost. For you, what is the plural of *hoof*? *Hooves* or *hoofs*? Of *roof*? *Rooves* or *roofs*? Almost everyone now has *roofs*, and *hoofs* is probably now more frequent than *hooves*. English *dwarf*, which derives from Old English *dwerġ*, should not show the alternation, and the standard modern plural is indeed *dwarfs*, although Tolkien wrote *dwarves* throughout his books; presumably he invoked the analogy with *leaves* and *elves* to make the word look more like native English.

In the case of /s/ ~ /z/, however, where the conventional spelling fails to represent the alternation, it has been levelled out to /s/ in all nouns except one: *house*, whose plural *houses* is still *hou[z]es* for most speakers – although even here most Scottish speakers have levelled the plural to *hou[s]es*. Almost everyone, however, retains /z/ in the related verb (*to*) *house* and the derivative *housing*.

The /θ/ ~ /ð/ alternation is complicated. Formerly, English-speakers used /θ/ in the singular but /ð/ in the plural, of all such pairs as *truth/truths*, *path/paths*, *mouth/mouths*, *moth/moths*, *wreath/wreaths* and *death/deaths*. (There was formerly a vowel before the plural -s.) But there has been a steady tendency for centuries to level these in favour of /θ/. The voiceless fricative is now the only possibility in *deaths*, but the others show considerable variation. You may find that you have /θ/ in some of the plurals but /ð/ in others, and your friends may differ from you on one or two of them, especially if they don't come from the same place as you. On the whole, Americans are perhaps more likely to retain /ð/ than are British speakers.

In some cases, the result of levelling is to split a single paradigm into two new paradigms, both of them regular. Pre-Latin **deiŵos* 'heavenly, god' had a regular plural **deiwi*, but these forms underwent several quite regular phonological changes, crucially including the loss of *w* before *o*, and the result in classical Latin was singular *deus* but plural *divi*. The second of these no longer looked like a plural of the first, and levelling took place, but what happened is that *deus* acquired a complete new regular paradigm, including a new plural *dei*, while *divi* also acquired a complete new regular paradigm, with a new singular *divus*, and the result was two different words deriving from a single ancestor. Something similar has happened with English *staff*, whose plural was formerly *staves* (compare the cases like *knife/knives* above), but this word too has split, and we now have two words, *staff/staffs* and *stave/staves*. The English pairs *shade/shadow*, *mead/meadow* and *cloths/clothes* also represent the splitting of what were originally single words.

The processes of word-formation discussed in [Chapter 2](#) illustrate various types of analogy. Here I will mention just two more, beginning with **contamination**. Contamination is an irregular change in the form of a word under the influence of another word with which it is associated in some way. For example, the opposite of *male* was formerly *femelle*, but the constant pairing of these two words has induced speakers to alter the second to *female*, in order to make it more like its opposite. Similarly, the word *overt* is borrowed from French *ouvert* 'open', and has final stress. The word *covert*, though, is in origin merely a

variant of *covered*, and was formerly pronounced accordingly. But the frequent use of these two words as opposites has resulted in an alteration of the second: most people now pronounce *covert* to rhyme with *overt*.

A slightly different case is represented by *regardless*. This word, with its negative suffix *-less*, is very similar in meaning to *irrespective*, and many speakers have consequently altered the first to *irregardless*, a form which is now frequent, although not at present considered Standard English.

Numerals appear to be particularly prone to contamination, probably because they are very often used in sequence while counting. The Latin numeral for ‘nine’ would have been **noven* if the word had developed regularly, but the classical form is *novem*, influenced by the following *decem* ‘ten’. Latin *quinque* ‘five’ should be **pinque*, but the numeral has initial /kw/ due to the influence of *quattuor* ‘four’. Conversely, English *four* should be *whour*, but was influenced by the /f/ in *five* (as were all the Germanic languages). The Russian and Lithuanian numerals for ‘nine’ should have been **nevyni* and **nevjat*, respectively, but the forms are *devyni* and *devjat*, again influenced by the following *desimt* and *desjat* ‘ten’. The original Basque *bederatzu* ‘nine’, preserved in the east, has become *bederatzi* in most dialects under the influence of the preceding *zortzi* ‘eight’.

It is possible for contamination to apply in both directions. Old French had two words meaning ‘native inhabitant’, *citeien* and *denzein*; in Norman French, the first acquired a *z* from the second, and the second acquired an *i* from the first, leading to *citesein* and *denisein*, whence English *citizen* and *denizen*.

The other special type of analogy is **hypercorrection**. This occurs when a speaker deliberately tries to adjust his or her own speech in the direction of another variety perceived as more prestigious but ‘overshoots the mark’ by applying an adjustment too broadly. Sporadic hypercorrection is very common. Someone from England trying to acquire an American accent will carefully insert non-native /r/s into words like *dark* and *court*, but may overdo it and produce things like *avocado*. Most Americans, however, lack the British contrast between *do* and *dew*; when they attempt to acquire the British diphthong in *dew* and *new*, they occasionally overdo it and produce things like *What shall we dew?* Such hypercorrections are easily visualizable as instances of four-part analogy: *new* /nu:/:/nju:/ :: *do* /du:/:/dju:/.

On occasion such hypercorrections may establish themselves in the language. In Middle English, the word for ‘throne’ was *trone*, borrowed from French. But this word derives ultimately from Greek *thronos*, and English-speakers apparently re-formed their word to *throne* in order to show the Greek connection, or perhaps just to sound more erudite. But then they did the same thing to *autour*, which is not of Greek origin at all, producing as a result the modern form *author*, in which the dental fricative derives purely from hypercorrection. Many Americans (and some people from the British Isles) do the same with *Anthony*, pronouncing the original Latin /t/ in *Antonius* with a /θ/ derived from the spelling.

5.3 Universal principles of analogy

Analogical change is irregular and seemingly unpredictable, but there have nonetheless been some serious attempts at identifying general principles of analogy. The most famous of these is the ‘laws’ of analogy proposed in Kuryłowicz (1947). He proposes six such laws, as follows; here I have reworded his statements for the sake of clarity, at the expense of a certain measure of precision:

The first law: a complex marking replaces a simple marking. A standard example of this is provided by German. Old High German, the ancestor of modern German, had a variety of patterns for constructing plurals. One of these was exhibited by nouns like *gast* ‘guest’, plural *gesti*, in which the stem-vowel undergoes the change called **umlaut** under the influence of the vowel in the plural suffix. This noun comes into modern German as *Gast*, *Gäste*, with a double plural marking (umlaut plus suffix). The Old High German noun *boum* ‘tree’ had a plural *bouma*, with no umlaut, and this should have come into the modern language as *Baum*, **Baume*. Instead, German has *Baum*, *Bäume*. The double plural-marking has been extended from cases in which it is historically normal (like *Gast*) to others in which it is not regular.

The second law: a derived form is reshaped to make it more transparent and especially more similar to the simple forms from which it is derived. The Modern English word *housewife* began life as a compound of Old English *wīf* ‘woman’ and *hūs* ‘house, farm’. This was a title of some prestige since, in combination with its male equivalent, the ancestor of *husband*, it implied free peasant status and the right to freehold ownership of land. As with many high status titles of this type, it became an honorific for any (married) woman and, eventually, became associated with a woman whose primary employment was in household work. When it was written, it was generally done in the way we still spell it. But it was not pronounced in this way. Evidence from the seventeenth to nineteenth centuries suggests that the mainstream pronunciation was /‘hʌsɪf/ or, occasionally, /‘hʌsi/, with the usual variation depending on geographical and social background. This type of contraction is by no means uncommon with titles, *Mrs*, from *Mistress*, being a particularly striking example. The early modern period seems to have been particularly given to this, as largely obsolete titles such as *Goodwife*, pronounced /‘gudi/ or its variants, and often spelt *Goodie*, demonstrates.

Yet in the nineteenth and early twentieth centuries this changed, with a spelling pronunciation – /‘həʊswaɪf/ in my accent – becoming the norm. Primarily this is an example of Kuryłowicz’s second law, since the transparency of the compound (which was present in writing but not in speech) was restored, even if *wife* now meant something rather different for most native speakers of English than it previously had. But there’s more to say about this. In the first place, the change happened when mass literacy was becoming commonplace in the English-speaking world. To anticipate somewhat, the growing lower middle classes of the period were and are among the most linguistically insecure of all parts of their communities. The discrepancy between their pronunciation of this word and its spelling would have made them question their own knowledge and encouraged a move towards a spelling pronunciation. Further support for this would have come from the fact that the /‘hʌsi/ pronunciation had developed further connotations, coming to mean ‘woman of easy virtue’. Speakers would have wished to distance *housewife* from such associations. Thus we can see system-internal analogical developments working hand in hand with social and cultural developments in the speech community.

The third law: a form transparently consisting of a stem plus an affix serves as a model for reshaping related forms in which the stem-affix structure is opaque. Here is an example from Basque. The Basque question word *non* ~ *nun* consists of the interrogative stem *no-* plus the ordinary locative case-ending *-n*. By the process described in [Section 5.1](#), this word has acquired a corresponding indefinite *nonbait* ~ *nunbait* ‘somewhere’. But this form

is now unusual among locative forms in that it does not end in the normal *-n*. (Compare *hemen* ‘here’, *orduan* ‘then’, *etxean* ‘in the house’ and so on.) In some western varieties of Basque, therefore, *nunbait* has been replaced by an innovating form *nunbaiten*, in which the locative case-ending has been reattached to the end of the word, on the model of all the other locative forms.

The fourth law: when a form undergoes analogical reshaping, the new form takes over its primary function, and the old form remains only in secondary functions. A simple example of this is English *brother*. This used to have a plural *brethren* (itself an example of the third law, since the *-en* is a second plural used to support the vowel change to *e* as plural marker), but a new regular plural *brothers* has been constructed by analogy and now serves as the ordinary plural, while the older *brethren* is now confined to special contexts, especially religious ones: nobody now says **I have two brethren*.

The *housewife* example quoted for the second law can also be fruitful here. The older *hussy* pronunciation lost its central meaning and become confined to a pejorative sense.

The fifth law: in order to re-establish a distinction of central significance, the language gives up a distinction of more marginal significance. Old French provides a good example. Latin had a large class of nouns inflected like *mur* ‘wall’; in Latin, such nouns inflected as follows in the nominative and the accusative (the only cases surviving into Old French):

	Sg	Pl
Nom	mur	muri
Acc	murum	muros

By regular phonological changes, these forms gave rise to the following forms in Old French:

	Sg	Pl
Nom	murs	mur
Acc	mur	murs

For this class of nouns, then, Old French no longer had a systematic distinction either between singular and plural or between nominative and accusative. In order to maintain the more central distinction of number, the language therefore abandoned the less central one of case; the accusative forms were generalized, and French wound up with singular *mur* and plural *murs*, with no remaining distinctions of case.

The sixth law: a native form may be analogically reshaped under the influence of a non-native form, especially if the non-native variety is more prestigious. For example, Basque has a highly productive suffix *-tasun* for deriving abstract nouns: *bakartasun* ‘solitude’ (*bakar* ‘alone’), *edertasun* ‘beauty’ (*eder* ‘beautiful’). But the language has borrowed a number of abstract nouns from the neighbouring and more prestigious Spanish with the Spanish suffixes *-dad* and *-dura*. As a result, these suffixes have, for some speakers in some cases, replaced the native *-tasun*, and many Basques say *bakardade* for ‘solitude’ and *ederdura* for ‘beauty’.

We can see, therefore, that the processes involved in analogical levelling are by no means chaotic. Instead, they generally proceed along logical lines that demonstrate similarities both within and between languages. It is also striking that many of these processes appear to work hand in hand. It would be possible to apply two or three of the laws to the changes described in just one example.

5.4 Morphologization

Sometimes what was formerly an independent word becomes reduced to a bound morpheme, in the process typically losing its former lexical meaning and acquiring instead a mere grammatical function. We call this process **morphologization**, and it is exceedingly common. Indeed, there are linguists who would maintain that *all* bound morphemes originate in just this way.

Here is a simple example from Basque. It appears that Basque once had a noun **kide* meaning something like ‘company’ or ‘association’. (The word still exists today, but it means ‘colleague, associate and fellow’.) This came to be used rather frequently with genitive noun phrases to express the notion ‘in the company of’. So, for example, the pronoun *gu* ‘we, us’, whose genitive case-form is *gure* ‘our’, could appear with **kide* together with the article *-a* and the locative case-ending *-n* ‘in, at’ to produce something like **gure kidean*, literally, ‘in our company’ (compare modern Basque *gure etxean* ‘in our house’, from *etxe* ‘house’). Such phrases apparently became the most usual way of expressing accompaniment, and, as a consequence, the whole sequence of genitive *-(r)e* plus **kidean* was collapsed into a single grammatical ending, which, after some phonological reduction, appears in modern Basque as *-(r)ekin*. And this is now the ordinary Basque way of saying ‘with’: *gurekin* ‘with us’, *nirekin* ‘with me’, *neskarekin* ‘with the girl’, and so on. The independent noun **kide* has vanished from the language (in the relevant sense), leaving behind only a new case-ending, called the ‘comitative’ case. This example illustrates a very common pathway for the formation of new case-endings: the heavy phonological reduction of complete postpositional phrases together with grammatical reduction to bound forms.

Another, much more famous, instance of morphologization has occurred in the Romance languages (the modern descendants of Latin). Latin had a noun *mens* ‘mind’, whose stem was *ment-* and whose ablative case-form was *mente* (the Latin ablative was a case-form with miscellaneous uses, most of which we would associate largely with prepositional use in English). Quite early, it became usual in Latin to use the ablative *mente* with an accompanying adjective to express the state of mind in which an action was performed; as was usual in Latin, the adjective had to agree with its noun *mente* as feminine singular ablative. We thus find phrases like *devota mente* ‘with a devout mind’ (i.e., ‘devoutly’) and *clara mente* ‘with a clear mind’ (i.e., ‘clear-headedly’). At this stage, however, the construction was possible only with adjectives denoting possible states of mind; other adjectives, like those meaning ‘new’ or ‘equal’ or ‘obvious’, could not appear with *mente*, because the result would have made no sense: something like ‘with an equal mind’ could hardly mean anything.

But then speakers began to reinterpret the *mente* construction as describing not the state of mind of somebody doing something, but the manner in which it was done. Consequently, the construction was extended to a much larger range of adjectives, and new instances appeared, like *lenta mente* (*lenta* ‘slow’) and *dulce mente* (*dulce* ‘soft’), with the adjectives

still in the appropriate grammatical form for agreement with the noun. As a result, the form *mente* was no longer regarded as a form of *mens* ‘mind’; it was taken instead as a purely grammatical marker expressing an adverbial function, and it was therefore reduced from a separate word to a suffix.

Today this new suffix is the ordinary way of obtaining adverbs of manner in the Romance languages, entirely parallel to English *-ly* in *slowly* or *carefully*, and it can be added to almost any suitable adjective. Thus Spanish, for example, has *igualmente* ‘equally’ (*igual* ‘equal’) and *absolutamente* ‘absolutely’ (*absoluta* ‘absolute’). Spanish still retains a trace of the ancient pattern: when two such adverbs are conjoined, only the last takes the suffix, and hence Spaniards say *lenta y seguramente* ‘slowly and surely’, and not **lentamente y seguramente*. In French, this is not possible, and a French-speaker must say *lentement et sûrement*.

The English adverbial suffix *-ly* has also been obtained by morphologization. Old English had a noun *lic* ‘body’, which has developed in various ways. As *lich*, it survives in *lich-gate*, a roofed gateway to a church where coffins were formerly placed to await the arrival of a clergyman. The derivative *gelic* ‘having a common body’ is the source of our word *like*, as in ‘She’s just like you’. But, early on, the word *lic* also came to be compounded with nouns to express the sense of ‘resembling’ and then ‘having the characteristics of’: hence Old English *fæderlic* ‘father-like’, ‘fatherly’ and *manlic* ‘man-like’, ‘manly’; here the original noun has since been reduced to a mere suffix. Finally, much the same thing happened with adjectives: a case-inflected form *lice* was added to an adjective to express the meaning ‘in the manner of’: hence Old English *slawlice* ‘slowly’ and *cwiculice* ‘quickly’, and here again the original noun has been reduced to a purely grammatical affix: our suffix *-ly* for making adverbs out of adjectives.

A particularly common type of morphologization is the conversion of free pronouns into affixes, either for verbal agreement, or for marking possession in noun phrases. Consider Basque again. The agreement markers in Basque finite verbs are mostly very similar to the corresponding free pronouns. Thus, with the verb *joan* ‘go’, we have forms like these, in which the agreement marker is a prefix:

<i>noa</i> ‘I’m going’	(<i>ni</i> ‘I’)
<i>hoa</i> ‘you’re going’	(<i>hi</i> ‘you’, intimate)
<i>doa</i> ‘s/he’s going’	(no pronoun)
<i>goaz</i> ‘we’re going’	(<i>gu</i> ‘we’)
<i>zoaz</i> ‘you’re going’	(<i>zu</i> ‘you’, unmarked)
<i>doaz</i> ‘they’re going’	(no pronoun)

And when the agreement marker is a suffix:

<i>dut</i> ‘I have it’	(<i>ni</i> ‘I’)
<i>duk</i> ‘you have it’	(<i>hi</i> ‘you’, intimate)
<i>du</i> ‘s/he has it’	(no pronoun)
<i>dugu</i> ‘we have it’	(<i>gu</i> ‘we’)
<i>duzu</i> ‘you have it’	(<i>zu</i> ‘you’, unmarked)
<i>dute</i> ‘they have it’	(no pronoun)

Most (but not all) of these affixes are so similar to the corresponding pronouns that they must derive from incorporation of free pronouns into the finite verb. The remaining cases

are puzzling, but may reflect an ancient stem-alternation in the pronouns which has been levelled out of existence there.

In the Basque case, we have no historical records allowing us to see an earlier stage of development directly. With some other languages, we are more fortunate. Classical Mongolian, the language of Genghis Khan, is abundantly recorded, and this language had free possessive pronouns like *minü* ‘my’, which could either precede or follow a possessed noun. Hence, for example, with *morin* ‘horse’, Classical Mongolian could render ‘my horse’ either as *minü morin* or as *morin minü*. In modern forms of Mongolian, the free possessive pronouns still exist, but they have also been reduced to suffixes when following the noun. Hence Kalmyk Mongolian, in which ‘horse’ is now *möre*, has, for ‘my horse’, both *möre-m*, with a possessive suffix only, and *mini möre-m*, with the free possessive form *mini* ‘my’ preceding to provide a double marking of possession.

The developments illustrated here by Basque and Mongolian are extremely common in languages generally, and it is interesting to inquire how such morphologizations come about. In the majority of cases, it appears, the first step is **cliticization**: the reduction of a free form to a clitic. (A **clitic**, if this is not a familiar term, is an item that is less than an independent word but still something more than a bound affix.) Exactly such cliticization is typical of pronouns in the Romance languages. Consider French. In French, ‘John will give the book to Mary’ is *Jean donnera le livre à Marie*, with very similar word order to English. But ‘He’ll give it to you’ is *Il te le donnera*, literally ‘He you it will give’, in which all three pronouns are clitics that are obliged to appear as a cluster just before the verb: there is no possibility of saying anything like **Il donnera le te*. These clitics still have some degree of independent existence, but they are nonetheless rigidly fixed to the preverbal position, unlike independent words. It is perfectly possible that these clitics will in the future lose their remaining traces of independent status and become fused into the verb, and indeed several linguists have argued that exactly this has already happened: whereas written French has, for ‘John will give you the book’, *Jean te donnera le livre*, spoken French very commonly has *Jean, il te le donnera, le livre*, in which the clitics seem to be acting very much like agreement markers in the verb. It is possible that French is becoming a language with extensive verbal agreement for subjects and objects, much like Basque or Kiswahili or some of the Caucasian languages. And, in all likelihood, the Basque and Mongolian constructions illustrated above proceeded by means of just such cliticization of what were originally independent words.

5.5 Morphologization of phonological rules

The term ‘morphologization’ is also applied to a kind of historical process very different from the phenomena we have just been discussing. This is the case in which a formerly regular phonological rule ceases to be productive, so that its effects come to be confined only to certain words and forms that were already in the language when the rule was active.

Middle English had contrasting sets of long and short vowels, and each long vowel was very similar in quality to its corresponding short vowel: the long vowel simply had greater duration. In certain phonological circumstances, however, the long vowels were regularly shortened. In particular, this happened to a long vowel that found itself followed by two or more further syllables, in a process known as **Trisyllabic Laxing**. At one time, this rule applied to all relevant cases; it was therefore purely a phonological rule, a constraint upon what was pronounceable in English.

Later, however, two things happened. First, all the long vowels changed their phonetic quality rather dramatically, in the Great Vowel Shift (as we discussed in [Chapter 4](#)). As a result, each long vowel became very dissimilar in quality to its corresponding short vowel. (And short /u/ also changed its quality substantially in most varieties.) Second, and most crucially, the rule of Trisyllabic Laxing ceased to be a part of the phonology of English: it no longer applied systematically to new instances of long vowels finding themselves three or more syllables from the end of a word. It is this second development that constitutes morphologization of the rule: the rule stopped being a general constraint upon the possible form of an English word, and became instead a morphological process that applied only to some words.

The remnants of the old rule are still highly visible in English today, in the form of alternations between vowels continuing the old long and short pairs of vowels. Here are some examples:

sane	sanity
saline	salinity
profane	profanity
crime	criminal
humane	humanity
sign	signify
vain	vanity
divine	divinity
grain	granular
type	typical
grave	gravity
conspire	conspiracy
serene	serenity
verbose	verbosity
clean	cleanliness
cone	conical
mode	modify
profound	profundity
pronounce	pronunciation

But this process is no longer generally productive, and moreover the alternation has sometimes been lost from words that formerly showed it. Do you have the alternations or not in the following cases?

obese	obesity
pirate	piracy
private	privacy
grain	granary
code	codify

Probably no English-speaker has the alternation in *obesity*. It used to be present in *piracy*, which worked like *conspiracy*, but this pronunciation is now obsolete, except reportedly in English law courts. With *privacy*, both pronunciations are now common in Britain, but

probably no American has the alternation. Most Britons pronounce *granary* with the vowel of *grand*, while most Americans use the vowel of *grain*. On the other hand, most Americans pronounce *codify* like *modify*, while Britons pronounce *codify* with the vowel of *code*. Even *pronunciation* has come to be pronounced by many speakers as though it were *pronoun-ciation* (I regularly see this spelling in students' work), although this form is nowhere standard as yet.

In short, the rule of Trisyllabic Laxing has become morphologized: it is no longer automatic, and we just have to learn to which words it applies and to which it doesn't.

It is possible for a purely phonological rule to become morphologized in another way: by the effect of a phonological change. The ancestor of Spanish had two contrasting front mid vowels, /e/ and /ɛ/. The second of these underwent a phonological change by which it was diphthongized to [je] when stressed, but not when unstressed; the first vowel underwent no such diphthongization. Consequently, the language acquired an absolutely regular alternation [ɛ] ~ [je] depending upon the position of the stress. This alternation is still visible in modern Spanish, in which the diphthong is spelled <ie>: *perder* 'lose' (final stress) but *pierdo* 'I lose' (initial stress); *sentir* 'feel' (final stress) but *siento* 'I feel' (initial stress); *piedra* 'stone' (initial stress) but *pedrera* 'stone quarry' (stress on second syllable). But then a second phonological change intervened: the vowel /e/ merged with /ɛ/ to yield a single vowel phoneme /e/. Since original /e/ never diphthongizes, this merger produced a state of affairs in which some instances of /e/ diphthongize under stress while others do not: alongside the examples just cited, Spanish has cases like *vencer* 'conquer' (final stress) but *venzo* 'I conquer' (initial stress) and *pescar* 'fishing' (initial stress) but *pescado* 'fish' (stress on second syllable). As a result, diphthongization is no longer predictable, and Spanish-speakers simply have to learn which words alternate and which don't: the diphthongization has become morphologized.

The morphologization of phonological rules is clearly a phenomenon of some considerable theoretical interest, and there have been various attempts over the years at classifying phonological and morphological alternations in a principled manner and in trying to provide some kind of explanation for the differences. Here I will briefly consider one such approach, developed in the 1980s. This is **Natural Morphology (NM)**, an approach developed chiefly in Germany. The central claim of Natural Morphology is that certain types of forms and constructions are more natural than others, and that morphological changes usually proceed so as to increase the degree of naturalness. The Natural Morphologists are hardly the first linguists to make such claims; what sets the framework apart is its vigorous attempt at identifying natural forms explicitly. Natural forms, we are told, are really just *unmarked* forms, and these are identified below.

Natural (unmarked) forms:

- occur very frequently in languages generally;
- occur frequently and in a variety of contexts in languages containing them;
- occur in pidgins or are introduced early in creoles (see [Chapter 11](#));
- are acquired early by children;
- are comparatively resistant to loss in aphasia (disordered speech caused by brain damage);
- are relatively resistant to change;
- frequently result from changes;
- are exhibited by loan words and neologisms;
- are little affected by speech errors.

Some, although by no means all, of these putatively natural forms are those that are **iconic**: that is, they correspond to the principle of ‘one-meaning–one-form’. For example, it may reasonably be maintained that a plural form such as *dogs* carries ‘more meaning’ than a singular form such as *dog*. Therefore, the plural form ought to contain more morphological material, and of course it does. Moreover, the plural marker *-s* is clearly visible tacked onto the end of the lexical morpheme *dog*: a seemingly ideal state of affairs. English plural patterns like *goose/geese*, *sheep/sheep* and *radius/radii* are less natural, because they fall short of this ideally iconic arrangement in one way or another.

Consequently, we might expect iconic plurals like *dogs* to be ‘natural’ in the relevant sense, and to exhibit the requisite properties. Let’s check. Iconic plurals comparable to *dogs* are certainly fairly common in the world’s languages, but nowhere near universal. Plurals like *dogs* are certainly frequent in English in almost every conceivable context. Pidgins, however, rarely have overt plurals at all, and they are not necessarily introduced early into creoles. Regular plurals like *dogs* are certainly acquired early by children, earlier than the more complex and irregular plurals of some other languages. But regular plurals *are* easily lost in certain types of aphasia, like Broca’s aphasia, which has catastrophic effects on regular grammatical forms (though irregular plurals are *less* affected). We can see no tendency for the iconic plurals to undergo change in English, but they certainly do result from change: the highly complex patterns of plural formation in Old English have been replaced almost entirely by the iconic *-s* plural, which has spread to many hundreds of words that formerly didn’t have it. Loan words and neologisms always acquire the iconic plural: *pizzas*, *modems*. And there is indeed little evidence that speech errors ever do anything much to iconic plurals: certainly nobody ever seems to replace an iconic plural like *houses* with something like *hice*, merely because of *mouse/mice*.

These are generally satisfactory findings, if not absolutely perfect. But what we’re interested in here are the implications of all this for morphological change. Overlooking some subtleties, what NM now claims is that morphological change will tend to produce natural, unmarked, iconic morphology, of the type illustrated by *dog/dogs*, and not the opposite. As we have seen, this is true for the English plural: the iconic pattern has been spreading remorselessly for centuries at the expense of originally competing patterns that were not so natural, and now only a handful of items still retain any of the older patterns, like *goose/geese* and *sheep/sheep*. But what about past tenses?

The regular English past-tense pattern is represented by *love/loved*, which is just as iconic and natural as *dog/dogs*. And, once again, it is certainly true that the overall tendency in the language has for centuries been the growth of the iconic pattern at the expense of other, less natural, patterns, such as those found in *write/wrote* and *see/saw*, which were formerly far more frequent than they are now. But there are a few exceptions.

The earlier, and fully natural, *catch/catched* has now been ousted by the decidedly less natural *catch/caught*, and, in American English, we also have the replacement of *dive/dived* by *dive/dove*. Still, no proponent of NM is claiming that no morphological change can ever go the ‘wrong’ way, but only that such developments are likely to be far less frequent than the opposite changes, and that appears to be true.

Of course, we might wonder why there remain some exceptional forms like *geese* and *saw* that have so far resisted the putative historical trend towards ‘natural’ morphology. For some of these, the answer is obvious: forms like *saw* and *men*, being particularly frequent, are typically learned so early by children that they are acquired even before the regular pattern is learned. For others, a different explanation is available: forms like *radii* and *forsook* are hardly likely to be learned at all except through reading and/or formal education,

Table 5.2 Some Old English inflections

	<i>'the long day'</i>	<i>'a long day'</i>
Nom	<i>se lange dæg</i>	<i>lang dæg</i>
Gen	<i>þæs langa dæges</i>	<i>langes dæges</i>
Dat	<i>þæm langan dæge</i>	<i>langum dæge</i>
Acc	<i>þone langan dæg</i>	<i>langne dæg</i>
	<i>'the long days'</i>	<i>'long days'</i>
Nom	<i>þā langan dagas</i>	<i>lange dagas</i>
Gen	<i>þāra langena daga</i>	<i>langra daga</i>
Dat	<i>þæm langum dagum</i>	<i>langum dagum</i>
Acc	<i>þā langan dagas</i>	<i>lange dagas</i>

in which they are institutionalized. But that still leaves a few cases like *geese* and *clung*, for which neither explanation seems obviously adequate – although perhaps *geese*, at least, genuinely *was* an everyday word for most English-speakers until very recently, particularly through the widespread use of goose grease.

Still, it can hardly be denied that the history of English morphology during the last thousand years has been one of a steady increase in naturalness. Consider the Old English inflections in Table 5.2. As you can see, this is anything but iconic: there is no identifiable genitive marker, no identifiable plural marker, and so on; moreover, the language had many other classes of nouns exhibiting different sets of endings from the ones appearing here.

But in modern English all we have left is *long day*, which can be used with a determiner like *the* or *a* and which can have the highly iconic plural marker *-s* attached to it, or the equally iconic possessive marker *-s*. There is no other morphology, and we have to use prepositions like *of* or *to* to express relations handled in Old English by the morphology. The changes in English morphology have been of exactly the type predicted. We'll discuss more evidence of this sort in the case study at the end of this chapter.

Now, if, as the proponents of NM maintain, morphological change tends strongly to proceed in such a way as to make morphology more natural, we might reasonably wonder why languages have unnatural morphology at all. But they do. Old English, like modern German or Russian, had, from the point of view of, say, present-day English or French, an extremely complex and 'messy' morphology that would hardly pass muster as 'natural' in even the most generous view – and there are plenty of languages, such as the Iroquoian and Athabaskan languages of North America, in which the morphology can reasonably be described as almost terrifyingly complex for outsiders. How do languages acquire such 'unnatural' morphology in the first place?

We can make a few suggestions. For one thing, it is clear that unnatural morphology often results from nothing more than the operation of regular phonological change upon what was originally a highly natural morphology. (The English 'umlaut' plurals like *geese* and *mice* derive from precisely such a source: they were once completely regular and iconic, but were disturbed by regular phonological changes.) For another, as we shall see in the next chapter, some morphology results from the reduction of syntactic constructions to bound forms, and this sort of change is not necessarily subject to the same principles as purely morphological change. But there are other factors to consider. As we shall see in the next section, languages that approach the iconic ideal of having a visibly distinct morpheme to carry each separate piece of grammatical information tend to have rather long

words – and long words may themselves be regarded as unnatural from a different point of view.

But there must be more to it. Recall the case of the introduction of double plural-marking into German nouns discussed under Kuryłowicz's first law. This change seemingly went the 'wrong' way, in that it introduced stem-alternations (compare the English case just discussed, in which stem-alternations have been eliminated from nouns). Developments of this sort pose an awkward problem for NM, but the response of its proponents is very interesting, and sets NM apart from earlier and perhaps less sophisticated attempts at interpreting morphological change in terms of increasing iconicity.

The idea is that there are different, and sometimes competing, versions of naturalness, and that some of them may be language specific. Both German and English have historically been languages in which stem-modification for grammatical purposes is an important feature of the morphology. English has generally gone down the road of eliminating these stem-alternations, but there is another possibility: stem-alternations can themselves be seen as natural for certain languages, and may therefore tend to be extended over time. We can, therefore, perhaps interpret the German developments as resulting from a conflict between two conceptions of naturalness: a universal one, which disfavors stem-alternations as non-iconic, and a language-specific one, which favors stem-alternations as a natural pattern in the language. Of course, this striking idea can be made to work only if the proponents of NM can find some principled way of explaining why particular resolutions of such conflicts are preferred in particular cases: it is hardly adequate merely to invoke a different set of principles for each change we encounter. It remains to be seen whether NM will be successful in achieving this. Indeed, the field appears not to have advanced much since the mid-1990s, although discussion of *iconicity* is ongoing in a variety of fields from a range of viewpoints.

One of the leading proponents of NM, Wolfgang Dressler, has tried to interpret cases of the morphologization of rules in terms of the framework.

Dressler (1985b) considers that rules introducing alternations can be classified into just three types. The first type consists of *Phonological Rules* (PRs). These rules are purely phonological; they apply without exception to all relevant forms, and their effect is merely to create forms which are pronounceable in the language. For example, Dressler argues that the three alternants of the English plural morpheme are derived by PRs: if /z/ is the underlying form of the plural suffix, then PRs convert this to /iz/ after a sibilant and otherwise to /s/ after a voiceless segment: hence *dogs, hills, days* (with /z/), but *matches, bushes, foxes* (with /iz/), and *cats, books, serfs* (with /s/).

The second type is *Mor(pho)phonological Rules* (MPRs). These are similar to PRs in that they can be written in the ordinary formalism used for writing phonological rules, and typically have some identifiable phonetic motivation, but differ in that they are lexically governed (that is, only certain words undergo them). Dressler's example is the English rule of **Velar Softening**, by which a velar plosive /k/ or /g/ is converted to /s/ (or /ʃ/) or /dʒ/ before a front vowel when a morpheme boundary intervenes. This is the rule that accounts for alternations like *electri[k] ~ electri[s]ity* and *analo[g]ue* but *analo[dʒ]y*. This rule commonly applies to words of French, Latin or Greek origin, but it fails to apply in certain cases, like *monar[k] ~ monar[k]y*, and it never applies to native words: *do[g] ~ do[g]ie*. That is, this rule is therefore lexically governed, and not automatic.

Dressler's third type is *Allomorphy Rules* (ARs). These are similar to MPRs in being lexically governed, but differ in that they cannot be formulated as ordinary phonological

rules, at least not without invoking absurdly abstract underlying forms. An English example is the rule of Trisyllabic Laxing discussed above, in which, in Dressler's view, alternations like *sane* ~ *sanity* represent essentially arbitrary phenomena with no identifiable phonetic basis; he regards them as similar to cases of **suppletion** like *go* ~ *went* and *person* ~ *people*.

These three types differ in their behaviour. PRs are *always* applied, even to neologisms and to nonsense words coined in psycholinguistic experiments; the other two types are typically not applied in such circumstances. So, a subject asked to pluralize the nonsense word *flaig* will produce *flaig*[z], with the normal plural form after /g/; asked to add the suffix *-ity*, however, the subject will usually produce *flai*[g]ity, with no softening of the velar and no change in the vowel. On the other hand, MPRs, like PRs but unlike ARs, may be invoked in word games and in jocular formations, such as in the formation from *association football* of *soccer*, in which the Velar Softening is reversed. MPRs, then, represent a kind of intermediate stage in the morphologization of rules: a rule may begin as a PR, then become partly morphologized to an MPR, at which point it retains a degree of generality in spite of being now lexically governed, and finally become completely fossilized as an AR, an arbitrary process lacking any visible motivation. This general view is not particularly controversial, but the difficult part, of course, is to provide criteria for distinguishing the supposed three types of rule unambiguously, and Dressler in fact admits that the dividing lines are not sharp.

But Dressler then goes on to make an interesting claim about historical change: he claims that both the fully phonological PRs and the fully morphological ARs can be generalized in various ways so as to extend their domains, but that the intermediate MPRs, being neither properly phonological nor properly morphological, cannot undergo any kind of generalization. This claim, if correct, would represent a significant advance in our understanding of morphological change. However, not everyone is convinced that it is correct. For example, if you were so rash as to add the suffix *-ity* or *-ian* to a word like *metric* or *mythic*, how do you suppose you would pronounce the result? I suspect that most people would apply Velar Softening as usual, producing things like *metri*[s]ity, even though Velar Softening, as an MPR, should not be capable of extension to new cases.

5.6 Change in morphological type

Undoubtedly the most dramatic kind of morphological change is the replacement of the entire morphological system of a language by something completely different, what we call a change in morphological type. To describe this, I need first to say something about the concept of a morphological type.

It was noticed early by European linguists that languages can differ very substantially in the nature of their morphological systems. The most famous early attempt at a classification is that of Wilhelm von Humboldt in the early nineteenth century. Humboldt recognized three types of morphology. In an **isolating** language, there is no morphology at all, and every word consists of a single morpheme. Good examples of isolating languages are Vietnamese and many West African languages. Here is an example sentence from Vietnamese:

- Khi tôi đến nhà bạn tôi chúng tôi bắt đầu làm bài.
- when I come house friend I, Plural I begin do lesson
- 'When I arrived at my friend's house, we began to do lessons.'

As you can see, each word consists of a single morpheme, with no prefixes or suffixes and no grammatical modification of any kind, except that the two words *bắt đầu* translate the English ‘begin’. Even ‘we’ is expressed by combining ‘I’ with a word marking plurality.

In an **agglutinating** language, a single word may consist of several morphemes, but each morpheme is a clearly distinct form, and the morphemes in a word are strung together one after another, rather like beads on a string. Among the agglutinating languages are Basque, Kiswahili, Turkish and many Australian languages. Here is an example from Turkish; the abbreviations are Part(icle), Obj(ect), Ger(und):

- Yap-tığ-ım hata-yı memleket-i tanı-ma-ma-m-a ver-e-bil-ir-siniz.
- make-Part-my mistake-Obj country-Obj know-not-Ger-my-to give-can-Tense-you
- ‘You can ascribe the mistake I made to my not knowing the country.’

In Turkish, a word typically consists of a string of morphemes; each morpheme has a single function and generally a single consistent form, apart from minor variations for purely phonological reasons. Consider some further examples: *ev* ‘house’, *evim* ‘my house’, *evler* ‘houses’, *evlerim* ‘my houses’, *evde* ‘in the house’, *evimde* ‘in my house’, *evlerde* ‘in the houses’, *evlerimde* ‘in my houses’. Turkish-speakers (and linguists) sometimes amuse themselves by seeing how far they can go in stringing morphemes together. A classic example is *Avrupalılaştırılamıyanlardan*. Here *Avrupa* is ‘Europe’, *-lı* is ‘from’, *-laş* is ‘become’, *-tır* is ‘cause’, *-il* is Passive, *-amı* is ‘unable’, *-yan* is ‘one who’, *-lar* is Plural, *-dan* is ‘from, of’, and *sınız* is ‘you’, and the whole thing is ‘You are of those who are unable to be caused to become European’, or, in plain English, ‘You’re one of those we can’t make a European out of’.

In an **inflecting** language, a word typically consists of several morphemes, but the morpheme boundaries are difficult or impossible to identify: instead, the several morphemes are wrapped up into a tight package. Among the inflecting languages are Latin, Russian, Old English and many North American languages. Here is an example from Latin; the abbreviations are Neut(er), Plur(al), Obj(ect), Masc(uline), Sing(ular), 1st (Person), Pres(ent), Indic(ative), Act(ive):

- Arm-a vir-um-que can-ō.
- weapon-Neut-Plur-Obj man-Masc-Sing-Obj-and sing-1stSingPresIndicAct
- ‘Arms and the man I sing.’

In Latin, although the stems of words can often be isolated, the endings generally cannot be: each ending effectively consists of several morphemes, and endings cannot be decomposed into separate elements with meanings like ‘plural’ or ‘masculine’. Moreover, the endings are not of consistent form: while the masculine noun *vir* ‘man’ has the singular object form *virum*, the masculine noun *dens* ‘tooth’ has the singular object form *dentem*. In short, then, an inflecting language has a very messy morphology that is difficult to analyse, in great contrast to agglutinating languages like Turkish, which are morphologically transparent.

Isolating languages are sometimes called *analytic* languages; inflecting languages are also called *fusional* languages; and agglutinating and inflecting languages together are called *synthetic* languages. Naturally, not all languages fit neatly into one of these three pigeon-holes: for example, how would you classify English in this system? Nevertheless, the

distinctions are convenient for labelling languages briefly. As you can see, isolating and agglutinating languages have a high degree of iconicity, while inflecting languages generally have a much lower degree.

It is quite clear that a language, given sufficient time, can change from one of these types to another. Nineteenth-century linguists were often inclined to assume a natural direction for such changes: isolating languages develop into agglutinating languages by compounding, and agglutinating languages develop into inflecting languages by complex phonological changes. And such developments are certainly attested. For example, classical Chinese was a paradigm case of an isolating language, but modern Chinese is different. It has acquired a number of suffixes, such as the plural suffix *-men* (*wo* ‘I’, *women* ‘we’; *tā* ‘he, she’, *tāmen* ‘they’), the completed-action suffix *-le* (*qù* ‘go’, *qùle* ‘went’), and a number of word-forming suffixes like *-li* ‘power’ (*yǎnli* ‘vision’, from *yǎn* ‘eye’; *mǎli* ‘horsepower’, from *mǎ* ‘horse’) and *-du* ‘degree’ (*chángdu* ‘length’, from *cháng* ‘long’; *rèdu* ‘temperature’ from *rè* ‘hot’). It has also acquired a very large number of compounds: *huǒchē* ‘train’, from *huǒ* ‘fire’ and *chē* ‘vehicle’; *báicài* ‘cabbage’, from *bái* ‘white’ and *cài* ‘vegetable’; *gémìng* ‘revolt, make revolution’, from *gé* ‘remove’ and *mìng* ‘Heavenly Mandate’; *zú zú* ‘completely’, a reduplication of *zú* ‘suffice’. Modern Chinese is beginning to look a bit like an agglutinating language, although it still has a long way to go before it resembles Turkish or Kiswahili.

But we now know that there is no reason to suppose that changes in morphology can proceed only in one direction. There is very good reason to suppose that a remote ancestor of Chinese was highly inflected, but the language apparently lost every trace of its ancient inflections and became exclusively isolating, and the isolating languages of West Africa appear to descend from an ancestor that was agglutinating. Old English was a highly inflected language somewhat resembling Latin, but English has lost all but a few traces of its earlier inflections: *goose/geese*, *take/took*, *hot/heat* and some others. At the same time, the agglutinating character of the language has become more prominent: *love/loves/loved/loving*; *dog/dogs*; *write/rewrite/writer*; *happy/unhappy/happiness*. But modern English has a very high degree of isolating character: *You must have been sitting in front of the TV for a long time*; *I have not been able to find a more interesting book than this one*.

How does a language change its morphology so dramatically? One way is contact with other languages. Earlier Armenian, for example, was strongly inflecting, but modern Armenian has become largely agglutinating, rather like Turkish, and seemingly because of centuries of contact with Turkish and its agglutinating relatives. Vietnamese is thought by many specialists to have lost all of its ancestral morphology as a result of many centuries of contact with the isolating Chinese language. More often, however, change of morphological type comes about for largely or wholly internal reasons. The elaborate case-systems of Latin and Old English depended crucially upon distinctions in the final syllables of inflected nouns; as phonological changes began to reduce and to obliterate those final syllables, prepositions came to be used more frequently to reinforce the case distinctions that were beginning to be lost; the increased use of prepositions made the case-endings less significant than previously, and so there was less reason to hang onto the remaining case-endings. Consequently, English, and the modern descendants of Latin like Spanish, French and Italian, have lost their earlier case-systems completely (except in a few pronouns), and replaced them with analytical (isolating) constructions involving prepositions. Many would claim, however, that language contact at least encouraged the developments involved. We will return to these points in [Chapter 11](#).

Like any kind of linguistic change, change in morphological type is under no obligation to occur. All the Athabaskan languages of western North America, like Apache and Navaho, exhibit particularly complex and elaborate morphology of the inflecting type; the actual shapes of the morphs have changed substantially in the various Athabaskan languages, but the overall system has remained stable for thousands of years. In morphology, as elsewhere, it is not generally possible to predict what changes will occur, or even whether any changes will occur at all. As always, the best that we can do is to determine that certain types of change are more likely to occur than others. In the following case study, a number of the points made in the above will be illustrated.

Case study: the development of the definite article from the demonstrative paradigm in English

If you speak a language that has a definite article, it seems the most natural thing in the world. If you live in Western Europe or speak a Western European language (a considerable part of the world's population, it should be noted), this sense of naturalness is enhanced by the fact that all of the languages spoken around where yours is spoken also have definite articles. It comes as a surprise, therefore, to discover that there are many languages, historical and contemporary, which have no definite article at all. Some of these, such as Finnish, are not related to English. Others, such as Russian (and, indeed, all the Slavonic languages with the exception of Bulgarian, Macedonian and Sorbian) *are* Indo-European but do not have, and have never had, a definite article. Indeed, with a couple of very early exceptions, almost every language with a long written history displays evidence of having developed articles during the language's history. Why article function develops in some languages but not others can provoke considerable scholarly debate. It need not detain us here, however, since what will concern us is the morphologization of parts of the historical 'simple demonstrative' pronoun into *the*, the definite article, and *that*, the distal demonstrative pronoun, in Modern English.

Although we believe that Indo-European had no definite article or article function (early varieties such as Latin and Sanskrit seem to support this view), by the time Old English starts being written down (in the eighth and ninth centuries CE), article function appears to be present. This function was expressed as part of the range of meanings associated with the 'simple demonstrative', one of the two pronominal paradigms of the time (the other, the 'compound demonstrative', is the ancestor of Modern English *this*, and need not concern us here).

As we have already noted on a number of occasions in this book, Old English was a much more morphologically 'rich' language than its modern descendant. This was particularly the case with inflectional morphology. Old English expressed grammatical relationships through the use of grammatical case and grammatical gender; one of the fundamental ways in which this was marked was through the inflectional morphology of adjectives and, in particular, demonstratives in the Noun Phrase. The

Table 5.3 Paradigm for the simple demonstratives in late West Saxon

	<i>Masculine Singular</i>	<i>Feminine Singular</i>	<i>Neuter Singular</i>	<i>Plural</i>
Nominative	sē	sēo	þæt	þā
Accusative	þone	þā	þæt	þā
Genitive	þæs	þære	þæs	þāra
Dative	þæm, þām	þære	þæm, þām	þæm, þām

paradigm for the simple demonstratives in late West Saxon (something like a standard form of Old English) can be laid out as in Table 5.3. (The instrumental case, marginal at best, has been ignored for the purposes of this discussion; Old English, unlike many of its sister languages, had already merged the distinctive grammatical gender forms in the plural).

Your initial reaction to this paradigm was probably surprise at the level of morphological complexity in comparison with Modern English. All we now have is a plural for *that* (although some dialects, including the one spoken where I am writing this, don't have overt plural marking) and, with *the*, not even that. But when we look a bit longer and in greater depth, it soon becomes apparent that not all 'slots' in the paradigm are separate from all others (something which was much more the case in Germanic languages such as Gothic recorded five hundred or so years earlier). *þæt* was used in both nominative and accusative case contexts with members of the neuter gender case. *þā* was used to represent members of the feminine gender class in accusative case contexts. It was also employed with all plural nouns in nominative and accusative contexts. *þæm* or *þām* (apparently used almost indiscriminately) was found in dative contexts with masculine and neuter nouns in the singular, and with all nouns in the plural. There are also occasions when forms are distinctly similar, as with the various *-re* and *-ra* endings and, at something of a remove, the *-ne* and *-m* forms (remember *Dumbarton* and *Dunbartonshire*?). But even with these ambiguities and potential confusions, there is no reason to suspect any more analogical levelling. Modern German, for instance, has a system that is at heart identical to that of Old English; it has remained essentially stable for centuries.

But even more pressure was put on the simple demonstrative/definite article paradigm. In the first place in northern dialects, but eventually in all varieties, the minority <s> forms were replaced by the majority <þ> forms in a typical example of analogical levelling.

This meant that all that separated *þe* (descended from *sē*) and *þeo* (descended from *sēo*) from *þā* was their vowels. But both articles and demonstratives are regularly unstressed. Under many circumstances, all three forms would have been pronounced /θə/. This would have been particularly likely during the late Old English period where, overall, unstressed vowels seem to have coalesced. One question you might want to ask is: if you often can't tell the difference between these forms, does the distinction matter much anymore? We can see the level of confusion in a number of

examples from the period. For instance, *þa* can be used with feminine nouns in the nominative case, as in:

- (5.1) muchel wes *þa* neode
great was the need

recorded in the Caligula version of Lazamon's *Brut*, written around 1200 in the south-west Midlands of England (although the manuscript can be dated to around 1275). Interestingly, the Otho manuscript of the same poem has *mochel was þe neode*, demonstrating the level of ambiguity possible at the time.

Indeed, the confusion over form could even turn up within a small number of words, as in this example from *Vices and Virtues*, written around the beginning of the thirteenth century in Essex in south-eastern England, where the accusative plural contexts would have demanded *þā* in 'classical' Old English (the change of *a* to *o* is typical of English south of the River Humber):

- (5.2) Ac clepe *ðo* wrecches and *to* unmihti, *ðe* blinde, *ðe* dumbe, *ðe* deaue, *ðe* halte
'but call the wretches and the unmighty, the blind, the dumb, the deaf, the lame'

At the same time, as we might have predicted, the *-ne* and *-m* forms fell together, since loss of final /ə/ in these unstressed contexts was common, and the distinction between the two nasals, as we have already said, was not great. Moreover, the connection of *-ne* with masculine accusative contexts was also being undermined in the forms of adjectives and numerals (including the ancestor of the Modern English indefinite article). Confusion was therefore also widespread in these contexts. For instance, the *-ne* forms are often used in dative contexts. In this excerpt from the *Peterborough Chronicle*, written in the south-east Midlands of England in the first half of the twelfth century:

- (5.3) Se kyng Henri geaf *þone* biscoprice æfter Micheles messe *þone* abbot Henri
[the] King Henry gave the bishopric to the abbot Henry after Michaelmas

þone is used 'correctly' in the first instance in the sense that it is in direct object position; *biscoprice* was a member of the neuter gender-class in Old English, however, and would have taken *þæt* in these contexts. The second *þone* is used with a masculine noun, but in indirect objects associated with the dative case. How could a paradigm survive this level of ambiguity?

The opposite is also true. Many descendants of the *-m* forms are found in accusative contexts, as in

- (5.4) as seint Oswold com And þen wey from Euerwik to Wircestre nom
as Saint Oswald came and took the way from York to Worcester

from the *South English legendary*, composed in south-western England towards the end of the thirteenth century. Here the form is dative, but the direct object contexts are entirely accusative.

Indeed, the increasing meaninglessness of many of these endings meant that the combined *þVn* form was falling together with the equally compromised *þV* form (*V* here stands for any vowel).

For instance, in the early twelfth-century *Seinte Iuliene*, written in the south-west Midlands of England, one manuscript has the historically ‘correct’ *binime ham þene wil* ‘take the will from them’, while another has *bineome ham þe wil*. This final confusion is undoubtedly the ancestor of *the*, particularly since *þe* forms are regularly to be found in all contexts by the end of the thirteenth century in most dialects. But what about the rest of the paradigm?

During the same period that this levelling took place, *-re* and *-ra*, again as predicted, fell together. On occasion the final vowel was also lost with this form. What is striking, however, is that, from a relatively early stage in the change, the *-r* forms are less common than they should be, with the other forms being used freely in their place. Interestingly, they tend to be employed more by writers with literary or antiquarian intentions in their work than for more pragmatic or everyday purposes. In an essay of 2002 I suggested that the use of *-r* forms may have been a stylistic device not dissimilar to the *thou* and *thee* forms used until recently in religious language: not current, but still (basically) understood. Yet if that is the case, then these forms had become essentially redundant.

þæt, on the other hand, began to be used with any and all nouns. For instance, in this example from the *South English legendary*, it is used with a member of the historical feminine gender class:

- (5.5) *Blinde and deue & dombe also. [and] þæt oper siknesse hadde*
blind and deaf and also dumb and had that/the other sickness

or in prepositional contexts normally associated with the use of dative case morphology, on this occasion with a member of the masculine gender class, recorded in a *Peterborough chronicle* entry dated to the first half of the twelfth century:

- (5.6) *þæræfter þe Tywesdæi æfter Palmes Sunendæi wæs swiðe wind on þæt dæi*
thereafter on the Tuesday after Palm Sunday there was a very mighty wind on
that/the day

In the most ‘advanced’ dialects of English, therefore, English had only two forms left in the simple demonstrative/definite article paradigm: *the* and *that* (along with various plural forms that are not important to the discussion). Obviously, these are now semantically distinct from each other, with similar, but different functions. Why should the split have happened? One way of looking at it is that, by very natural

processes, the two forms left standing assumed the two separate roles – definite article and distal demonstrative – which the old simple demonstrative carried simultaneously. Alternatively, as I suggested in my 2000 book, Norse speakers in the north of England, whose native language already split definite definer and distal demonstrative, carried this over into their English. The latter explanation is supported by the fact that the changes in the system began first in the north of England. But there is every chance that both explanations are true, and that one reinforced the other.

The creation of *the* and *that* from the detritus of the old simple demonstrative paradigm can be related to the process of morphologization (or grammaticalization): originally distinct demonstrative (or personal) pronouns, which can stand by themselves as well as modify nouns, gradually become articles, which cannot stand by themselves. *The* in particular is also highly iconic, however. Moreover, the process is part of a typological ‘lurch’ away from an inflectional basis to one which has isolating or analytic tendencies.

Further reading

Chapter 23 of Bloomfield (1933), on morphological change, is still well worth reading today. [Chapters 9 and 10](#) of Hock (1986) discuss morphological change, and particularly analogy, in some considerable detail, including Kurylowicz’s laws. Anttila (1977) is an entire book on analogy, not easy going but well worth the effort. Morphologization is discussed, with numerous examples, in several chapters of Hopper and Traugott (2003). Natural Morphology is presented in Dressler (1985a, 1985b) and Wurzel (1989); brief surveys can be found in [Chapter 12](#) of Bauer (1988) and in [Chapter 4](#) of McMahon (1994). Morphological typology has been considerably developed since Humboldt; you can find further discussion in Horne (1966), Anttila (1988: Chapter 16), Comrie (1989: [Chapter 2](#)), and Lehmann (1992: 100–2).

Exercises

Exercise 5.1

The system of personal pronouns was considerably more elaborate in Old English than it is in modern English. [Table 5.4](#) lists the Old English forms. Describe what has happened to these pronouns since Old English.

Exercise 5.2

Old English normally formed superlatives by means of a suffix *-ost* or *-est*, as in *heard* ‘hard’, *heardost* ‘hardest’ and *eald* ‘old’, *ealdeost* ‘oldest’. A few words, however, took a different suffix *-(u)m(a)*, as in *fore* ‘before’, *forma* ‘most before’ and *ūt(e)* ‘out’.

Table 5.4 Old English personal pronoun paradigms

	<i>Nom</i>	<i>Acc</i>	<i>Dat</i>	<i>Gen</i>
1Sg	<i>ic</i>	<i>mē</i>	<i>mē</i>	<i>min</i>
1Dual	<i>wit</i>	<i>unc</i>	<i>unc</i>	<i>uncer</i>
1Pl	<i>wē</i>	<i>ūs</i>	<i>ūs</i>	<i>ūre</i>
2Sg	<i>þū</i>	<i>þē</i>	<i>þē</i>	<i>þin</i>
2Dual	<i>git</i>	<i>inc</i>	<i>inc</i>	<i>incer</i>
2Pl	<i>gē</i>	<i>ēow</i>	<i>ēow</i>	<i>ēower</i>
3SgMasc	<i>hē</i>	<i>hine</i>	<i>him</i>	<i>his</i>
3SgFem	<i>hēo</i>	<i>hi(e)</i>	<i>hi(e)re</i>	<i>hi(e)re</i>
3SgNeut	<i>hit</i>	<i>hit</i>	<i>him</i>	<i>his</i>
3Pl	<i>hi(e)</i>	<i>hi(e)</i>	<i>him</i>	<i>hira</i>

ūtem ‘most outer’. These irregular forms underwent two changes. First, they acquired an additional suffix, yielding *formest* and *ūtemest*. Then, the ending was altered in a phonologically irregular way, yielding the modern forms *foremost* and *utmost*. Explain why these two changes should have happened.

Exercise 5.3

Each of the following words has an interesting morphological history for one reason or another. Consulting a good etymological dictionary of English, find out what has happened in each case and explain it as clearly as you can, invoking wherever possible the ideas discussed in the chapter.

- | | |
|----------------|----------------|
| (a) sand-blind | (h) darling |
| (b) cherry | (i) outrage |
| (c) universe | (j) flammable |
| (d) sodden | (k) bugbear |
| (e) unkempt | (l) workaholic |
| (f) ecdysiast | (m) penthouse |
| (g) software | (n) toward |

Exercise 5.4

Table 5.5 lists some examples of change in verbal morphology. In each case, the language on the left is the direct ancestor of the language on the right. Note that the phonological change of **/rst/* to */rt/* is regular in Pre-Celtic; the other changes illustrated are not phonological, but morphological. Identify the common feature of all these developments, and propose a principle of morphological change which is in evidence here. This principle is sometimes called **Watkins’s Law**.

Exercise 5.5

Building on Exercise 5.1, Table 5.6 shows the singular paradigms for the personal pronouns in a range of ancient Germanic languages. (Old Saxon is the ancestor of modern Low German and, to some extent, Dutch.)

Table 5.5 Verbal morphology in early IE varieties

<i>Avestan</i>	<i>Modern Persian</i>		
<i>ah-mi</i>	<i>hast-am</i>	'I am'	
<i>ah-ti</i>	<i>hast-i</i>	'you are'	
<i>as-ti</i>	<i>hast</i>	'he is'	
<i>Common Slavonic</i>	<i>Polish</i>		
* <i>es-mi</i>	<i>jest-em</i>	'I am'	
* <i>es-i</i>	<i>jest-eś</i>	'you are'	
* <i>es-ti</i>	<i>jest</i>	'he is'	
<i>PIE</i>	<i>Pre-Celtic</i>	<i>Common Celtic</i>	
* <i>bher-s-m</i>	* <i>ber-s-ū</i>	* <i>ber-t-ū</i>	'I carried'
* <i>bher-s-s</i>	* <i>ber-s-i</i>	* <i>ber-t-i</i>	'you carried'
* <i>bher-s-t</i>	* <i>ber-t</i>	* <i>ber-t</i>	'he carried'

Table 5.6 Third person singular personal pronoun paradigms in early Germanic varieties

	Masculine	Feminine	Neuter
Gothic			
Nominative	is	si	ita
Accusative	ina	ija	ita
Genitive	is	izōs	is
Dative	imma	izai	imma
Old Norse			
Nominative	hann	hon	þat
Accusative	hann	hana	þat
Genitive	hans	hennar	hans
Dative	honom	henne	honum
Old English			
Nominative	hē	hēo	hit
Accusative	hine	hīe	hit
Genitive	his	hiere	his
Dative	him	hiere	him
Old Saxon			
Nominative	hē	siu	it
Accusative	ina	sia	it
Genitive	is	ira	is
Dative	imu	iru	imu
Old High German			
Nominative	er	siu	iz
Accusative	in(an)	sia	iz
Genitive	sīn	ira	sīn
Dative	imu	iru	imu

Can all of these forms be derived from the same ancestral paradigm? If not, can you guess what origins the anomalous forms have? Can you see any similarities between different languages which are not shared by other languages? Anticipating ourselves a bit, can you suggest what the original Proto-Germanic forms for some of the parts of the paradigms might be?

Exercise 5.6

Consider the following facts about Basque:

- (a) The ordinary allative case-ending is *-ra* ‘to’ (in the sense of ‘motion to’): *etxera noa* ‘I’m going to the house, I’m going home’ (*etxe* ‘house’).
- (b) This has an extended form *-raino* – *-raiño* ‘up to, as far as, until’, as in *etxeraino* ‘up to the house, as far as the house’; this form is called the *terminative*.
- (c) The Bizkaian dialect, which preserves a number of archaisms lost elsewhere, has a unique suffix *-giño* ‘until’, as in *oraingiño* ‘until now’.
- (d) Bizkaian and other dialects further exhibit a curious and seemingly ancient suffix *-do* in a few words, such as *egundo* ‘until today, still, yet’ (*egun* ‘today’) and *oraindo* ‘until now, still, yet’ (*orain* ‘now’).
- (e) All dialects have a word *gain* ‘top’, which is very frequently used in postpositional phrases, as in *mahai gainean* ‘on top of the table’ (*mahai* ‘table’, *-ean* ‘in, on, at’).

Propose an explanation for the source of the terminative suffix *-raino* (data from de Rijk 1995).

Exercise 5.7

In [Section 5.4](#) above I presented some typical verb forms from Basque, illustrating some of the extensive agreement found in that language. [Table 5.7](#) gives a summary of the agreement morphs and the corresponding free pronouns for the first two persons. It is certain that the two singular suffixes were originally **-da* and **-ga*. Have you any idea why these two suffixes should be out of line with the rest of the pattern?

The third person is much more complex. Basque has no third-person pronouns, and the third-person agreement suffix is zero. When the third person is due to be marked by a prefix, however, we find a startling range of morphs occupying the prefix slot: *d-* in the present tense, *z-* in the past tense, *l-* in ‘irrealis’ forms, zero in the ordinary imperative, and *b-* in the ‘jussive’ (the third-person imperative). For generations, specialists in Basque have agonized over these prefixes, proposing all sorts of lost pronouns and whatnot as sources, without success. Propose a better explanation.

[Table 5.7](#) Agreement morphs in Basque (adapted from de Rijk 1995)

	Prefix	Suffix	Pronoun
1Sg	<i>n-</i>	<i>-t</i>	<i>ni</i>
2Sg	<i>h-</i>	<i>-k</i>	<i>hi</i>
1Pl	<i>g-</i>	<i>-gu</i>	<i>gu</i>
2Pl	<i>z-</i>	<i>-zu</i>	<i>zu</i>

Syntactic change

Until very recently, the study of syntactic change could be fairly described as being still in its infancy. The past 30 to 40 years, however, have seen an extraordinary burst of activity in this area; we now know a good deal about syntactic change, and a few general principles have begun to emerge. Some of the ideas we encountered in the last chapter will turn up again here, and indeed it can be difficult to draw a sharp line between morphological change and syntactic change.

6.1 Reanalysis of surface structure

Beyond any doubt, the single most important pathway of syntactic change is reanalysis. In the last chapter, we saw a number of examples of the reanalysis of morphological structure, but the reanalysis of sentence structure is no less important.

Let's begin with some simple examples. Many languages have a special grammatical item called a **copula**, which serves to link two elements of a sentence, especially two noun phrases (NPs). The English copula is the verb *be*, and its use is illustrated by examples like *Esther is a businesswoman* and *Paris is the capital of France*. But lots of languages have no copula: in Turkish, for example, the sentence *Ali büyük* means 'Ali is big', but it consists merely of the name *Ali* and the adjective *büyük* 'big', so the sentence structure is literally 'Ali big'. We may reasonably ask, then, how it is that some languages have acquired copulas in the first place.

Consider Mandarin Chinese. Modern Chinese has a copula *shì*, illustrated by examples such as the following:

6.1 *hūa shì hóng*
flower be red
'The flower is red'

6.2 *nà shì cǎ*
That be playground
'That is the playground'

However, Archaic Chinese, the form of Chinese used until about the third century BCE, did not have a copula, as shown by the next example; the item *ye* is a declarative (Decl) particle, used to indicate that a statement is being made, and not a copula:

6.3 *Wáng-Tái wù zhe ye*
Wang-Tai outstanding person Decl
'Wang-Tai is an outstanding person'

The item *shì* *did* exist in Archaic Chinese, but it wasn't a copula. Instead, it was a demonstrative meaning 'this':

6.4 *zì yù shì rì kū*

Confucius at this day cry

'Confucius cried on this day'

This demonstrative was frequently used in sentences like the following; here *suǒ* is a particle that nominalizes its clause:

6.5 *qīān lǐ ér jiàn wáng shì wǒ suǒ yù yě*

thousand mile then see king, this I Nom desire Decl

'(To travel) a thousand miles to see the king, this is what I desire'

And it is precisely this construction that led to the reanalysis of *shì* as a copula: originally X *shì* Y was literally 'X, this [is] Y', but it was reanalysed as meaning 'X is Y', and so *shì* became a copula. The reanalysis was assisted by the fact that, by the sixth century CE, *shì* had completely ceased to be used as a demonstrative in any other circumstances, and so from then on it occurred only in sentences like the last example.

A more recent example showing a similar development is Hebrew. Hebrew formerly had no copula in the present tense, but today it has a copula *hu*, which is obligatory in some contexts, optional in others and prohibited in still others, according to complicated rules. Here are some examples in which it is obligatory, or nearly so:

6.6 *David hu ha-ganav*

David be the-thief

'David is the thief'

6.7 *Mose hu student*

Moshe be student

'Moshe is a student'

In Hebrew, the source of the copula *hu* is perfectly clear: it is the pronoun *hu* 'he', which is still also a pronoun:

6.8 *hu ohev et-Rivka*

he loves Acc-Rivka

'He loves Rivka'

It is clear what has happened. A construction with *hu*, originally meaning literally 'Moshe, he (is) a student' has been reanalysed as meaning 'Moshe is a student'. You will doubtless be familiar with the colloquial English construction *John, he's a nice guy*.

That Hebrew *hu* is now a genuine copula is shown by cases like the next example:

6.9 *ani hu ha-student se-Mose diber itxa alav*

I be the-student that-Moshe spoke with-you about-him

'I am the student that Moshe told you about'

Here the subject is first person, and *hu* cannot possibly be interpreted as meaning 'he'.

These examples, and some additional ones, all discussed in Li and Thompson (1974), show that one possible source of a copula is a demonstrative or a pronoun used in a linking function. Such instances represent a very straightforward type of syntactic reanalysis, involving no more than a single word.

My next example, taken from Munro (1977), while it also describes the origin of a copula, illustrates a much more complex type of syntactic reanalysis. The Yuman language Mojave of North America has a copula *ido-*, as shown in the next example (the suffix *-č* is discussed below):

- 6.10 *John kʷaθʔide:-č ido-pč*
 John doctor-č be-Tense
 ‘John is a doctor’

Here the copula takes a tense-marker just like any other verb, and the sentence looks unremarkable enough. In fact, however, copular sentences in Mojave have one very strange characteristic. To see what this is, look at an example of a sentence without a copula:

- 6.11 *John-č Mary iyu:-pč*
 John-Subj Mary see-Tense
 ‘John saw Mary’

What this example shows is that the suffix *-č* normally marks subjects, and only subjects. Yet in copular sentences like 6.10, this suffix appears, not on the subject, but on the complement. This is very strange. How could this have come about?

The key point, Munro argues, is that the subject suffix *-č* appears only on the subjects of main clauses, and does not appear on the subjects of most types of subordinate clauses:

- 6.12 *ʔ-nakut ʔava u:čo:-lʔ ʔ-navay-k*
 my-father house make-in I-live-Tense
 ‘I live in the house my father built’

Here *ʔ-nakut* ‘my father’ does not take the subject suffix because it is the subject of a subordinate clause – in this case, a relative clause. We may therefore surmise that, in Example 6.10, *John* was originally not the subject of a main clause, but we still have to account for the presence of the subject suffix on the complement NP meaning ‘doctor’. And here we promptly encounter an important lesson.

An earlier generation of linguists, noting the presence of the subject suffix on the word for ‘doctor’, might well have expended dozens or hundreds of hours in work trying to figure out how ‘doctor’ could originally have been the subject of 6.10. This may seem the obvious line to take, but it happens to be quite wrong: the complement meaning ‘doctor’ was *never* the subject of anything, at any point in the history of Mojave. So how can it bear the subject suffix?

The key to understanding the history of this Mojave construction is the recognition that Mojave sentences, like all sentences in all languages, have syntactic structure. That is, they are not just linear strings of words strung together one after another. In particular, sentences have *constituent structure*: they are built up from syntactic units having their own internal syntactic structure. And it was precisely this appreciation of constituent structure that enabled Munro to figure out what had happened in Mojave.

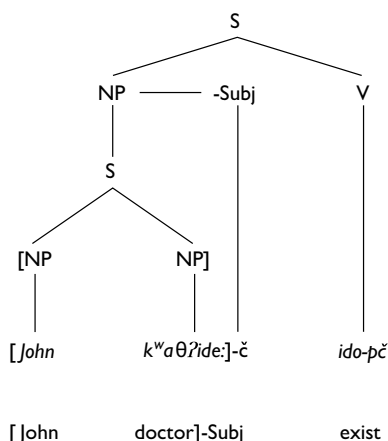


Figure 6.1 A Mojave copular sentence

Her solution is as follows. Originally, Mojave had no copula, but it did have a full verb *ido-* meaning ‘exist, be so, be the case’. And the original structure of example 6.10 was as shown in Figure 6.1 – that is, this sentence was originally complex in structure, with two clauses. The subordinate clause was *John k^waθʔide:* ‘John [be] doctor’, and the subject *John* of this subordinate clause naturally took no subject suffix. This subordinate clause was in turn the subject of the main clause, whose verb was *ido-pč*, and this subject consequently took the subject suffix. This suffix was, of course, attached to the end of the subject, which meant that it had to go onto the last word of the subject clause, *k^waθʔide:* ‘doctor’, which was not itself the subject of anything. The whole construction was therefore, more or less literally, ‘[John doctor]-č exists’, that is, ‘[That John is a doctor] is the case’.

In fact, this might *still* be the structure of such copular sentences in Mojave: nothing I have said so far suggests that any reanalysis has taken place to make *John* the subject. However, Munro notes that some younger speakers of Mojave do not say things like 6.10; instead, they say things like 6.13:

6.13 *John k^waθʔide:-č ido-pč*

John-Subj doctor be-Tense

‘John is a doctor’

This can only be so because the younger speakers, at least, have reanalysed copular sentences as consisting of single clauses, with the first NP being the subject of the whole sentence, and so they have removed the anomalous subject-suffix from the complement and attached it, as usual, to the first NP, now perceived as the subject. This reanalysis of copular sentences as consisting of single clauses may in fact have been carried out by Mojave-speakers generations ago but, as is usual with reanalysis, we cannot tell that any reanalysis has occurred until we hear some speakers saying things that were not possible before.

Reanalysis, of course, is not confined to the creation of copulas: it is a pervasive phenomenon in syntactic change. Let us consider the origin of the English verb form called the **perfect**. This is the form constructed with the auxiliary *have*, as in *I have finished my dinner* and *She had studied in Paris*, in which *have* always combines with the verb form

called the *perfective participle*. Now *have* is in other respects a fairly ordinary transitive verb meaning ‘possess’: *I have a copy of her new book*, *She has blue eyes*. So how did it come to be an auxiliary, and why a perfect auxiliary in particular?

Observe first that English has another, quite different, construction also involving *have* and a perfective participle, but with a different word order. This is a **stative** construction, illustrated by examples like *I have a couple of ribs broken* and *She has a daughter trapped in the war zone*. In great contrast to the perfect construction, there is no suggestion here that I did the breaking or that she did the trapping. (The identical construction in fact has several other, non-stative, uses, as in *I had my car stolen*, *She had her face lifted*, and *She has us convinced of her innocence*, but these other cases are not particularly relevant here.)

Early Old English had a construction identical to the modern stative; this is illustrated in the next two examples:

6.14 *Ic hæbbe þone fisc gefangenne*

I have the fish caught

‘I have the fish caught’ (= ‘I have the fish in a state of being caught’)

6.15 *Ic hæfde hine gebundenne*

I had him bound

‘I had him bound’ (= ‘I had him in a state of being bound’)

Now, it is clear that, in such examples, the verb is *habban* ‘have’ alone, because the participles *gefangenne* ‘caught’ and *gebundenne* ‘bound’ agree in gender, number and case with the object NPs *þone fisc* ‘the fish’ and *hine* ‘him’, and hence the participles are modifiers of the object NPs. These constructions are therefore statives comparable to *I have a couple of ribs broken*.

Very early on, however, the agreement begins to disappear, and the participle stands instead in an invariant form. We therefore find numerous examples like 6.16:

6.16 *Ic hæfde hit gebunden*

I had it bound

‘I had it bound’ (= ‘I had it in a state of being bound’)

Here the participle *gebunden* shows no agreement. Crucially, we also find examples in which the stative meaning is impossible:

6.17 *þin geleafa hæfð ðe gehæled*

your faith has you healed

‘Your faith has healed you’

6.18 *Ac hie hæfdon þa . . . hiora mete genotudne*

but they had then . . . their food used-up

‘But they had then used up their food’

In 6.17, faith, being inanimate, cannot conceivably have (in the sense, ‘possess’, ‘have in my possession’) a person, and in 6.18, the food, being all gone, cannot be had. These examples, therefore, cannot be statives: instead, they must be perfects, as shown by the English translations, even though the second one still shows agreement. And this is the origin of the English perfect, which has, of course, more recently undergone a change of

word order in order to place the participle next to the auxiliary *have*, since the two are now considered to constitute a single verb form.

The English perfect therefore results from the reanalysis of an original stative construction, in this case accompanied by a shift in meaning. A sentence of the form ‘I have him bound’ originally meant ‘I have him in my possession, in a tied-up state’, but this could readily be, and was, reinterpreted as meaning ‘I have tied him up’. The participle, formerly a modifier of the object NP, with which it necessarily agreed, was reanalysed as part of the verb form and lost its agreement; as part of the same process, the verb *have*, originally the main verb in the sentence and bearing its usual meaning of ‘possess’, was reanalysed as an auxiliary expressing perfective aspect, the function it still has today.

6.2 Shift of markedness

There is another important pathway of syntactic change, called **shift of markedness**. Languages typically have alternative constructions available for expressing ordinary and not-so-ordinary meanings. In English, for example, the ordinary (unmarked) word order is SVO, and we would therefore normally say *I can't recommend this book*, with SVO word order; this is the *unmarked form*. For special purposes, however, we can say instead *This book I can't recommend* – for example, when comparing the present book with other books. This construction, with its abnormal object–subject–verb (OSV) word order, constitutes a *marked form*: an unusual form used only in certain special circumstances.

But suppose English-speakers were to begin using this marked form more frequently than at present. Suppose, in fact, that we began using it so often that we were using it most of the time, and using the other construction, *I can't recommend this book*, only occasionally. What would be the result? First, the OSV construction, being used most of the time, would become the unmarked form, while the earlier SVO construction, being used only occasionally, would become the marked form. We would therefore have a *shift of markedness* between the two forms. Moreover, since the two forms involve different word orders, the originally unmarked SVO order would become marked, while the originally marked OSV order would become unmarked – and English would therefore have undergone a change of basic word order from SVO to OSV.

This change has not happened in English, of course (although we will discuss another change it *did* go through later in the chapter), but precisely this sort of development has occurred in the histories of a number of other languages. Consider Hebrew. Early biblical Hebrew had two distinct sets of verb forms, called the *imperfect* and the *perfect*. The imperfect forms were used most of the time for most purposes, while the perfect forms were used only occasionally for a few purposes. Importantly, the imperfect forms normally required verb–subject–object (VSO) word order, the ordinary word order of the language, while the perfect, a marked form, usually required a marked word order, SVO. Here are two examples from the book of Genesis:

6.19 *va-yiqraʔ ʔelohim la-yabaša ʔerec*
and-called[Imperf] God to-the-dry land
‘And God called the dry portion “land”’

6.20 *ve-ha-ʔadam yada ʔet haya ʔišto*
and-the-man knew[Perf] Acc Eve wife-his
‘And Adam knew his wife Eve’

Table 6.1 Shift in main-clause syntax in biblical Hebrew (adapted from Givón 1977)

Book	VS	SV	Total	% SV
Gen.	169	25	194	12.9
2 Kgs	174	53	227	23.2
Esther	99	36	135	26.7
Lam.	36	36	72	50.0
Eccles.	11	41	52	79.0
S. of S.	2	26	28	92.0

With the passage of time, however, the perfect, the marked form with SVO word order, began to be used increasingly frequently in an ever larger set of functions, while the imperfect, with its unmarked VSO order, began to lose its functions to the perfect. This trend continued over centuries, and it can be plainly traced through the later books of the Bible. [Table 6.1](#), taken from Givón (1977), the source of this study, shows this development graphically, for main clauses only, in six books of the Bible. When Genesis was composed, Hebrew was clearly a VSO language; by the time of the Song of Solomon, many centuries later, it had become very largely an SVO language. This change occurred, not because Hebrew-speakers suddenly decided to move some phrases from one location to another, but merely because of a long-term tendency to shift various discourse functions from the VSO imperfect to the SVO perfect. In biblical Hebrew, then, a shift in the markedness of two competing constructions led eventually to a major syntactic change in the language: a change in its basic word order.

A shift in markedness need not produce such a dramatic result as a change in basic word order. Not so long ago, English had the two prepositions *before* and *behind* for expressing position in space, and these were the unmarked forms for expressing position. But a new marked form *in front of* was then introduced with the same meaning as *before*. This marked form came to be used with increasing frequency, until today it has all but driven *before* out of the language in its spatial sense: we can still use *before* in a few marked contexts, like *to be brought before a judge*, but we can no longer say things like **There is an apple tree before my house*. The only possible form for us is *There is an apple tree in front of my house*. The word *before* still exists, but it is now generally confined to temporal senses, as in *before the war*. Moreover, American English has taken things a step further, by introducing *in back of* as a frequent alternative to *behind*: Americans are now probably more likely to say *in back of the house*, rather than *behind the house*, although this last form has not yet dropped out of use entirely. Here we have two examples of the replacement of originally unmarked prepositions by originally marked complex constructions.

In a markedness shift, it is not always the case that a formerly marked form becomes unmarked and vice versa. The opposite may happen: the marked form may become even more highly marked, possibly to the point at which it disappears from the language, or nearly so. For a thousand years English has had two competing forms for constructing sentences involving prepositions and WH-words. The first is represented by examples like *To whom did you give it?* and *I married a woman with whom I went to school*; the second is illustrated by *Who did you give it to?* and *I married a woman I went to school with*. The first form has been the marked form for centuries, but there is no sign that it might take over from the second. Quite the contrary: the first, marked, form has been steadily declining in frequency for generations. Today it is probably entirely confined to the formal writing

of a minority of speakers and to the careful speech of an even smaller minority: most English-speakers probably never use it at all. The marked form has become steadily more marked, and it may eventually disappear completely. (Engagingly, I have very often heard self-conscious speakers, in contexts that appear to call for a degree of formality, produce utterances like *From which language does the word 'geyser' come from?* Such speakers are clearly aware that the marked form exists, but they no longer have any real control over it: for them, the marked form is effectively dead.)

It is by no means easy to find good examples of syntactic change deriving from shift of markedness alone. Far more frequently, what we find is a more complex scenario involving both markedness shift and reanalysis. Some excellent examples are provided by changes involving **serial verb constructions**, a term whose meaning will shortly become clear. Here is a celebrated example from Mandarin Chinese, discussed by Li and Thompson (1974).

Chinese is primarily an SVO language, as illustrated by the typical sentence 6.21; *le* is a particle marking completed aspect:

- 6.21 *Wǒ dā Zhāng-sān le*
I hit Zhang-san Asp
'I hit Zhang-san'

However, alongside such sentences, Chinese has another construction with SOV word order and a preposition *bǎ* marking the object:

- 6.22 *Wǒ bǎ Zhāng-sān le*
I Obj Zhang-san hit Asp
'I hit Zhang-san'

The second construction is obligatory or preferred in a variety of circumstances, although the first construction is nonetheless very common in other circumstances. The SOV construction, with its case-marking preposition, seems a very surprising one to find in a predominantly SVO language. We might expend considerable ingenuity in trying to identify a source for the SOV construction; in fact, our abundant historical records for Chinese show rather clearly how it arose. Older Chinese did not have the SOV construction, but it did have a verb *bǎ* meaning 'take hold of, take'. Here is an instance from a ninth-century poem:

- 6.23 *Shī jù wú rén shì yīn bǎ jiàn kàn*
poem sentence no man appreciate, should take sword see
'Since no one appreciates poetry, I should take hold of the sword to contemplate it'

The origin of sentences such as 6.22 is therefore clear: originally, *bǎ* was the verb 'take hold of', and such sentences contained *two* verbs, in what we call a serial verb construction. That is, the original force of 6.22 was 'I took Zhang-san [and] hit [him]'. This would have been a marked construction at first, but it came to be used increasingly in some circumstances, until today it is the unmarked form, or even the only possible form, in many circumstances. Alongside the markedness shift, there was a reanalysis: the first verb, 'take', was bleached of its sense and reinterpreted as a mere grammatical marker of a following

object, and the second verb ‘hit’ was reinterpreted as the main (and only) verb in the sentence. Since *bǎ* is no longer felt as meaning ‘take’, the SOV construction has been extended to cases in which this older meaning would be quite inappropriate:

- 6.24 *Zhāng-sān bǎ Lǐ-sì pīpíng le*
 Zhang-san Obj Li-si criticize Asp
 ‘Zhang-san criticized Li-si’

Here there is no suggestion that Zhang-san has taken hold of Li-si, or even that Li-si is necessarily present at all: *bǎ* is a grammatical marker, no more.

The linguistic literature now contains a large number of instances in which serial verb constructions have been reanalysed in one way or another, with a variety of syntactic consequences.

6.3 Grammaticalization

This last example, apart from illustrating both markedness shift and reanalysis, also illustrates yet a third pathway of syntactic change: **grammaticalization** (a process that shares much with *morphologization*). In the preceding chapter, we saw that lexical items can be reduced to bound morphemes, but they can also be reduced to grammatical items without entirely losing their status as words. Here is an example from English.

The progressive form of the verb *go* has been available for centuries in constructions such as *I am going home*, in which *go* clearly retains its ordinary verbal sense. This same construction could also be used with a complement of purpose, in cases like *I am going to visit Mrs Pumphrey*, in which the verb *go* still had its ordinary meaning: the structure of such a sentence was [*I*] [*am going*] [*to visit Mrs Pumphrey*], broadly parallel to [*I*] [*am going*] [*home*]. Such a sentence could be uttered by a speaker who was actually on her way to Mrs Pumphrey’s house, but equally, and crucially, it could be uttered by someone just about to set out, just like *I’m going home*. As a consequence, speakers began to re-analyse such utterances as expressing, not actual motion, but rather an intention for the near future. Accordingly, it became possible for something like *I am going to buy a new carriage* to be said by someone curled up comfortably at home with no immediate intention of moving.

This largely happened in the early nineteenth century, but the new usage has extended its domain very rapidly, and today we routinely say things like *You’re going to like this book*, in which no relevant motion is even conceivable: the *be going to* construction has entirely lost its original connection with movement and become a mere grammatical marker of the (near) future. Together with this grammaticalization, the structure has been reanalysed: we no longer have the old structure [*I*] [*am going*] [*to buy a new car*]; instead, we have [*I*] [*am*] [*going to*] [*buy a new car*], in which *going to* forms part of a single grammatical marker. To see this, observe that this new *going to* can now be reduced to *gonna*, as in *I’m gonna buy a new car*. The same is not possible with the ordinary progressive of the verb *go*, as in **I’m gonna the beach*, in which *going* and *to* do not constitute parts of a single grammatical form.

Grammaticalization of this type has been called **bleaching**, and such bleaching of lexical meaning is a very common source of grammatical items; compare the case of Chinese *bǎ*, discussed above. Bleaching of verbs, as in the *going to* case, is probably the most

Table 6.2 The Spanish future

Latin	Spanish	
<i>cantare habeo</i>	<i>cantaré</i>	'I'll sing'
<i>cantare habes</i>	<i>cantarás</i>	'you'll sing'
<i>cantare habet</i>	<i>cantará</i>	's/he'll sing'
<i>cantare habemus</i>	<i>cantaremos</i>	'we'll sing'
<i>cantare habetis</i>	<i>cantareis</i>	'you'll sing'
<i>cantare habent</i>	<i>cantarán</i>	'they'll sing'

frequent source of tense and aspect markers in languages. Another example from English is the verb *will*. This used to be a lexical verb meaning 'want', as in the Shakespearean form *What wilt thou?* 'What do you want?' Today, however, it has been reduced entirely to a grammatical marker, also a kind of future marker, as in *She will be home soon*. (But note the interesting difference of meaning between *I'll wash the dishes* (an offer) and *I'm going to wash the dishes* (a statement).) Cross-linguistically, verbs meaning 'go', 'come', 'want' and 'must' very often develop into grammatical markers of futurity.

A celebrated example of this occurs in the Romance languages like Spanish, French and Italian, all of which are modern forms of spoken Latin. Classical Latin had a distinct future tense, illustrated by *cantabo* 'I'll sing', but this fell into disuse very early and disappeared from the spoken language in particular. It was replaced by several other constructions, such as (using the verb *cantare* 'sing' for illustration) *cantare volo* 'I want to sing', *cantare debeo* 'I must sing' and *cantare habeo* 'I have to sing'. This last form, involving the ordinary Latin verb *habere* 'have', is exactly parallel to the English *I have to sing*, and the Latin form once had the same meaning. With time, however, the last form won out over its competitors and became the ordinary way of expressing futurity. In this case, the verb *habere* was not merely bleached of its lexical meaning and reduced to a grammatical auxiliary; it also underwent heavy phonological reduction. Table 6.2 lists the forms in Latin and in modern Spanish. The old verb *habere* has been reduced to little more than a suffix marking the subject, while the *-ar(e)* that formerly marked the infinitive is now interpreted as the marker of future tense. Exactly the same thing has happened in most other Western descendants of Latin: 'I'll sing' is *je chanterai* in French, *cantarai* in Occitan ('Provençal'), *canterò* in Italian and *cantarei* in Portuguese. All these forms provide a fine example of the reduction of syntax to morphology – that is, of the reduction of a construction to a morphological form. (In contrast, Romanian *voi cânta* continues the *volo* construction, while Sardinian *deppo kantare* continues the *debeo* construction, though with a change of word order in each case.)

This is not the end of the story, however. Just like its Latin predecessor, the Spanish future is now little used in speech. Instead of *cantaré*, Spanish-speakers usually prefer to say *voy a cantar*, which is an almost exact translation of English 'I'm going to sing'. The equivalent French *je vais chanter* is also now very frequent, although perhaps not as frequent as its Spanish counterpart. It appears that these languages are now undergoing yet another round of grammaticalization, this time with the verb 'go' being reduced to a future marker. Both the replacement of the original Latin future with the new Romance construction and the current replacement of the new Romance future with yet another construction are instances of what linguists call **renewal**: the replacement of an older set of forms by a newer set with approximately the same function. Such renewal is a pervasive process in

languages: for a number of reasons, including the phonological erosion of grammatical affixes by phonological change, older grammatical systems fall into disuse and are replaced by new systems, which eventually undergo the same fate.

Grammaticalization is not confined to operating within single sentences; it is quite possible for it to apply in such a way as to join two consecutive sentences into one. Observe the usual manner of constructing complement clauses in the Germanic languages:

- English: *I believe that she will take the job.*
- German: *Ich verstehe daß Sie nicht kommen.* ('I understand that you're not coming.')
- Dutch: *Ik weet dat hij veel vrienden heft.* ('I know that he has a lot of friends.')
- Swedish: *Jag trodde, att hans sista stund var kommen.* ('I thought that his last hour had come.')

In all of these languages, the complement clause is introduced by a grammatical particle, a complementizer: *that*, *daß*, *dat*, *att*. In all but Swedish, this particle is more or less identical to the ordinary demonstrative *that*, as in *I know that*; this demonstrative is indeed the historical source of the complementizer. But why should a demonstrative be used for this purpose?

In an unrecorded variety, ancestral to all the Germanic languages, the modern complement construction must not have existed. Instead of using a single sentence with a subordinate clause, speakers used *two* separate sentences. So, instead of saying *I believe that she will marry him*, they said, literally, the following: *I believe that. She will marry him*. Here the demonstrative *that* is referring to the following sentence, which is syntactically entirely independent of the first sentence. Over time, however, this very frequent sequence underwent grammaticalization: the two sentences were combined into one, and the demonstrative was reduced to a mere grammatical particle and, in English at least, underwent phonological reduction. As a consequence, all these languages acquired a new construction for complement clauses, one that has been retained from prehistoric times down to the present day. For lack of evidence, we simply don't know whether this new construction replaced an older one or whether complement clauses had previously been non-existent in these languages.

On the whole, patterns for constructing subordinate clauses tend to be remarkably stable over long periods, and innovations are rare. Interestingly, however, a new construction has recently appeared in English, at least among some younger speakers. Direct quotations in English have for centuries been formed as follows: *I asked 'What's going on?'* But many younger Americans have used, since at least the early 1990s, a completely new construction for this purpose; they say, instead, *I'm like 'What's going on?'* It's too early to tell if this new construction will establish itself in the language, although the fact that it is now found in the language of young people throughout the English-speaking world suggests that it may; if it does, you will be able to tell your grandchildren that a completely new syntactic structure appeared in English during your lifetime (a considerable scholarly literature on this issue already exists, although no full conclusions on origin and spread have as yet been reached).

The examples discussed above and in the preceding chapter all illustrate the ordinary course of grammaticalization: an ordinary lexical item with an ordinary meaning comes to be used in some particular context; it is then bleached of its original meaning and becomes a mere grammatical marker in a syntactic construction; finally it is reduced to a bound

morpheme, an affix, a piece of morphology. Naturally, there is no requirement that every slight tendency toward grammaticalization will go all the way, but, as a general rule, if anything happens at all, it will conform to this schema. Some linguists have accordingly posited a principle of *unidirectionality*, which holds that movement in the opposite direction is impossible. And it certainly appears to be true that movement the other way is very rare, but certainly not impossible. It is not difficult to find cases in which bound grammatical morphemes have developed into independent lexical items. Here are some examples.

Turkish has a grammatical suffix *-miş* or *-muş* which is attached to a verb to indicate reported speech: hence *Ali geldi* ‘Ali has arrived’ [I’ve seen him myself] but *Ali gelmiş* ‘Ali has arrived’ [I haven’t seen him, but somebody has told me so]. This suffix is occasionally removed and treated as a separate word, as in the expression *Mişlere mußlara kulak vermem* ‘I don’t listen to mishes and mushes’, i.e., ‘I don’t listen to gossip’. Basque has a suffix *-tasun* ‘-ness’ used to form abstract nouns, as in *eder* ‘beautiful’ and *edertasun* ‘beauty’. This suffix has been extracted and turned into an independent word *tasun* ‘quality’, and it even forms derivatives like *tasunezko* ‘qualitative’.

Even English provides a few examples of this type. For instance, the suffix *-ism*, as in *socialism* and *monotheism*, has recently become an independent word *ism*, meaning ‘creed, doctrine, system of belief’, and we can now say things like ‘I’m not interested in all these isms.’ One wag has even coined a nonce-form *wasm*, meaning ‘an outdated doctrine’! Nevertheless, such ‘backward’ developments appear to be idiosyncratic: they do not represent the norm.

6.4 Typological harmony

Above I referred to the notion of the *basic word order* of a language, a notion introduced by Joseph Greenberg in a paper of 1963 (Greenberg 1963a). The majority of languages do appear to have a basic word order, a ‘normal’ or ‘unmarked’ order of elements in a sentence. In English, for example, a sentence like *The Turks love backgammon* represents the normal, basic order; other orders are either highly marked, like *Backgammon the Turks love*, or absolutely impossible, like **Love the Turks backgammon* or **Backgammon love the Turks* (here the asterisk marks an ungrammatical sequence). In other words, the basic word order of English is SVO.

If we assume, as is commonly done, that basic word order is best expressed in terms of the ordering of subject, verb, and object, then there are six possible basic word orders: VSO, SVO, SOV, VOS, OVS and OSV. Of these, SOV is probably the most frequent among the world’s languages; SOV languages include Japanese, Turkish, Basque and Quechua. Next most frequent is the SVO of English and of the majority of other European languages; SVO is also found in many African languages, such as Kiswahili. Considerably less frequent is VSO order, found, for example, in Welsh and Irish, in a number of Pacific languages, and in classical Arabic and early biblical Hebrew. Indeed, so unusual is this word-order pattern in Indo-European languages that some scholars have suggested that the insular Celtic languages (that is, all the Celtic languages now spoken) were pervasively influenced by another language or languages – probably of Afro-Asiatic origin (either Semitic or Berber).

The other three basic word orders are vastly less common, and for a while linguists suspected that they might be impossible, but all are now attested: Malagasy (in Madagascar) is VOS, Hixkaryana (in the Amazon basin) is OVS and Apurinã (also in Amazonia) is

reported to be OSV. We may therefore classify the majority of languages into one of these six word-order types. Such a classification according to structural features is called a **typology**.

A typology is only worth setting up if it proves fruitful: if the languages in each group turn out to have other characteristics in common apart from the one used to set up the classification in the first place. In this case, Greenberg was able to show that a word-order typology does indeed lead to just such an illuminating result. Confining his attention to the three most frequent basic word orders, he found that SOV languages in general consistently exhibit certain additional grammatical characteristics, while VSO languages, with equal consistency, exhibit precisely the opposite characteristics. SVO languages, while slightly messier, pattern on the whole with the VSO languages, and Greenberg therefore simplified his typology into VO languages and OV languages. These two groups display a number of systematic differences, some of which are listed in [Table 6.3](#).

Naturally, not all languages with basic word orders behave ‘perfectly’: English, for example, violates pattern 3 (*the big house*, not **the house big*), and partially violates pattern 4 (*John’s book*, but *the capital of France*). Basque is a perfect OV language except that it violates pattern 3, and Persian is a perfect VO language except that it violates pattern 1. On the whole, however, the tendency of languages to conform to one type or the other is very striking, and a language that fits almost perfectly into one type or the other is said to exhibit a high degree of **typological harmony**. Japanese, for example, is a virtually perfect OV language, while standard French is a virtually perfect VO language.

The field of syntactic typology has been greatly developed since Greenberg’s pioneering contribution, but pursuing these developments is beyond the scope of this book. What interests us here is the consequences of typological harmony for syntactic change, and particularly for word-order change. We have already seen that biblical Hebrew underwent a change of word order from VSO to SVO, but of course it remained a VO language throughout. Other languages, however, have undergone a change from OV to VO, or vice versa. This can happen through contact with a more prestigious language, or it can happen purely through internal changes (recall the case of the Chinese *bǎ* construction). What is interesting, however, is that we rarely find just one aspect of typology changing: if a language undergoes change in one or two respects among those listed in [Table 6.3](#), then it usually undergoes corresponding changes in all or most of those respects.

English provides an interesting case in point. There is very good reason to believe that a remote ancestor of English was very consistently SOV in its word order, though we have no records from this period (around 6,000 years ago). In the early centuries CE, a much later ancestral form of English was spoken in the north-west of the European continent,

[Table 6.3](#) Greenberg’s word-order types

VO languages	OV languages
1. Verb precedes object	1. Verb follows object
2. Auxiliary precedes main verb	2. Auxiliary follows main verb
3. Adjective follows noun	3. Adjective precedes noun
4. Genitive follows noun	4. Genitive precedes noun
5. Relative clause follows head	5. Relative clause precedes head
6. Prepositions	6. Postpositions
7. Case-marking absent	7. Case-marking present
8. Comparative adjective precedes standard	8. Comparative adjective follows standard

for which we do have records, in the form of what specialists call the North-West Germanic runic corpus, a modest collection of inscriptions in the ancient runic alphabet. Here are a few examples (data from Lass 1994: 219–20):

6.25 *ek Hlewagastiz Holtijaz horna tawido*

I H. H. horn did

‘I, H. H., made [this] horn’

6.26 *[me]z Woduride staina prijoz dohtriz dalidun*

me-Dat Woduridaz-Dat stone three daughters made

‘For me, Woduridaz, three daughters made [this] stone’

6.27 *ek Wiwaz after Woduride witada-hlaiban worahto*

I Wiwaz after Woduridaz-Dat guard-loaf wrought

‘I Wiwaz wrought [this] for Woduridaz [the] loaf-ward [i.e., the lord]’

As these examples suggest, North-West Germanic was still primarily an OV language. But it was not completely harmonic: it had prepositions rather than postpositions, adjectives generally followed their nouns, and genitives could either precede or follow their nouns, depending upon the type of noun. Moreover, a small proportion of sentences (less than 20 per cent) show SVO order. The impression we have is that of a formerly SOV language which is changing towards SVO order.

The very earliest texts in Old English, in the eighth century, are not very different in their syntax. The following example is carved upon a gold ring from Lancashire in a mixture of runes and Roman letters:

6.28 *Æðred me ah Eanred mec agrof*

Æthred me owns Eanred me carved

‘Æthred owns me; Eanred carved me’

Soon after, however, such OV patterns become increasingly rare in Old English texts, while VO patterns become correspondingly frequent. Within a few centuries the OV word order had virtually vanished, and English was left with the VO word order that it still has today. Interestingly, the system of case-endings, so typical of OV languages, disappeared as well: Modern English has the typically VO feature of no case-endings, apart from a handful still found on some pronouns like *I/me*. Oddly, however, our adjectives, which had formerly followed their nouns, moved so that they now precede their nouns; the adjective placement was out of line in the earlier OV stage and is again out of line today. There is a longstanding (and often heated) debate about the precise details of how SOV became SVO in English, which I will not touch upon here. Further references will be found at the end of the chapter.

Although we have documentary evidence only for the later stages of the transformation, it seems that English has developed over some thousands of years from a rather consistent OV language to a rather consistent VO language. Similar evidence is available for some other languages, but only very rarely do we have written texts of sufficient age that we can plot the course of typological change over the millennia typically required for such a major syntactic change. One such case is perhaps Chinese.

In their 1974 paper, Li and Thompson argue that Chinese has been slowly changing from SVO to SOV order over thousands of years. Our earliest records of Chinese, Archaic Chinese from the first millennium BCE, reveal a language which is solidly of the VO type,

except in NPs: adjectives, genitives and relative clauses all precede their head noun in Archaic Chinese, just as they still do today. From the early centuries CE on, however, a number of changes have disturbed the VO patterns of the archaic language. First, the original V + PP pattern (prepositional phrase follows verb) was replaced by a new PP + V pattern (PP precedes verb); the older pattern is now entirely confined to certain special circumstances. Second, the *bǎ* construction discussed above established itself, so that the original VO construction in transitive sentences was increasingly replaced by the pattern *bǎ* OV, which now predominates. Third, the earlier passive construction, of the form Subject V *by* Agent, was replaced by a new construction, of the form Subject *by* Agent V. Fourth, certain nouns were reduced to postpositions, an innovation in a previously exclusively prepositional language, and some of these postpositions have been phonologically reduced to something resembling case-suffixes, previously absent from the language (the prepositions are still present, however). Fifth, compound nouns and compound verbs, formerly very rare, have become exceedingly common in modern Chinese (Li and Thompson take compounds to be typical of OV languages, and there is evidence to support this position). Sixth, the language has acquired a set of suffixes marking aspect on verbs (again, there is evidence that such verbal suffixes are typical of OV languages).

It is not yet possible to claim that modern Chinese is a consistent OV language, but it certainly displays a greater level of OV characteristics than its archaic ancestor, in which OV characteristics were confined to NPs. What is noteworthy, however, is that a number of seemingly unrelated developments, involving a variety of forms and constructions, have all apparently been working together, with the overall effect of shifting the whole language from a VO harmonic type to an OV type. This is an instance of what historical linguists call **drift**: the curious tendency of a language (and, indeed, closely related languages) to keep changing in the same direction. Drift can be observed in every area of linguistic change (recall, for example, the continuing tendency of tense vowels in Greek to move upwards and forwards), but some linguists would maintain that instances of word-order change represent something more: a powerful, if somewhat mysterious, tendency for a language to move into one or the other of the two main harmonic types. In a sense, therefore, as with morphologization, grammaticalization and chain shifts, a linear (although perhaps eventually cyclical) pattern of change seems the overwhelming norm.

6.5 Syntactic change as restructuring of grammars

In the 1970s Lightfoot began pursuing a novel view of syntactic change, one that he calls **restructuring** of grammars; see especially Lightfoot (1979). The idea works like this. A child acquiring a first language eventually puts together in her head a set of rules, her internal grammar, and she uses these rules to construct and interpret utterances. As a general rule, the grammars constructed by each new generation of children will most likely be very similar to the grammars constructed decades earlier by their parents. With the passage of time, however, the accumulated weight of phonological, morphological and syntactic changes may introduce such a level of complexity into the surface forms of utterances that mental grammars that are broadly similar to those of earlier generations may become ever more complex, with more rules and messier rules and a greater number of exceptions. At some stage, Lightfoot proposes, the effort of constructing the traditional sort of grammar, in the face of data now very different from those encountered by earlier generations, will become simply too great and, as a result, a new generation of children will instead construct

for themselves a very different sort of mental grammar, one that corresponds more closely to the data. This sudden discontinuity in the kinds of mental grammars constructed by successive generations is what Lightfoot calls 'restructuring'. (In some of his works, he uses the alternative term 'radical reanalysis', which I will avoid here.)

Now the idea that children actively construct grammars in their heads as they acquire their first language is generally held to be one of the great insights of modern linguistics, and few linguists would deny its validity. That being so, Lightfoot's idea has an obvious *a priori* plausibility. Moreover, this idea is in principle testable, because a sharp discontinuity in mental grammars between one generation and the next might, in many cases, produce a sharp discontinuity in the kinds of utterances possible. Lightfoot has in fact attempted to demonstrate the existence of precisely such discontinuities, particularly in the history of English. Here we shall briefly consider one of his favourite examples, the history of the English modal auxiliaries like *can*, *will* and *might*, which have well-known peculiarities.

Old English had no modal auxiliaries. The ancestors of the modern modals were all in the language, but they were neither modals nor auxiliaries: they were just verbs. Already, however, they were somewhat unusual verbs, of a type specialists call 'preterite-present' verbs, which means that their present-tense forms looked like the past-tense forms of most other verbs. For example, these verbs failed to take the third-person singular ending in the present, a feature the modals retain today: *She smokes French cigarettes*, *She wants to buy a car*, but not **She cans speak Italian*. Let's refer to the Old English ancestors of the modals as 'pre-modals'.

Lightfoot sees the development of the pre-modals as follows. First, he argues that a number of independent changes in English left the pre-modals increasingly isolated and anomalous among the verbs (I omit one change that is too complex to describe here):

1. The pre-modals lost the ability to take direct objects, and so previously possible utterances parallel to modern English **I can music* became ungrammatical.
2. All the preterite-present verbs that showed no signs of becoming modals, such as *witan* 'know' and *þurfan* 'need', gradually disappeared from the language (or became restricted to fossilized phrases in only a few dialects), leaving the pre-modals isolated.
3. The past-tense forms of the modals lost their past-time meaning, and became detached from their present tenses so that, for example, *would* and *might* were no longer felt to be the past tenses of *will* and *may*, but were felt to be distinct items.
4. The infinitival *to*, illustrated above in *She wants to buy a car*, appeared in the language and came to be used for constructing the complements of most verbs (like *want*), but *to* failed to spread to the complements of pre-modals: **She can to speak Italian*.

As a result, Lightfoot concludes, the pre-modals had become so sharply distinct from other verbs that eventually a new generation of speakers found it too difficult to analyse them as verbs at all. Instead, this new generation abruptly began constructing grammars in which these anomalous items were assigned, not to the category of verbs, but instead to a totally new category invented for the purpose: the category of modals. (It should be noted that Lightfoot here follows the usual Chomskyan position that the English modals are not verbs, a view that is shared by few linguists not of a Chomskyan persuasion.) Lightfoot dates this development very precisely to the sixteenth century, and he supports this conclusion by arguing that, in the sixteenth century, a number of dramatic changes affected these items all at the same time:

1. They lost their infinitives, and structures like **She appears to can speak Italian*, formerly normal, became impossible.
2. They lost the ability to take the verbal affix *-ing*, and structures like **This is musting (to) be done*, formerly possible, became impossible.
3. Sequences of these items became impossible (for most dialects: see below), and constructions like **I will can do it*, formerly normal, became impossible (again, for most dialects: see below).
4. They lost the ability to appear in the *have* perfect, and structures like **We had might come*, formerly possible, became impossible.
5. The old pattern for negating all English verbs, including the pre-modals, ceased to be possible with true verbs and became restricted to the modals, and so structures like **She wants not this apple*, formerly normal, became impossible, while constructions like *She will not go* remained normal.
6. The old pattern of inversion in questions, previously possible with all verbs, likewise became restricted to the modals, and so structures like **Ate she the apple?*, previously normal, became impossible, while things like *Will she go?* remained normal.

The key point here is Lightfoot's insistence that all six of these last changes happened more or less suddenly and simultaneously: if he is right, it would indeed appear that there was some kind of important discontinuity in the grammar of English.

Lightfoot's idea of the sudden restructuring of mental grammars is an appealing one; if it proves able to withstand critical scrutiny, it will constitute an important addition to our understanding of syntactic change. But hostile criticism has not been wanting, and his critics make a number of worrying charges, only three of which we have space to consider here. First, take another look at Lightfoot's initial list of four changes that, he says, preceded the restructuring. Does anything strike you?

The obvious problem is that at least some of these changes appear to suggest that the pre-modals were *already* significantly different from other verbs long before the sixteenth century. In particular, his changes 1 and 4 seem to imply that the pre-modals were already both losing ordinary verbal properties and gaining non-verbal properties, thereby calling into question his view that these items remained nothing more than anomalous verbs until the sixteenth century. This in itself would not constitute a fatal objection, but there is more.

His critics argue vociferously that the changes he imputes to the sixteenth century and describes as both sudden and simultaneous were nothing of the sort. They believe that the historical record shows something quite different: first, that the six changes in his second list in fact occurred gradually, over centuries, just like the first four changes, and, second, that they were not simultaneous at all, but rather that each occurred spread out over a noticeably different stretch of time. Indeed, the so-called 'impossible' double modals (point 3 above) are alive and well in the dialects of western and central Scotland, in pockets in northern England, in the northern counties of Ireland and the dialects of the Appalachian mountains of North America. If the critics are right, then Lightfoot's restructuring scenario cannot be maintained, and we are forced to recognize nothing more than a large number of gradual and independent developments.

Lightfoot continues to develop his research programme, and he has recently modified his views on certain points, but it seems fair to conclude that the great majority of historical linguists remains to be convinced that the restructuring of grammars is indeed a real phenomenon.

Case study: the rise of ergativity

English, like a majority of the world's languages, is an **accusative** language. That is, the subjects of intransitive verbs and the subjects of transitive verbs are treated identically for grammatical purposes, while direct objects are treated differently. A simple example of this is the case marking on pronouns:

6.29 She smiled.

6.30 She saw me.

6.31 I saw her.

Here the female pronoun takes the case-form *she* when it is an intransitive subject 6.29 or a transitive subject 6.30, but the form *her* when it is a direct object 6.31.

A sizeable number of languages exhibit a quite different pattern: intransitive subjects and direct objects are treated identically, while transitive subjects are treated differently. Basque is a good example: NPs like *gizona* 'the man' and *neska* 'the girl' can take either the case-ending zero or the case-ending *-k*, as follows:

6.32 *Gizona heldu zen.*
'The man arrived.'

6.33 *Gizonak neska ikusi zuen.*
'The man saw the girl.'

6.34 *Neskak gizona ikusi zuen.*
'The girl saw the man.'

Languages such as Basque are called **ergative** languages. You can see that only a transitive subject takes the case-ending *-k*; both intransitive subjects and direct objects take the ending zero. In Basque, ergative morphology is thoroughgoing: ergative case-marking applies in all circumstances, and verbal agreement is ergative as well.

When European linguists first encountered ergative languages like Basque, they were quite bewildered by them, and they put forward quite a number of confused misinterpretations, some of which may still be encountered in popular books written by non-linguists. Today we have information on hundreds of ergative languages, and we no longer regard them as particularly exotic. The study of such languages has turned up a number of interesting points. One of these is that many ergative languages exhibit a *split* in their grammar: that is, they are ergative only in certain circumstances. One of the commonest splits is this: ergative morphology appears only in the perfective aspect or in the past tense, accusative morphology being found elsewhere. Here is an example from Pashto, an Iranian language spoken in Afghanistan; the label

Nom(inative) denotes the ordinary subject case, while Obl(ique) denotes the ordinary non-subject case. First, in the present tense:

6.35 *ze de winem*

I-Nom he-Obl see-I

'I see him'

6.36 *day maa wini*

he-Nom I-Obl see-he

'He sees me'

6.37 *te maa winee*

you-Nom I-Obl see-you

'You see me'

Now, in the past tense:

6.38 *maa day wulid*

I-Obl he-Nom saw-he

'I saw him'

6.39 *taa ze wulidem*

you-Obl I-Nom saw-I

'You saw me'

Observe the differences. In the present tense, the subject is in the subject case and the verb agrees with it, while the object stands in the oblique case. But, in the past tense, it is the *object* that stands in the subject case, and the verb agrees with it, while the subject is in the oblique case.

How does ergativity arise? There is one obvious possibility. Early linguists often mistakenly described ergative constructions as 'passives'. As it happens, they are demonstrably not passives, but of course they might be *derived* from earlier passives. Suppose, in the Pashto case, that a sentence like 6.38 once meant, not 'I saw him', but rather 'He was seen by me'. Its structure would then have been, literally, 'By-me he was-seen'. This would explain at once why *day* 'he' is in the subject case (it was the subject) and why the verb agrees with it (verbs agree with subjects in Pashto), and also why *maa* 'I' is in a non-subject case (it wasn't the subject, but an oblique noun phrase of agent). So possibly the Pashto ergative construction derives from what was formerly a passive.

This looks plausible, but, of course, it doesn't explain why the ergative should have arisen only in the past tense. We would therefore like to have some historical information. Now, for the majority of ergative languages, we unfortunately lack any significant historical documentation, but there are exceptions. One of the major

exceptions is the Indo-Iranian family of languages, to which Pashto belongs. For this group of languages we are lucky enough to have texts going back several thousand years, and so we can see the ergative construction developing over many centuries.

Consider Sanskrit, the ancient language that is the ancestor of most north Indian languages like Hindi and Bengali, most of which are also ergative today. In Sanskrit, we really do find what appears to be a passive construction, and it was indeed mostly used in the past tense. Here Nom(inative) is the ordinary subject case, Acc(usative) is the ordinary object case, and Obl(ique) is an oblique case; *Ram* is a male name, while *Sita* is a female name. In the present tense:

6.40 *rāmah sītām prcchati*

Ram-Nom Sita-Acc asks-3Sg

‘Ram asks Sita’

And in the past tense:

6.41 *rāmena sītā prṣṭā*

Ram-Obl Sita-Nom was-asked-Female

‘By Ram Sita was asked’, i.e., ‘Ram asked Sita’

Word order was rather free in Sanskrit, and the subject did not have to come first. Most linguists have concluded, therefore, that the ergative constructions of the modern Indo-Iranian languages derive from original passives. At least in the past tense, these passives apparently came to be used more and more frequently, until they finally became the normal (unmarked) form, while the original active construction became so rare that it dropped out of the languages altogether. Since the passive no longer contrasted with an active, it was then reinterpreted as being itself an active construction, as it is today, but it still kept its original morphology, producing the ergative constructions we see today.

If it is right, this account illustrates two of the general pathways of syntactic change discussed above. First, there was a *shift of markedness*, as the formerly marked passive became so frequent that it turned into the unmarked form, while the formerly unmarked active became first highly marked and then obsolete. Second, there was a *reanalysis*, as the former passive construction was reanalysed as an active. It might even be possible to see events of this type as restructurings, although they seem too gradual for this.

But why should the passive have become so frequent in the first place? We don’t know, but one possible answer is politeness. Passives, being indirect and often impersonal, may often seem more polite and less abrupt than actives: compare the English passive *John’s arm has been broken* with its corresponding active *Fred has broken John’s arm*. Such developments are attested: for example, in Malagasy, the chief language of Madagascar, in which blunt statements are generally regarded

as socially inappropriate, actives, although possible, are not at all frequent. Instead passives and circumstantials (a voice almost impossible to translate into English, emphasizing neither the agent nor the patient) are the norm.

But passives are not the only possible source of ergatives. Since ergative constructions are so often confined to the perfective aspect, we might wonder whether ergatives can be directly derived from perfective constructions, and there is good evidence that this does happen.

Recall the English perfect discussed above, in which what was originally a stative construction of the form *I have a window broken* (= ‘One of my windows is broken’) was reinterpreted as a non-stative perfect with the meaning *I have broken a window* (= ‘I broke a window, and it’s not fixed yet’). Note carefully that the stative construction was originally a *possessive* construction, essentially identical to *I have a dog*. It is known that possessives are a common source of statives, and hence of perfects. In English, this development has not led to ergativity, because English uses the transitive verb *have* to express possession. But lots of languages have no such verb.

So how do they express possession? They do it like this (Welsh *y* is a grammatical particle):

6.42 Welsh:

Y mae gardd gennyf i

Prt is garden with me

‘A garden is with me’, i.e., ‘I have a garden’

6.43 Russian:

U menja kniga

at me book

‘A book [is] at me’, i.e., ‘I have a book’

6.44 Early Latin:

Est mihi liber

is to-me book

‘A book is to me’, i.e., ‘I have a book’

6.45 Fijian:

saa ti'o vei au e dua a pua'a

Asp be-at to me 3Sg one Art pig

‘A pig is to me’, i.e., ‘I have a pig’

Constructions like these are very widespread. Observe that the thing possessed stands in the subject case and takes any verbal agreement going, while the possessor stands in an oblique case. Now, suppose such a language were to use its possessive construction to create a stative, and consequently a perfect, just as in English. The result

would be perfect constructions with meanings like ‘I have broken a window’, but with subject-case marking on the object, verb agreement with the object, and oblique marking on the subject. Just such an origin has therefore been proposed for ergatives in a number of languages, especially in those in which ergativity is confined to the perfective aspect. Indeed, some linguists prefer to derive the ergative constructions of the Indo-Iranian languages from an earlier perfect that was itself obtained from a possessive construction; this has the advantage of explaining why, in these languages, ergatives are usually confined to perfect aspect or to past tense (past tenses are themselves often derived from earlier perfects).

There is a final point of some importance. If an ergative construction is historically derived from either a passive or a possessive, as just described, then it must pass through a stage in which the thing that ends up as the direct object must actually be the subject of the sentence. We might therefore be able to find languages which exhibit not only **morphological ergativity**, like Basque, but also **syntactic ergativity**, in which NPs that appear to be direct objects pattern like subjects. Such languages indeed exist. Consider the following sentences of Dyirbal (a native Australian language), the first two intransitive, the third transitive; the two cases are called Abs(olutive) and Erg(ative), the Roman numerals are gender-class identifiers, and there is no Dyirbal word for ‘and’:

- 6.46 *balan guda buŋa-n*
 the-II-Abs dog-Abs descend-Past
 ‘The dog went downhill’
- 6.47 *bayi yara buŋa-n*
 the-I-Abs man-Abs descend-Past
 ‘The man went downhill’
- 6.48 *balan guda bangul yara-ŋgu bura-n*
 the-II-Abs dog-Abs the-I-Erg man-Erg see-Past
 ‘The man saw the dog’

Now, in English, with its accusative syntax, it is the glosses in 6.47 and 6.48, with their intransitive and transitive subjects, which can easily be joined together: ‘The man went downhill and saw the dog.’ We cannot do the same with 6.46 and 6.48, however: *‘The dog went downhill and the man saw.’ To combine these two, we have to use a different construction, either ‘... and the man saw it’ or ‘... and was seen by the man’. But Dyirbal is different: the two that can be straightforwardly combined are 6.46 and 6.48:

- 6.49 *balan guda buŋan bangul yarangu buran*
 ‘The dog went downhill and was seen by the man’

But attempting to do the same with 6.47 and 6.48 produces an ungrammatical result:

6.50 **bayi yara bujan balan guda buran.*

The only way to combine these two is to use a different construction, just as happened in English with a different pairing.

It may, therefore, be the case that syntactically ergative languages like Dyirbal are languages in which the shift of markedness I referred to above has already taken place, but the subsequent reanalysis has not occurred, and it may further be the case that the more numerous morphologically ergative languages like Basque and Pashto have historically passed through just such a stage of syntactic ergativity. But information is sparse, and no one really knows: while we are now satisfied that we know a good deal about the origins of ergativity, there is clearly still a lot that we don't understand.

Further reading

The major synthesis of syntactic change is Harris and Campbell (1995). The papers collected in Li (1977a) are a particularly valuable source of information on syntactic change, while the papers in Li (1975) deal explicitly with issues of word-order change. Several of the chapters in Hopper and Traugott (2003) deal with various aspects of syntactic change, particularly with grammaticalization. The recent debates on *lexification* are discussed in Brinton and Traugott (2005). The classic discussion of word-order typology is Greenberg (1963a); valuable extensions of Greenberg's work can be found in volume 4 of Greenberg *et al.* (1978), in Hawkins (1983), and in selected chapters of Comrie (1989) and of Croft (1990); the last two books include chapters on the diachronic dimension of typology. Chapter 6 of McMahon (1994) presents a survey of all these issues; I also recommend Chapter 6 of Hock and Joseph (1996). A highly readable introduction to the field as a whole can be found in Velupillai (2012). Both Traugott (1972) and Denison (1993) are readable studies of the history of English syntax. The controversy over word order in English can be read about in Pintzuk (1999) and Fischer *et al.* (2000). Convenient introductions to ergativity are Comrie (1978) and Dixon (1979 and 1994); collections of studies include Plank (1979) and Dixon (1987); Anderson (1977) is a survey of the historical origins of ergativity. Lightfoot's analysis of English modals is presented in Lightfoot (1974), while his theory is presented in detail in Lightfoot (1979). Criticism of Lightfoot's ideas can be found in the special number of the journal *Lingua* (vol. 55, 1981), and also in Bennett (1979), in Aitchison (1980) and in Warner (1983). Lightfoot revises his ideas in Lightfoot (1981), and presents a summary of his views in Lightfoot (1988). McMahon (1994: Chapter 5) provides an overview of the whole issue.

Exercises

Exercise 6.1

Many Polynesian languages are ergative, while others are not. Most Polynesian languages exhibit a verbal suffix which is reconstructed as **-Cia*; its use varies among the several languages. Here are brief summaries of several Polynesian languages (data from Chung 1978). Examine these data and propose a plausible account of the history of Polynesian syntax. 'Prop' is a determiner used before a proper name.

- (a) *Tongan* is ergative, with ergative case-marker 'e. The suffix *-Cia* appears on the verb only in very restricted and somewhat idiosyncratic circumstances, for example, to show that an agent is non-human, non-specific or absent:

Na'e fafangu kinautolu 'e Sione [-*Cia* not possible]

Past awaken them Erg John
'John awakened them.'

Ne'e fangu-na au 'e he nanamu 'o e kakalá

Past awaken-Cia me Erg the smell of the flower.
'The smell of the flower awakened me.'

- (b) *Niuean* is not ergative. The suffix *-Cia* is severely restricted. Most often, this suffix converts a transitive verb to an intransitive one; the subject of such a derived verb corresponds to the direct object of the original transitive verb:

Ka e ponoti-a e hala i a Manā

But Tense close-Cia the road because.of Prop Mana
'The road was closed because of (by) Mana.'

- (c) *Samoan* is ergative, with ergative case-marker *e*. The suffix *-Cia* may optionally appear or fail to appear on any transitive verb, with little difference in meaning:

Sā su'e a'u e le fānau a Fo'isia

Past search me Erg the children of Fo'isia
'Fo'isia's children were looking for me.'

Sā su'e-ina a'u e le fānau a Fo'isia

Past search-Cia me Erg the children of Fo'isia
'Fo'isia's children were looking for me.'

Very often *-Cia* serves to mark the absence, or the remoteness, of an agent:

'Ua pa'i-a lona mata

Perf touch-Cia his eye
'His eye was touched (accidentally).'

- (d) *Māori* is not ergative:

Ka whana te hōiho i a Hōne

Tense kick the horse Acc Prop John
'The horse kicked John.'

It has a fully productive passive, in which the verb is suffixed with *-Cia* and the passive agent is marked by *e*:

Ka whanaia a Hōne e te hōiho

Tense kick-Cia Prop John by the horse

'John was kicked by the horse.'

The passive is much more frequent than the active, and is obligatory in certain circumstances.

Exercise 6.2

Most languages belonging to the Oceanic subgroup of the Austronesian family possess a reflex ('development') of an ancestral item which I shall here represent as *PANI. Since the phonological history of these languages is well understood, we can recognize this *PANI in each language, regardless of its modern form. The functions of these reflexes are quite varied and differ from language to language. Here is a representative sample (data from Lichtenberk 1985).

Sugu: *goko wani-au*
speak PANI-me
'Speak to me.'

Lau: *fale-a fua-na*
give-it PANI-his
'Give it to him.'

Baki: *ko-dri o vani kiniu*
you-take him PANI me
'Bring him to me.'

Fijian: *e tiko vei Jone*
it stay PANI John
'It is with John.'

Tigak: *ga aigot-i pok an-iri*
she prepare-it food PANI-them
'She prepared food for them.'

Gitua: *guap uzak lam pay-gau*
you.do knife come PANI-me
'Bring the knife to me.'

Inakona: *igia ga vani-go na uvi*
he he.Fut PANI-you Art yam
'He will give you a yam.'

Manam: *tamoata borò i-an-a*
man pig he.Real-PANI-me
'The man gave me a pig.'

Propose a historical source for *PANI, and briefly explain what seems to have happened in many of these languages.

Exercise 6.3

Chamus is a dialect of Ma'a, a Nilo-Saharan language spoken in Kenya and Tanzania. It is a VSO language in which the subject may never precede the first verb in the sentence. It has masculine and feminine gender classes, and it has a 'narrative' prefix *n-*, which can appear on a verb that is *not* the first verb in a sentence. The language has a certain morpheme *-yyéú-*, which invariably stands first in its sentence. This morpheme has a variety of functions, illustrated below (data from Heine 1992).

- (a) It can occur with agreement prefixes typical of verbs, with a human subject and with an object noun phrase:

<i>k-á-yyéú n-daâ</i>	<i>k-á-yyéú m-partút</i>
k-1Sg-yyéú Fem-food	k-1Sg-yyéú Fem-woman
'I want food.'	'I want a wife.'

- (b) It can occur with agreement markers, with a human subject and a complement clause whose verb is prefixed with *n-*; two orders are possible:

<i>k-á-yyéú nanU n-a-ló n-ka</i>	<i>k-á-yyéú n-a-ló nanU n-ka</i>
k-1Sg-yyéú I n-1Sg-go Fem-home	k-1Sg-yyéú n-1Sg-go I Fem-home
'I want to go home.'	'I want to go home.'

- (c) It can occur with agreement markers and any kind of subject, with a complement clause whose verb is prefixed with *n-*:

<i>k-é-yyéú l-pyan n-é-rríá</i>	<i>k-é-yyéú l-cáni n-é-uróri</i>
k-3Sg-yyéú Masc-elder n-3Sg-fall	k-3Sg-yyéú Masc-tree n-3Sg-fall
'The old man nearly fell.'	'The tree almost fell.'

- (d) It can occur in an invariable third-singular form (*(k)eyyéú* with no agreement and with a following complement clause whose verb cannot bear the prefix *n-*; that complement verb must precede its subject:

(k)eyyéú a-ók nánU kUlε
 keyyéú 1Sg-drink I milk
 'I was about to drink milk.'

(k)eyyéú e-ók nInye kUlε
 keyyéú 3Sg-drink s/he milk
 'S/he almost drank milk.'

**(k)eyyéú nInye e-ók kUlε*
 keyyéú s/he 3Sg-drink milk

- (e) Its invariable form can be used to answer a yes/no question:

i-túm-o m-partút? (k)éyyeu a-túm
 2Sg-get-Perf Fem-woman keyyéú 1Sg-get
 'Did you get a wife?' 'No [but I almost did].'

Propose an account of the historical development of the morpheme *-yyéú-* that explains these observations as completely as possible.

Exercise 6.4

The Carib language Panare is verb-initial and subject-final (data from Gildea 1993). When the subject is first or second person, no copula is required in the present tense:

maestro yu
teacher I
'I am a teacher.'

maestro amën
teacher you
'You are a teacher.'

With a third-person subject, a copula is obligatory. With an inanimate subject, the copula is *mën*; with an animate subject, it is either *kěj* or *něj*, with a difference in meaning:

**maestro e'ñapa*
teacher Panare

**e'chipen manko*
fruit mango

maestro kej e'ñapa
teacher *kej* Panare
'This Panare here is a teacher.'

e'chipen mën manko
fruit *mën* mango
'Mango is a fruit.'

maestro nej e'ñapa
teacher *nej* Panare
'That Panare there is a teacher.'

The demonstratives *měj* 'this person who I can see now' and *kën* 'that person who I can't see now' at first glance behave straightforwardly:

maestro kej měj
teacher *kej* this-guy
'This guy is a teacher here.'

maestro nej kën
teacher *nej* that-guy
'That guy is a teacher there.'

But now consider some further Panare copular sentences; note that <y> affricates to <ch> after <j>:

maestro nēj mēj
teacher *nēj* this-guy
'This guy was a teacher.'

maestro nēj chu
teacher *nēj* I
'I was a teacher.'

maestro nēj amēn
teacher *nēj* you
'You were a teacher.'

maestro kēj kēn
teacher *kēj* that guy
'That guy is being a teacher right now' [i.e., he's off somewhere performing his teaching duties at this very moment]

Moreover, the items *kēj* and *nēj* can also occur with ordinary verbs; a question mark indicates a sentence that sounds very strange to native speakers:

ě' púmaněpēj kēj Toman
be-falling *kēj* Thomas
'Tom is falling.'

?ě' púmaněpēj nēj Toman
be-falling *nēj* Thomas
'Tom is falling' [but I can't see him]

yiupúmēn kēj Toman
fall *kēj* Thomas
'Tom is going to fall!'

yiupúmēn nēj Toman
fall *nēj* Thomas
'Tom is going to fall one day' **or** 'Tom fell'

Describe the behaviour of *kēj* and *nēj* as accurately as you can, and propose a plausible historical development of the use of these items. What further evidence might you look for to check your hypothesis?

Relatedness between languages

In the preceding chapters we have examined the many different ways in which languages can change and considered how and why such changes might take place. Later, in [Chapter 10](#), we'll be looking at the 'how' and 'why' of language change from a very different point of view. For the moment, however, we turn our attention to a different issue: the consequences of language change. After generations, centuries or millennia of language change, what is the result?

7.1 The origin of dialects

After the language varieties that the Germanic settlers of Britain brought from the Continent some 1,500 years ago had converged towards each other (since people speaking strikingly different varieties probably lived side by side with each other), we assume that a fairly homogeneous English was spoken throughout these territories. But by the time Old English was first recorded in the seventh and eighth centuries, relatively minor regional distinctions had again become apparent. The inevitable processes of language change of course affected English: new words, new meanings, new pronunciations and new grammatical forms began to creep into their speech and, at the same time, old ones began to drop out of use. Nothing surprising here. However – and this is the key point – a change appearing in one place did not necessarily spread to the whole of the speech community.

Before the nineteenth century, no one could travel faster than a horse could take him or her, and very few people could even afford to own horses, so that travel normally meant travel on foot, or very occasionally by boat. For many centuries after the settlement, then, most people were tied firmly to their place of birth, and they rarely travelled as much as 50 miles away from there. Consequently, most of their dealings were with people from their immediate area, or at best with people in the next town or the next valley.

Now consider what this means in linguistic terms. Suppose a few people in one valley began using a new word or a new pronunciation. Perhaps the new form would be picked up by others in the valley, and gradually become general there. People in the next valley would therefore start to hear the new forms, and maybe they too would consider them prestigious or attractive and begin to use them, thereby giving the people in the next valley across a chance to hear them. Then again, maybe they wouldn't. Perhaps they would just accept their neighbours' odd forms as typical of those neighbours but go on themselves using the older forms, or perhaps they would come up with some different new forms of their own; they might even produce an innovation inspired by what their neighbours did, but distinctive. In the case of every such innovation – and there were thousands and

thousands of them – people might or might not choose to adopt the innovation from their neighbours, and, if they didn't adopt it, their neighbours on the other side would rarely get to hear it at all.

With the passage of centuries, then, the relatively homogeneous language of the first English communities began to break up into regional varieties that became steadily more different from one another. Every local group of people spoke the language a little differently from their next-door neighbours, and these differences accumulated as you moved across the landscape, so that people living far apart from one another were speaking very different kinds of English indeed. People in different parts of England had different words for things, and they used different grammatical endings and different constructions. In short, English had broken up into what we call **regional dialects**, or **dialects** for short. Moreover, people in different areas were pronouncing their words very differently, and we therefore say that they were using different **regional accents**.

(A note on usage. In Britain, *dialects* are speech varieties differing in vocabulary and grammar, while *accents* are varieties differing in pronunciation. In the USA, the term *dialect* is commonly understood as including features of pronunciation. This difference reflects the fact that, in the USA, accents are usually closely related to other regional features of usage, while in Britain a regional accent may be largely independent of regional grammar and vocabulary. In this book, I generally follow British usage. Note in any case that every single speaker of any language necessarily speaks it with some accent or other: it is impossible to speak English 'without an accent'. The most that anyone can do is to use the sort of accent that some other speakers regard as the most familiar, or the most prestigious, kind of accent. We return to this in [Chapter 10](#).)

By about 1500, it is clear that people were often finding it exceedingly difficult to understand English-speakers from other areas. In a famous passage from 1490, the printer William Caxton reports that a merchant from the north of England walked into a tavern to the east of London and asked for *eggys*, and was told by the tavern-keeper that she could not understand French. The exchange became quite heated before another man stepped in and explained that the merchant was asking for *eyren*. This little bit of interpretation did the trick, and the merchant got his eggs. Here the merchant was using a northern word with a northern plural ending, while the tavern-keeper only knew the southern forms typical of Essex and Kent.

Caxton offered this story to illustrate the problems that he faced as a printer. He wanted to print books that could be read throughout England, but what words and forms should he use when the regional varieties of English differed so greatly?

Although standardization had already begun in England, Caxton promoted and popularized the new standard, 'fixing' it through printing. The words and forms selected by him, and by the printers who followed him, in many cases gradually came to be accepted as the Standard English ones, and today we have a fairly homogeneous standard version of English that is at least accessible to all English-speakers, regardless of the sort of English they have grown up speaking.

Nonetheless, regional differences are still very much with us, and they have been extended by the spread of English to Ireland, Wales, North America, the Caribbean, South Africa, India, Australia, New Zealand and parts of South-East Asia and the Pacific during the last several centuries. (The south-east lowlands of Scotland, in contrast, were settled by English-speakers around the same time as England.) You can easily tell an English person from a Scot, a North American, a Jamaican or a southern-hemisphere speaker; perhaps you

can quickly spot someone from Birmingham, Glasgow, New York or Mississippi; very likely you can guess the approximate origin of someone from a different part of your own country.

In 2006, a documentary on the life of a fishing community in the north-east of Scotland was broadcast over the whole BBC network with subtitles when locals spoke. Local people were deeply offended by this, and with some reason. The people shown on the television had obviously Anglicized their natural speech in order to accommodate non-Scottish viewers (or, at least, what they thought was sufficient for monolingual English-speakers: it's worth noting that most English-speakers who live in Scotland have passive or active command of Scots; this may not be true elsewhere). Nevertheless, I know of at least one student of English origin at Aberdeen University who thought that the domestic staff in his Hall of Residence were speaking Gaelic, when they were in fact speaking the Aberdeen dialect of Scots, a reasonably close relative of Standard English.

In fact, variation in English is considerably greater than you might realize from your own experience. What do you think of the following examples? Are they familiar? Are they comprehensible? Are they English?

1. I done shot me a squirrel.
2. That will make Peter and I's job easier.
3. Divn't gan to the pictures, pet.
4. As well, there are three other cases of this.
5. I am not knowing where to find a stepney.
6. They're a lousy team any more.
7. She's the student that's books I borrowed.
8. If Hitler had invaded earlier, he may have captured Moscow.
9. She mustn't be in: her car's not there.
10. You must finish today your work.
11. I might could do it.

In fact, every one of these examples is routinely used by speakers of English in certain parts of the world, but not in other parts; speakers who don't use them typically find them very strange and sometimes even incomprehensible, a fact that would astonish the speakers who use them.

Example 1 is typical of much of the southern USA and means 'I shot a squirrel'. Example 2 is typically Australian, although it is occasionally heard elsewhere. Example 3 is from the Geordie speech of Newcastle in north-east England and means 'Don't go to the movies, my dear'. Example 4 is Canadian; most other speakers (including Americans) cannot use *as well* in this way. Example 5 represents the English of India and means 'I don't know where to find a spare wheel'. Example 6 is typical of much of the north-eastern USA, and means 'They didn't use to be a lousy team, but now they are' – that is, it means exactly the opposite of 'They're not a lousy team any more' (this one is particularly baffling for other speakers). Example 7 occurs in a number of regional varieties all over the world, including Australia; other speakers require 'whose books'. Example 8 is typical of the English of England, though it is beginning to appear in several other places; it means '... he might have captured ...'. Example 9 is normal in Ireland and in areas influenced by Irish English, including parts of the USA and Australia. Example 10 is usual in the English of Malaysia and Singapore; other speakers require '... finish your work

today'. Finally, example 11 is normal in southern and central Scotland and the northern counties of Ireland, and can also be heard in the Appalachian Mountains and the American south; it means 'I might be able to do it'.

Such regional differences not only persist but multiply. Linguists who study contemporary English are constantly reporting that new words, new pronunciations, or new grammatical forms have turned up and become established in Auckland or Liverpool or Albuquerque. Sometimes these new forms quickly become widely known and used; in other cases they remain purely local.

Regional fragmentation of this kind is in no way peculiar to English: it happens to every language that is spoken over any significant area. French, Spanish, German, Russian, Hindi, Arabic – all show extensive regional variation, sometimes beyond anything we find in English. Even Basque, spoken in an area only about 160 kilometres by 50 kilometres, exhibits greater regional diversity than does English, which is spoken on almost every continent. (Mountainous terrain and territories divided by open water encourage dialectal diversity. This is true for Norwegian, Scottish Gaelic, Italian and the languages of the Caucasus, among others.) The variation in German is such that German-speakers from, say, Berlin and Bern cannot understand each other at all if they use their own regional varieties, nor can a Syrian and a Moroccan communicate using their own local varieties of Arabic, nor a Sicilian and a Genoese, if they stick to their own local Italian.

In recent centuries, especially in Europe, the extent of regional diversity has been somewhat obscured by the development of standard forms for the principal languages of nation states. For example, a standard form of German has been created and is now learned by all educated speakers of German, and this is what Germans speak to other Germans from different places, although they continue to use their local dialects at home with family and friends. To some degree, the influence of these new standards has tended to reduce the amount of regional diversity: you will have noticed that the northern form *eggs* has become standard and driven the southern form *eyren* out of the language, even in the remotest corners of southern England. But regional dialects are still very prominent, even in Europe. Here is an example from French, a language in which, for political, historical and social reasons, the standard form has been particularly successful at displacing regional varieties, even in domestic contexts.

In the south-eastern half of Belgium, the official language is French, and all Belgians from this area, of course, learn to use standard French with other French-speakers. But the local variety, called *Walloon*, was until very recently the first language of most people, and it's noticeably different from the standard, so different that some specialists prefer to label it a distinct language, rather than a dialect of French. Look at this passage, written in the Walloon of the Belgian province of Luxembourg (not to be confused with the country of the same name); it was written by Georges Pasau, Président du Musée de la Parole au Pays de Bastogne:

I-gn-è a pô près kinze ans du d'ci, dj'asto amon Albêrt Lèyonârd èt dj'rawârdo pace k'on m'avot dit k'ou profèsseûr do Séminêre vlot nos vèy po pârlér do walon. Dju m'sovin cok'dj, ê dmandé a ç'momint la: «Kin-âdje k'il è, don ç'curé la?» Dj'ê vite avou compris k'i n'astot nin pus curé k'mi, surtout cand dj' l'ê vèyou avou oune bèle djon.ne bwêcèle ki n'compurdot wêre lu walon, mès k'astot bin dècidé a l'aprinde avou dès profèsseûrs come Pierrot, come Jeannot, come Roger, ou come mi, di-st-i, l'fou.

Even if you know French, you will find this passage startling and even incomprehensible in places, and not merely because of the somewhat distinctive orthography. Here is a standard French version of the passage:

Il y a à peu près quinze ans d'ici, j'étais chez Albert Leonard et j'attendais parce qu'on m'avait dit qu'un professeur du Séminaire voulait nous voir pour parler du wallon. Je me souviens ce que j'ai demandé à ce moment-là: 'Quel âge a-t-il donc, ce curé-là?' J'avais vite compris qu'il n'étais pas plus curé que moi, surtout quand je l'ai vu avec une belle jeune demoiselle qui ne comprenait guère le wallon, mais qui était bien décidée à l'apprendre avec des professeurs comme Pierrot, comme Jeannot, comme Roger, ou comme moi, dit-il, le fou.

And here is an English version:

It's fifteen years ago now; I was with Albert Leonard, and I was curious because I had been told that a teacher from the Seminary wanted to see us to talk about Walloon. I still remember what I was wondering at that moment: 'So how old is that priest?' I quickly understood that he was no more a priest than I was, particularly when I saw him with a beautiful young girl who scarcely knew any Walloon but who was determined to learn it from teachers like Pierrot, like Jeannot, like Roger, or like me, he says, the fool.

In the nineteenth century, such regional variation began to attract the attention of a number of European linguists, and to their efforts we now turn.

7.2 Dialect geography

Before the nineteenth century, linguists in Europe had largely confined their attention to dead languages like Latin and ancient Greek and to the standard forms of modern languages like English, French and German. More than a few linguists shared the common perception that non-standard regional varieties were nothing but ignorant and debased versions of the standard forms, unworthy of serious attention. In that century, however, there occurred one of the great developments in the history of linguistics: a number of scholars began to realize that regional forms were just as worthy of study as standard forms, and they turned their attention to constructing good linguistic descriptions of regional variation.

One way of doing this is, of course, to write grammars and dictionaries of regional dialects, and this approach was initiated by Johannes Schmeller, who in 1821 published a grammar of his own Bavarian dialect of German. This kind of valuable work is still with us; for example, the Walloon passage above is taken from an article on a dictionary of that variety published in 1994. Here, however, I want to concentrate on another approach, the one called **dialect geography**.

Dialect geography consists of the painstaking collection of the regional forms used at intervals across a large area. Naturally, since variation is virtually limitless, the investigators must decide in advance which particular items they will look at and collect information on. They may decide to ask for the local name of the building that cows are kept in at night, or of a sliver of wood caught in a finger. They may be interested in the particular vowel sounds used in particular words, or in the particular grammatical forms of verbs or

nouns. Such data must be collected by interviewing local people, and this calls for carefully designed techniques of elicitation, since people tend to get nervous when questioned by outsiders and may be inclined to give what they hope are the ‘right’ answers, rather than what they actually say.

Around the middle of the century, a number of people threw themselves into such work in various parts of Europe. For example, the French amateur linguist Prince L. L. Bonaparte (nephew of Napoleon) collected data on the regional dialects of Basque and published in 1869 a map showing his classification of the language into regional dialects. These early efforts, however, were somewhat unsophisticated, and it took several decades to work out reliable procedures.

Georg Wenker introduced the questionnaire approach: he sent out questionnaires to schoolteachers in nearly 50,000 localities in Germany and asked for the local equivalents of standard German sentences. This had the advantage of producing a huge volume of data (so much, in fact, that Wenker’s results have still not been fully published), but the disadvantage that the schoolteachers, having no training, were highly inconsistent in their reporting and perhaps not always reliable.

Observing the difficulties with Wenker’s approach, Jules Gilliéron tried another technique. He trained a single worker, Edmond Edmont, in the skills of collecting information by personal interview. Edmont, who proved to be a talented and reliable investigator, then spent the years between 1896 and 1900 cycling around France, stopping in a total of 639 localities to make friends with the local people and ask his questions. While this programme produced a much smaller corpus of data, it had the great advantage that the data were completely consistent and very reliable. Gilliéron managed to collate Edmont’s findings and to publish them in full by 1910.

And how does one publish such data? They could be published merely as lists, but dialect geographers have always preferred another type of presentation, more laborious and expensive but far more illuminating: the preparation of **dialect maps**. A single dialect map shows the regional variants found for a single linguistic variable – the local words for ‘dragonfly’ or ‘headache’, the local pronunciations of the word *arm* or *girl*, or whatever. Each locality covered is marked on the map with a symbol that represents its particular form; localities using the same form get the same symbol. If the boundary between two neighbouring forms turns out to be rather sharp, a line called an **isogloss** may be drawn on the map to show that boundary. Most often, the results of such a study are presented in a volume of dialect maps, a **dialect atlas**. Such atlases now exist for France, Germany (only in part), England, Scotland, the eastern USA and some other areas. The production of dialect atlases revolutionized linguistics by revealing for the first time clear evidence of the long accumulation of regional changes that I have been discussing in this chapter: each map provides a kind of snapshot of the linguistic position at the moment the data were collected. Ideally, of course, we would like to have a series of such snapshots taken at intervals of a generation or so, in order to see how the maps change, as local forms expand or contract their territory, as some disappear altogether while new forms appear and begin to spread out. Such is the cost of this work, however, both in time and in money, that we can almost never do this.

Here are some examples of dialect maps. [Figure 7.1](#) shows the past tense of the verb *dive* in the eastern USA, with its regional variants *dived*, *dove* (rhymes with *drove*), *duv* (rhymes with *love*) and *div* (rhymes with *give*). In this case, as you can see, the boundaries between competing forms are somewhat blurred, and sharp isoglosses are hard to draw.

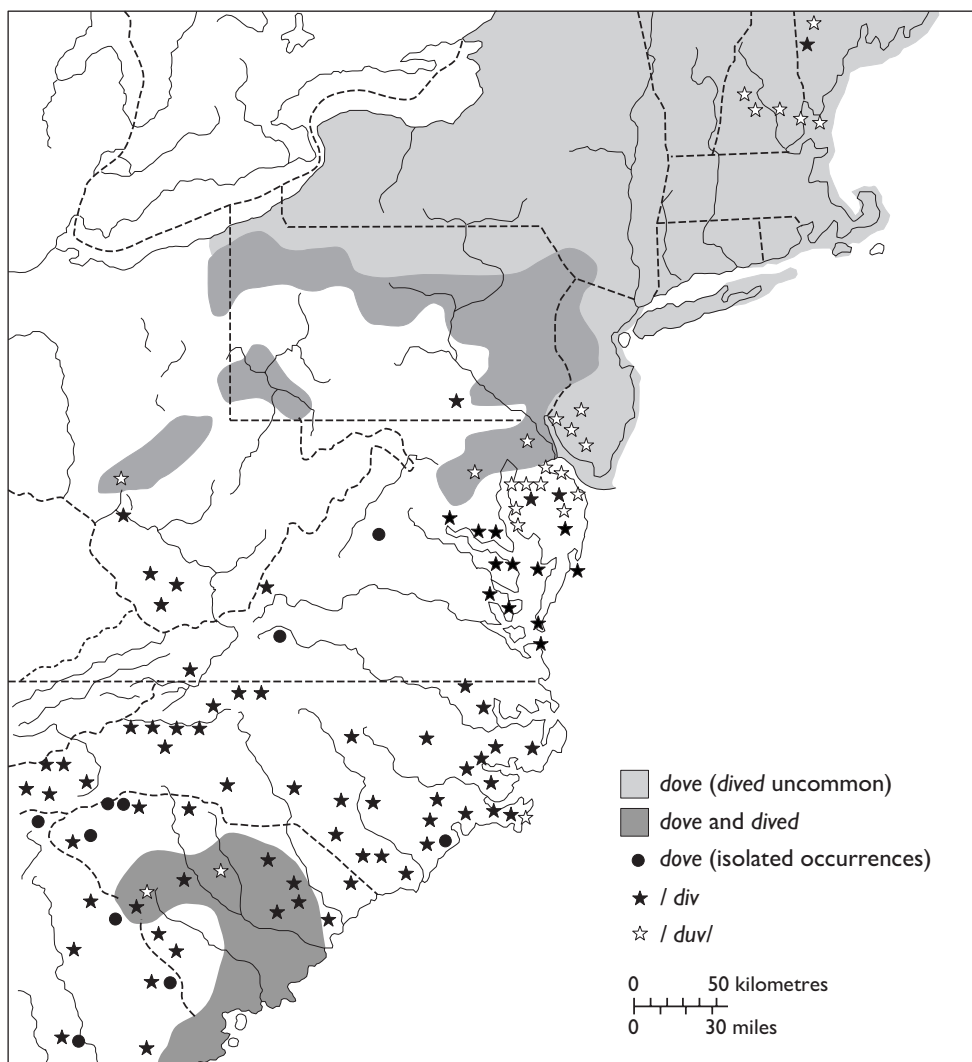


Figure 7.1 The past tense of *dive* in the eastern USA (Atwood 1953: Figure 6)

Figure 7.2 likewise shows the past tense of *see* in England. This time the investigators have felt able to draw isoglosses between the neighbouring forms.

Dialect maps are unquestionably of great value in displaying real language data in a vivid graphic manner. However, if you leaf through the pages of a dialect atlas and try to compare some of the maps, you will quickly notice something striking: the isoglosses on one map typically bear no relation to the isoglosses on the next. (Check this for yourself if your library has a dialect atlas in it.) Rather, each particular linguistic form extends over its own particular area, and it doesn't seem to pay any attention to what other forms are doing. Nevertheless, if you lay dozens and dozens of dialect maps of the same region on top of one another, some structure will begin to emerge. In particular, you will sometimes

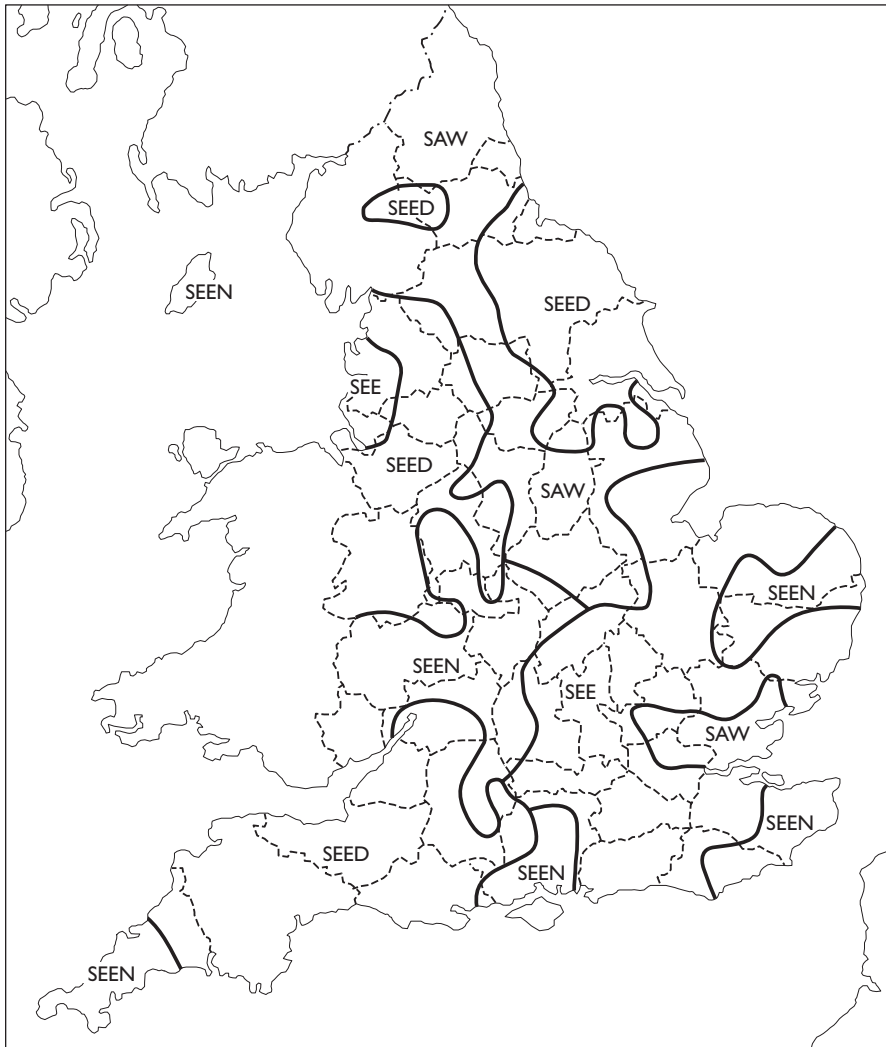


Figure 7.2 The past tense of see in England (Upton *et al.* 1987: map 139)

find that a significant number of isoglosses lie very close together over much of their length. We call this state of affairs a bundle of isoglosses, and a bundle of isoglosses is the closest thing we normally find to a division between distinct dialects.

For example, Figure 7.3 shows the southern limit of six different words and forms in the French-speaking area. The six isoglosses correspond exactly only along the River Garonne in the west, which forms a natural boundary; elsewhere they follow somewhat different courses, but, as you can see, they all stay close enough together to constitute an isogloss bundle. Therefore we may provisionally conclude that this bundle represents a major boundary between the speech of the north and that of the south – and in fact we are looking at the most famous linguistic boundary in France: that between the *langue d'oïl*

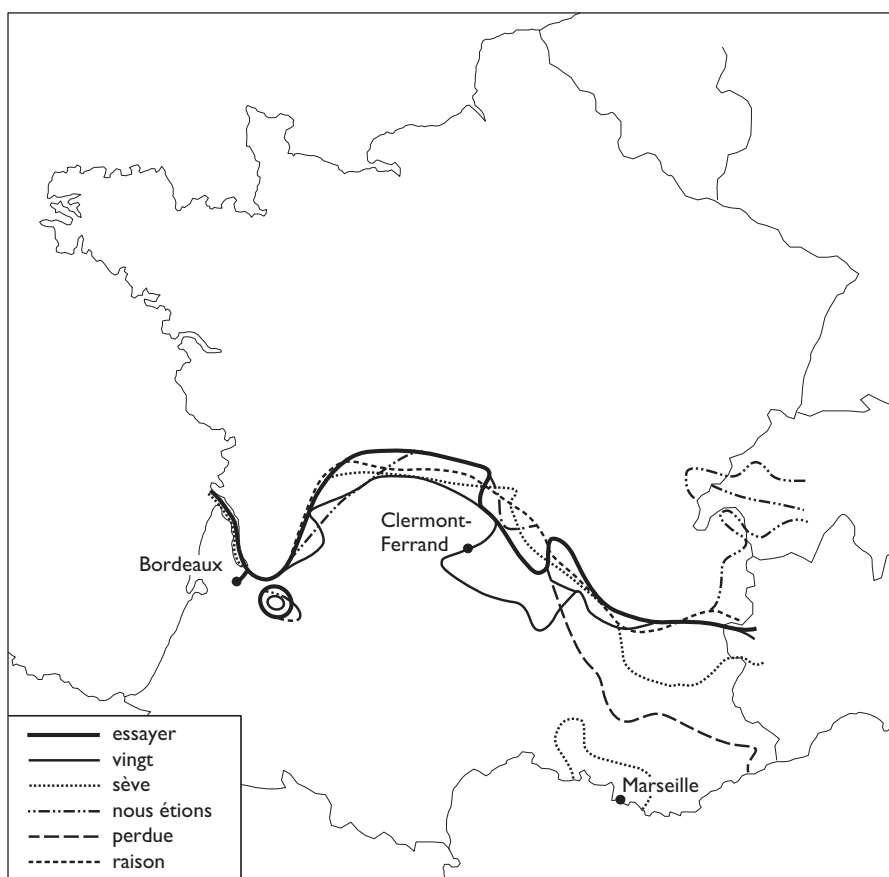


Figure 7.3 An isogloss bundle in France (Chambers and Trudgill 1980: map 7.6)

in the north and the *langue d'oc* in the south, so called from their different words for 'yes'. By taking advantage of the presence of such isogloss bundles, dialectologists have succeeded in classifying a number of major languages into fairly well-defined dialects, each with a number of identifiable characteristics. For example, Figures 7.4 and 7.5 show the conventional division into dialects of English in England (along with Scots in Scotland and the northern parts of Ireland) and in the eastern USA, respectively. (Wales and the Scottish Highlands are excluded because English either has been introduced only very recently or is still a second language.)

In each case, the map broadly confirms the popular perception of the existence of 'northern', 'midland' and 'southern' dialects, although the boundaries that emerge from compiling bundles of isoglosses do not always match our preconceptions perfectly. In particular, the boundaries between the northern and midland dialects in both countries are perhaps somewhat farther north than we might have expected, suggesting that we are probably inclined to attach greater weight to certain features than to others in deciding for ourselves whether we are hearing 'northern' or 'midland' speech.

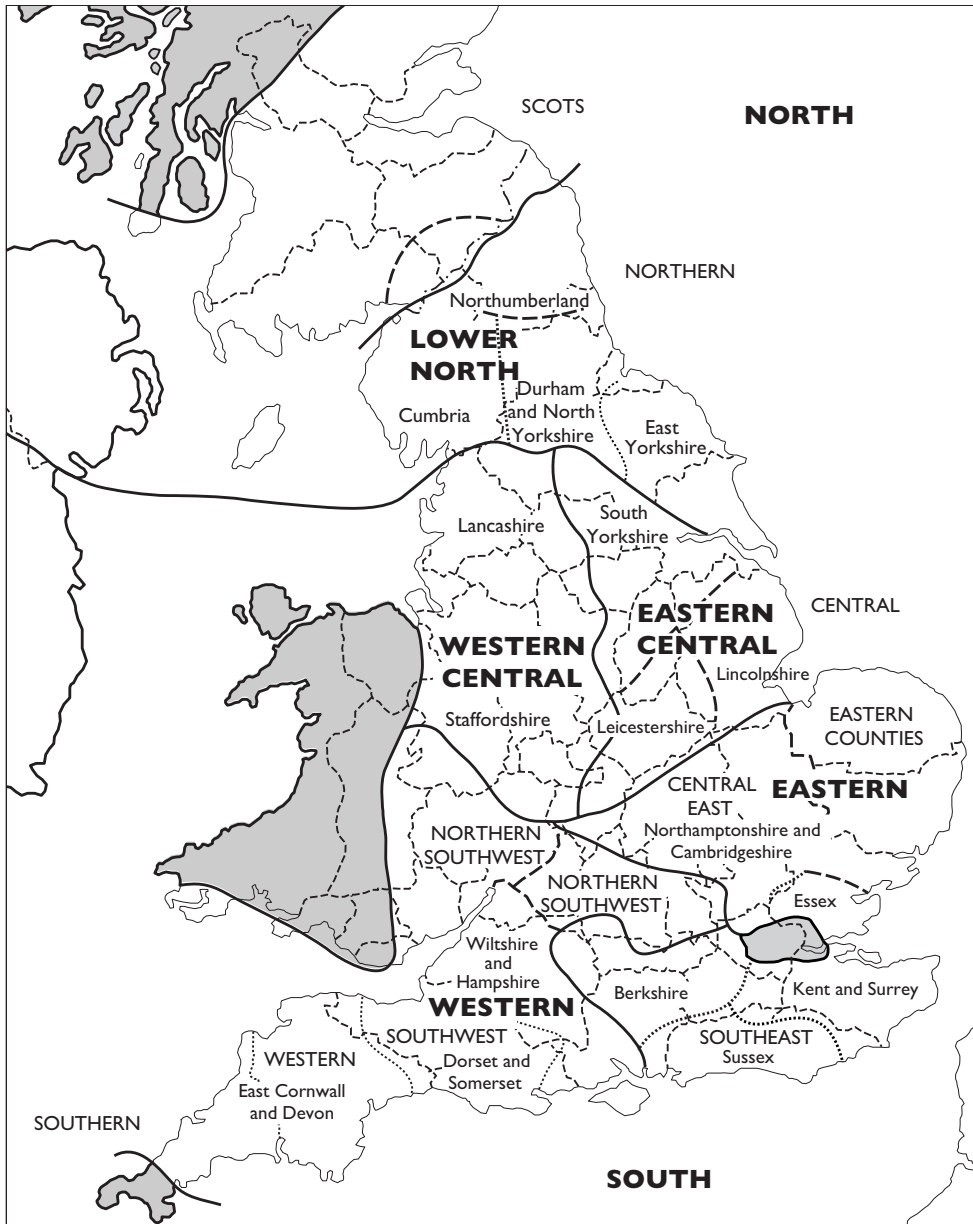


Figure 7.4 The major dialect areas of England (Trudgill 1999: map 9)

In fact, specialists have further divided each of the three main dialect areas into a number of smaller sub-dialects, only a few of which are shown on the maps, although in the USA these further subdivisions are confined to the eastern and southern coasts; elsewhere the very recent introduction of English and vast population movements have so far not allowed the formation of distinctive regional dialects, as we will see in [Chapter 11](#).

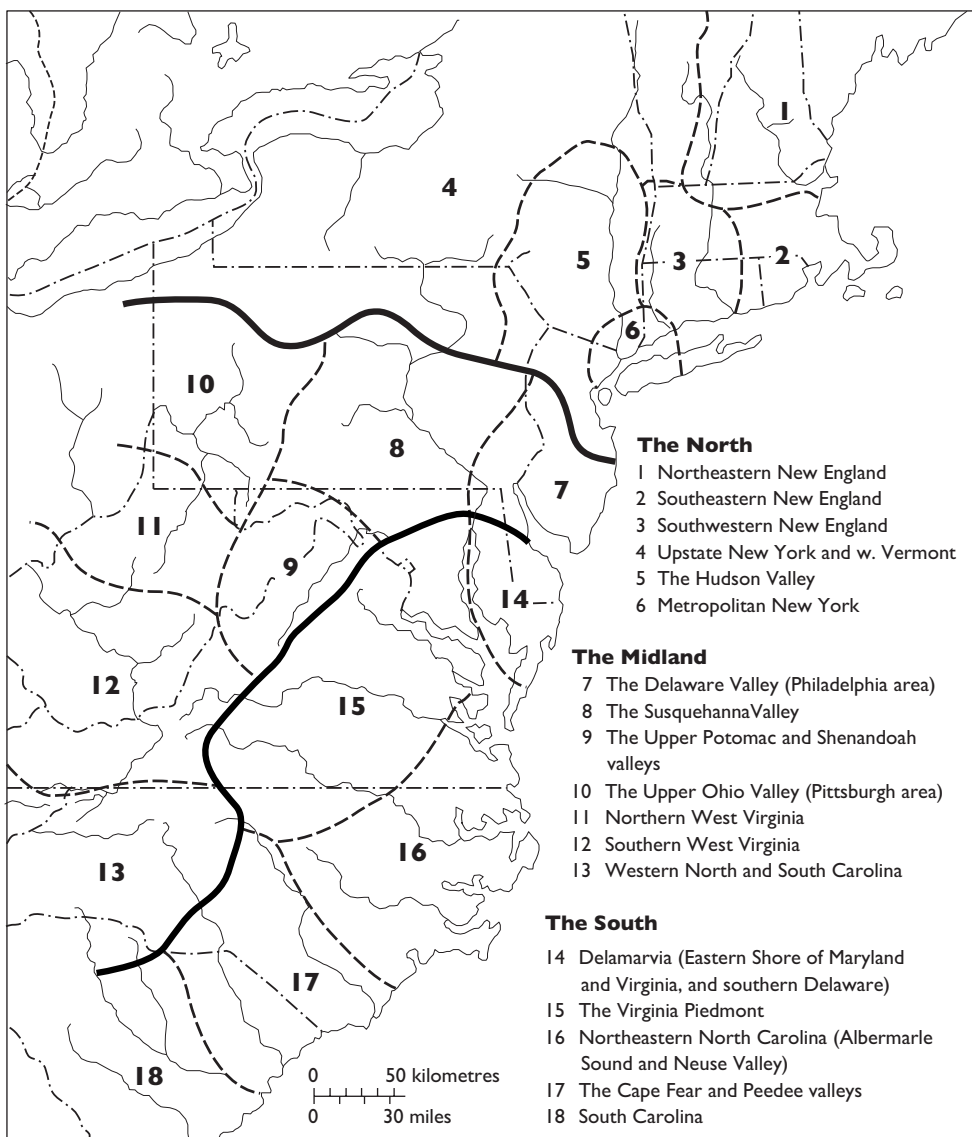


Figure 7.5 The dialect areas of the eastern USA (Kurath and McDavid 1961: map 2)

7.3 Genetic relationships

So far we have seen that the remorseless processes of language change invariably produce ever greater differences between the regional varieties of a language. And what would be the outcome if such regional changes were to accumulate without limit for centuries – for example, in English? The regional varieties of English would eventually become so different from one another that they would cease to be mutually comprehensible at all, and we would be forced to speak, not of different dialects, but of different languages. English

may not now break up into several distinct languages, thanks to the enormous advances in transport and communications that we have seen in recent decades, but it would have happened otherwise.

It is perfectly clear that such fragmentation of single languages into several different languages has happened countless times before. About 2,500 years ago, Latin was an obscure little language spoken only in and around the small city of Rome. But the Romans proved to be ambitious, skilled in diplomacy and powerful in war, and within a few centuries they had carved out an empire consisting of the entire area around the Mediterranean plus much of western Europe and the Balkans. Throughout the Roman Empire Latin was the language of administration, and in time it came to displace some dozens of earlier languages, as the subjects of the Empire gave up their own languages in favour of the more prestigious Latin. Hence Latin became the first language of several million people in Southern and Western Europe and in the Balkans.

Naturally, like any spoken language, Latin continued to change, but for a while the authority of Rome helped to maintain a degree of uniformity in the speech of vast areas, in spite of the changes that were taking place. The consonant /h/ was lost everywhere, and so was word-final /m/. The vowel system was dramatically reorganized, as the five long and five short vowels and three diphthongs of earlier Latin were rearranged into a new system of seven vowels without length distinctions and at most one diphthong. Velar plosives came to be strongly palatalized before front vowels. The rich case-system began to collapse and to give way to the increasing use of prepositions, and new verbal inflections replaced some of the old ones. The preferred SOV word order of earlier Latin was replaced by SVO word order. New words were introduced: earlier *equus* ‘horse’ was replaced by *caballus*, originally a slang term meaning ‘nag’, and *pulcher* ‘beautiful’ was replaced by *formosus* (literally ‘shapely’) or *bellus*. Diminutives became increasingly popular and often replaced the words they were derived from.

By the early centuries of the Christian era spoken Latin was thus already very different from the *classical* language of several centuries earlier, which is the sort of Latin you can learn at school or university. This **Vulgar Latin** (the term means only ‘popular’) was everywhere the first language, although educated people continued to use the more prestigious classical variety for scholarly writing. But popular speech was often recorded in writing as well – for example, in practical ‘how-to-do-it’ books on farming or cooking and, famously, in the graffiti preserved in the cities of Pompeii and Herculaneum, entombed in volcanic ash in 79 CE. We even have a few prescriptive guides to the writing of proper classical Latin, such as the celebrated *Appendix Probi*, compiled in the third or fourth century, which contains advice like *auris non oricla* (for ‘ear’) and *tristis non tristus* (for ‘sad’), showing directly the forms used by then in popular speech.

But such centralizing tendencies could not prevent the continued development of regional variation and, when the Empire finally collapsed in the fifth century, there was no longer any significant resistance to the splintering of Latin into innumerable regional varieties. Within another couple of centuries, speakers of Latin in Spain, France, Italy and the Balkans could no longer understand one another, nor could speakers from northern and southern France, or northern and southern Italy. Interestingly, however, the written language remained the Church version of classical Latin for a considerable time (at least in Western Europe – what happened in the Balkans was rather different). There is evidence that priests used a local pronunciation when reading or preaching in Latin, perhaps not including (or translating) certain grammatical features that were now absolutely alien to the local variety of

lingua romana rustica ‘the rustic Roman language’. Local people probably saw the language of Church and government as a very high register of their own speech. This continuum began to break down first in northern Gaul, partly because of what was to become French’s radically altered nature and partly because the Emperor Charlemagne and his successors imported as educators and organizers in their schools and bureaucracy Irish and English churchmen whose Latin, being wholly foreign to their native language, was inevitably much closer to the book language, in pronunciation and structure. It’s worth noting, in fact, that the first ‘French’ document we have – the *Strasbourg Oaths* – was intended as a crib to be read by a German-speaker to speakers of ‘French’. Nevertheless, while educated Romance speakers from Spain and France could use book Latin as a *lingua franca*, this was not the case for the vast unlettered majority.

Latin had therefore effectively broken up into several quite distinct languages. But for a while there was no way of identifying a few well-defined languages with recognizable boundaries: there was just a vast dialect continuum. Eventually, however, some regional varieties began to acquire a measure of prestige. Around 1100 the speech of the Mediterranean coast of France became the vehicle of a brilliant literature, and for a while this so-called *Provençal* language seemed destined to become the basis of a major new standard, widely known and used, and there were similarly important literary developments based on the speech of the east coast of Spain and on that of Tuscany in Italy.

In most cases, however, it was not literature, but politics, that proved to be decisive. In France, the small and obscure region of Paris produced a series of shrewd and ambitious politicians and military men who gradually made their remote northern home the premier political force from the Channel to the Pyrenees; in Spain, the remote and dusty interior province of Castile produced a comparable series of effective kings and queens who likewise made themselves rulers of all Spain. Naturally, once Paris and Castile had become politically pre-eminent, the local speech varieties of those regions almost automatically acquired pre-eminence as well: if you wanted to get ahead, you learned to speak like the people who were in charge. As a result, Parisian French and Castilian Spanish, formerly no more than the local speech of cultural backwaters, regarded as laughably rustic and crude by the sophisticated intellectuals of Marseilles and Barcelona, gradually became the prestige forms of speech in their respective countries. In Italy, which was not politically unified until the nineteenth century, the cultural and literary importance of Tuscany was not displaced by political developments, and modern standard Italian is based upon the speech of Florence, and not on that of Rome, the capital city.

Eventually, then, first regional and then national standards came to be imposed upon the dialect continuum, and it became possible to speak, without doing too much violence to the complex linguistic facts, of just a few major languages, each representing a distinctive development of the spoken Latin of centuries earlier. We might, if we chose, give these modern descendants of Latin names like ‘Parisian Latin’ and ‘Madrid Latin’, but no one has seen any point in this, and we speak instead of *French*, *Spanish*, *Italian* and so on. Unlike English, Latin really has broken up into a number of quite distinct regional languages, all of which started out centuries ago as nothing more than regional dialects of Latin. We call these languages the **Romance languages** (the name means only ‘Roman’), and there are more of them than you might have heard of. Apart from French, Spanish and Italian, we have also *Portuguese* (in Portugal), *Galician* (in north-western Spain), *Catalan* (in eastern Spain and one corner of France), *Occitan* (in the southern half of France, commonly called ‘Provençal’), *Romantsch* (in eastern Switzerland), *Sardinian* (in Sardinia), *Ladin* (in

northern Italy), *Friulian* (in north-eastern Italy), *Arumanian* (spoken in divergent dialects by herding communities across south-eastern Europe) and *Romanian* (in Romania and in parts of several adjacent countries). (For political reasons, the Romanian spoken in Moldova is officially regarded as a separate language, *Moldavian*.)

French, Spanish and Portuguese are also widely spoken, of course, in the Americas, in Africa, in South-East Asia and in the Pacific, reflecting the former colonial empires of France, Spain and Portugal. And two more Romance languages are spoken only in the Caribbean: these are *Haitian Creole*, a distinctive offshoot of French, now the mother tongue of the entire population of Haiti, and not mutually comprehensible with French, and *Papiamentu*, a Spanish-based creole spoken in and around the island of Curaçao (we discuss creoles in [Chapter 11](#)). Finally, there was formerly at least one more Romance language, *Dalmatian*, spoken on the Adriatic coast of what is now Croatia, but the language died out in the nineteenth century (language death will also be discussed in [Chapter 11](#)). We say that the Romance languages are **genetically related**, which means that they all started out as nothing more than regional dialects of a single ancestral language, and we speak of them as constituting a single **language family** – in this case, the **Romance family**. Whenever linguists find a group of languages that are clearly genetically related, we know immediately that the languages have developed from a common ancestor, a **proto-language**. In the case of the Romance family, their common ancestor is therefore called **Proto-Romance**. The Romance family is somewhat unusual in that we actually have records of something that can be more or less identified with Proto-Romance: Latin, and particularly Vulgar Latin. However, even if we didn't have any such records, we could still be sure that the proto-language must have existed once (and, using the techniques to be introduced in the next chapter, we could work backwards to discover important facts about that proto-language).

With most language families, we are not so fortunate as to have any records of the ancestral proto-language. Here is an example. Latin itself, of course, must have started off as a dialect of a still earlier language, and in fact several of its near relatives are attested. Around 500 BCE, Italy was occupied by speakers of a startlingly large number of languages, and we have some modest written records of some of these (although not all). Three of them, Faliscan, Oscan and Umbrian, were apparently fairly closely related to Latin, and Faliscan in particular was very close indeed. Latin is, therefore, a member of a wider family; we call it the **Italic family**, and the Italic languages, of course, must be descended from an ancestral language which we call **Proto-Italic**. But this time we find no trace of written records of this proto-language; it must have been spoken more than 3,000 years ago, and its speakers were probably non-literate. Nevertheless, we can be confident that such a language was spoken by somebody somewhere, and that Latin originated as a regional dialect of it.

Historical linguists have been successful at identifying a sizeable number of such language families. English, for example, belongs to a group of languages chiefly spoken in northern Europe. Here are a few samples of some of those other languages; you can easily see the family resemblance.

- Dutch: *De kat is in de keuken*. 'The cat is in the kitchen.'
- German: *Dies ist ein gutes Buch*. 'This is a good book.'
- Swedish: *Nils har en penna och en bok*. 'Nils has a pen and a book.'
- Icelandic: *Fólkið segir, að hún sé lík Anna*. 'People say that she is like Anna.'

This family is called the **Germanic family**. The Germanic languages include *English*, *Frisian* (spoken in corners of The Netherlands and Germany and on several nearby islands), *Dutch*, *Afrikaans* (a distinctive offshoot of Dutch in South Africa), *German* (High and Low), *Yiddish* (a distinctive offshoot of medieval German), *Danish*, *Faeroese* (in the Faeroe Islands), *Norwegian*, *Swedish* and *Icelandic*. Arguably a further member is my mother tongue, *Scots*. A close relative of Standard English, it came close to full standardization in the sixteenth century, before being *dialectalized* by (that is, made a dialect of) English. An impressive literature and a strong activist movement developed in the twentieth century. Closer to full language status is *Luxembourgish*, the national language of Luxembourg. In origin a Frankish dialect with considerable French influence at all levels of the language, it now has a standard orthography and is moving towards full standardization. We also know about some other Germanic languages that have died out, including *Gothic* (spoken by many of the invaders who overthrew the Roman Empire), *Norn* (formerly spoken in the Shetland and Orkney Islands of Scotland) and *Greenlandic*, the language of the ill-fated medieval Norse colony on medieval Greenland. For several of these we have extensive records of earlier forms, including Old English, Old High German and Old Norse (the language of the Norse sagas), among others. We will be looking at the Germanic languages from a rather different perspective in the case study at the end of this chapter.

Naturally, the Germanic languages are all descended from **Proto-Germanic**. Again the speakers of this ancestral language were illiterate and left us no records of their speech, but most specialists believe that Proto-Germanic was spoken in southern Scandinavia and northern Germany, perhaps around 500 BCE. And all these languages, from Icelandic to Gothic, started out more than 2,000 years ago as regional dialects of Proto-Germanic.

The family resemblance among the Romance languages is almost blindingly obvious, and the same is true of the Germanic languages. Other equally obvious families can be identified in Europe and elsewhere, such as the **Celtic family** (including Irish, Scottish Gaelic and Welsh), the **Slavonic family** (including Russian, Polish and Serbo-Croatian), and the **Iranian family** (including Persian, Kurdish and Pashto (the chief language of Afghanistan)).

Naturally, Proto-Italic, Proto-Germanic, Proto-Celtic and all the rest, must themselves have started out long, long ago as nothing but regional dialects of still more ancient ancestral languages. Although some understanding of the relationships between the various languages of Eurasia existed, it was only in the late eighteenth and early nineteenth centuries that linguists realized that all the language families I have so far mentioned, and many others besides, could all be traced back to a *single* remote ancestor. Germanic, Italic, Celtic, Slavonic, Iranian languages and also Greek, Albanian, Armenian, the north Indian languages like Hindi, Bengali and Gujarati, and some extinct languages of Anatolia and central Asia – all are derived from that one common ancestor by the slow accumulation of linguistic changes of the sort we examined in the first few chapters. This discovery was a great achievement, because the resemblances among English, Italian and Russian, let alone Armenian, Kurdish and Bengali, are very far from being obvious. In the next two chapters we'll be looking at how this discovery was made. For now I'll content myself with naming this gigantic family. Since the members of it have for millennia occupied territory ranging from India to Western Europe, we call it the **Indo-European family**, and its remote ancestor, of course, is **Proto-Indo-European** (PIE).

Who spoke PIE, and where, and when? These are vexed questions, and there is no consensus about their answers; we will be returning to these issues at intervals in the rest of

the book. If you pressed me, though, I would confess that our best guess at the moment is that PIE was probably spoken about 6,000 years ago, probably in Eastern Europe, possibly in southern Russia or Ukraine, and conceivably by a people who have turned up in the archaeological record. But every one of these suggestions is highly controversial – even the date, which is the one thing that most linguists used to feel fairly confident about – and the next three historical linguists you ask will very likely give you three different opinions. The one thing that is certain is that PIE was spoken by somebody, somewhere, at some time, and that its daughter languages now occupy a huge chunk of the globe.

Moreover, the Indo-European family is just one of a large number of language families that have been identified in all parts of the planet, although it happens to be the biggest one that we have so far managed to identify with confidence. The last section of this chapter will give you a brief rundown of some of these other families. For now, however, I turn to another question: the internal structure of a language family.

7.4 Tree model and wave model

Not all the Germanic languages are equally closely related. As you might have gathered from my brief illustrations above, English is fairly close to Dutch but much more distant from Icelandic. Frisian is often singled out as the closest living relative of English, while Gothic is the Germanic language that is most different from all the others. Like any language family, then, the Germanic family has an internal structure, with some languages being particularly closely related and perhaps forming subgroups within the family. It is desirable to have some way of representing such internal structure. The most widely used device is the **tree diagram**, introduced by August Schleicher in the middle of the nineteenth century.

The idea behind the tree diagram is simple. Having identified a family of languages, we examine them to see which ones appear to be most closely related. In particular, we look for **shared innovations**, changes that have appeared in some members of the family but not in others. Here the thinking is that the languages that do not share a particular innovation probably split off early from the languages that do share it, and hence that the languages sharing the innovation probably had a single common ancestor at a later date. Not all innovations are equally useful in pursuing this question. Some changes, such as the loss of unstressed vowels or the palatalization of consonants before front vowels, are so phonetically natural and so frequent in the world's languages that they might easily appear independently in several related languages that have already diverged strongly. Other changes are less natural and hence more useful in grouping languages, such as the introduction of a new passive structure or the loss of word-final consonants.

Shared innovations must be distinguished from **shared archaisms**. If the ancestral language happened to have some interesting characteristic – say, a small class of nouns with irregular inflections – that characteristic might have happened to survive in some daughters while disappearing in others, and there is no reason to expect those daughters that retain it to be especially closely related. Shared archaisms are of little or no use in establishing groupings within families.

Once we have decided which languages are particularly closely related, we conclude that those languages must have had a common ancestor at a relatively late stage in history, while other languages, less closely related, must have split off earlier. The result of all our decisions can then be presented in graphic form as a tree. [Figure 7.6](#) shows the tree that

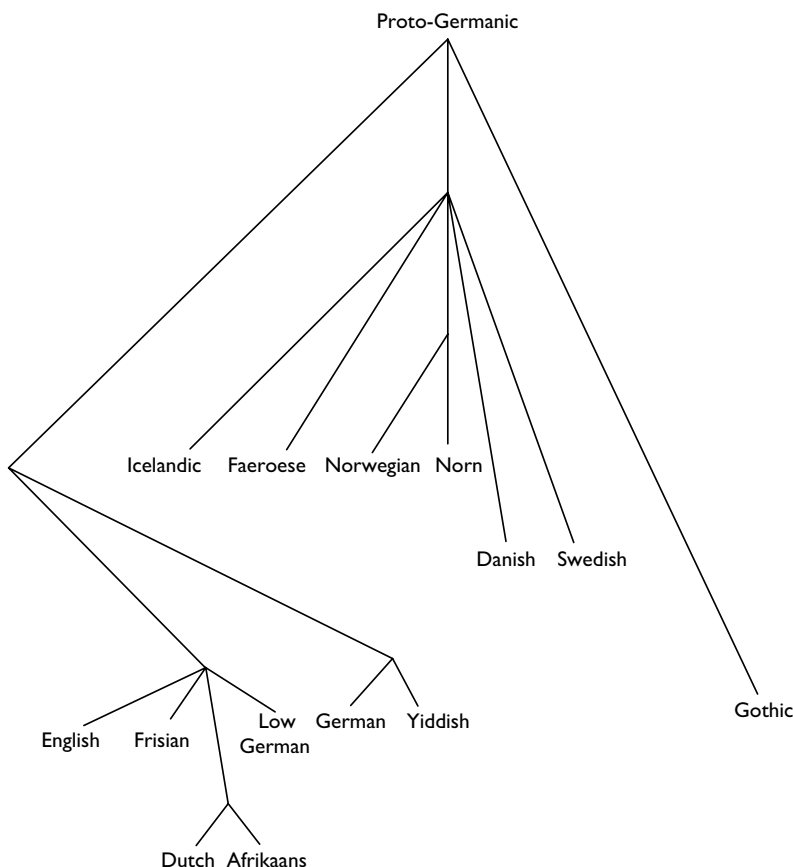


Figure 7.6 The Germanic family tree

is commonly drawn for the Germanic languages. This figure displays vividly some things we know to be true. For example, we can see at a glance that Dutch and Afrikaans are very closely related indeed, having diverged less than four centuries ago, when Dutch-speakers settled in South Africa, and that Gothic is very different from all the other languages, having already diverged from them a little less than 2,000 years ago, which is when the Goths begin to appear in Greek and Roman records.

We can draw a similar tree for the Indo-European (IE) family. Figure 7.7 shows the main branches of the IE family and some of the details of certain branches; unfortunately, the page isn't big enough to show every one of the more than 600 known IE languages. In order to save space, I have omitted the prefix *Proto-* from the names of ancestral languages. Note that some main branches contain dozens of modern languages, while others contain only one. Note also that the large Indo-Aryan and Iranian branches are themselves fairly closely related; these two groups diverged from their common ancestor, Proto-Indo-Iranian, long after Indo-Iranian had separated from the rest of the family. The same is perhaps true of Baltic and Slavonic, although in this case the historical facts are not yet agreed upon by all specialists. A few specialists would also place Italic and Celtic into a single Italo-Celtic branch.

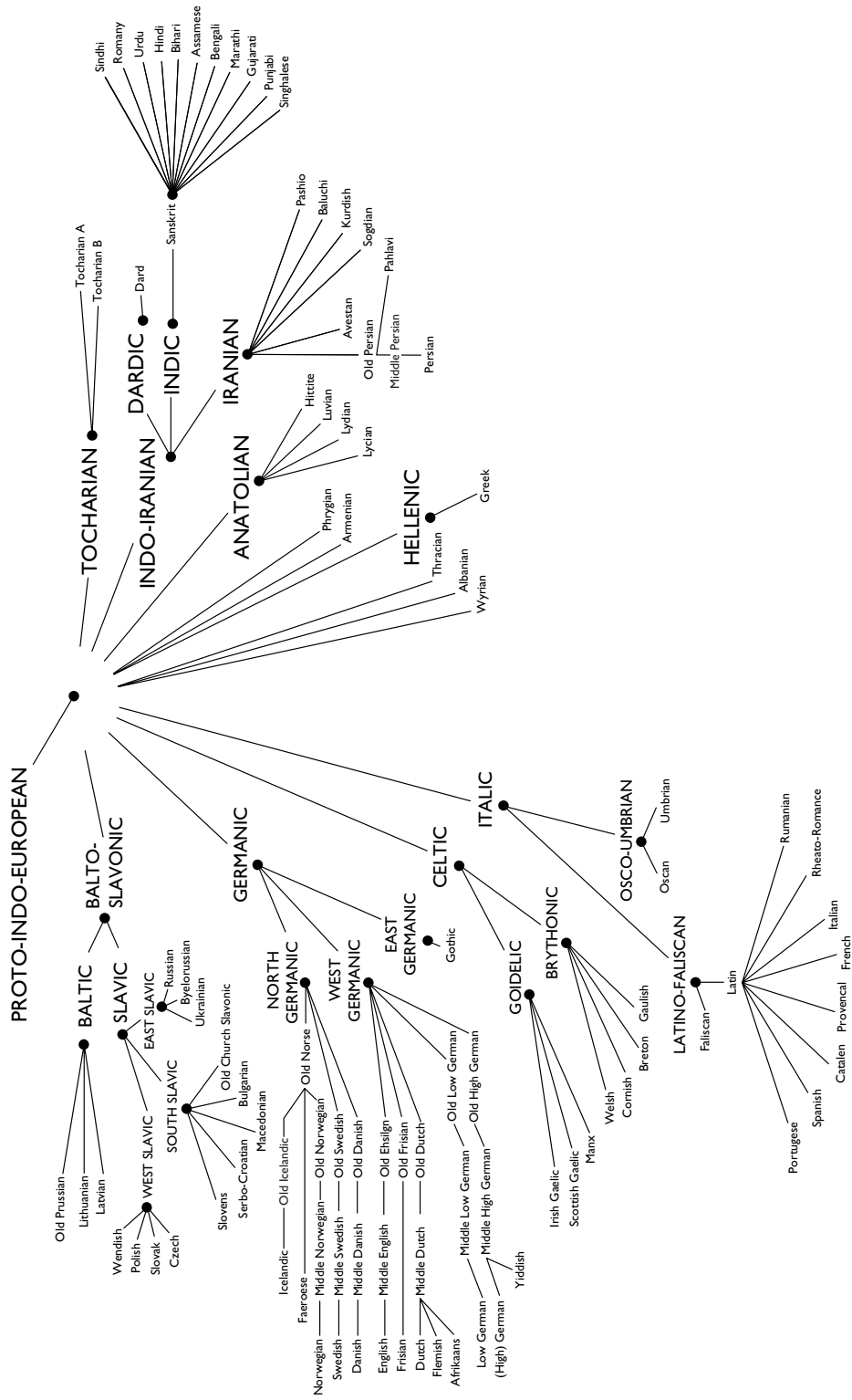


Figure 7.7 The Indo-European family tree

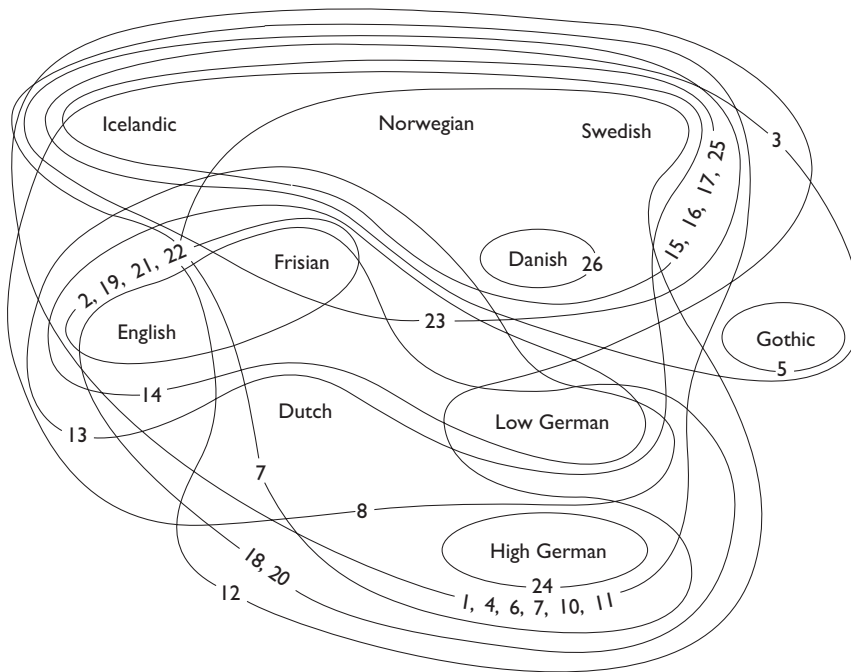
Tree diagrams like these are very convenient, and they are widely used in historical linguistics. They have the great advantage of displaying the connections between languages vividly and at a glance. But they also have one great drawback: they are not very realistic. In particular, the branching structure of a tree suggests that a single rather homogeneous ancestral language at some point split suddenly and decisively into two or more separate daughter languages, which thereafter went their separate ways and had nothing further to do with one another. But we already know that this is not what really happens.

Recall from [Section 7.3](#) that the Latin of the Roman Empire gradually dissolved into a vast dialect continuum, so that a traveller crossing the former Empire in the seventh or eighth century would have found the language changing only very gradually in any direction. Any speaker could communicate easily with people within a few dozen kilometres, with some difficulty with people 200 or 300 kilometres away, and not at all with people farther away than that. Nowhere were there any sharp boundaries separating one emerging new Romance language from another. It was only much later that particular regional varieties managed to impose themselves on large areas, and it therefore became possible to speak of clearly distinct languages like Spanish, French and Italian.

There is nothing unusual about the Latin case. This is the norm as languages break up over time. To take another case, the ancestral Indo-Aryan language of India has broken up into a vast dialect continuum occupying the larger part of the subcontinent. If you travel today across Pakistan, India, Nepal and Bangladesh, you will find the same thing as my hypothetical Roman traveller: the language just changes gradually in all directions, and there are no sharp boundaries until you leave the Indo-Aryan language area altogether (or in those fascinating instances where speakers of a language are surrounded on all sides by speakers of Indo-Aryan varieties, but the language is not Indo-Aryan at all) and bump into a non-Indo-Aryan language such as Agariya (an Austro-Asiatic language spoken in Madhya Pradesh and elsewhere), Pashto, Tibetan or Tamil. As in the European case, some regional varieties have acquired prestige and standard forms, and so we can speak of distinct languages like Urdu, Hindi, Gujarati and Bengali, most of which are not mutually comprehensible (though Urdu and Hindi are virtually identical in ordinary speech; they differ chiefly in their writing systems and in their learned vocabularies). Apart from these regional standards, however, we find only continuity, and specialists are obliged to make arbitrary decisions about where to place boundaries between languages, which they need to do in order to get on with the business of describing the resulting languages; once we have decided what languages we are going to recognize, we can start drawing trees to show how these languages are related.

In short, it is the dialect maps of [Section 7.2](#) that represent linguistic reality, and not the tree diagrams with their arbitrary and sudden splits. In 1856 Johannes Schmidt therefore proposed a very different way of representing language families, the so-called **wave model**. A wave-model diagram looks something like a dialect map. The language names are spread about the page in some convenient arrangement, and each significant change that has occurred in some languages is represented by a closed curved line surrounding those languages. [Figure 7.8](#) shows the example of the Germanic languages, classified in terms of a number of changes that Germanic specialists consider to be particularly significant (taken from Robinson 1992). Study this diagram and compare it with the tree in [Figure 7.6](#) (this diagram does not include all the Germanic languages).

Note, by the way, that [Figure 7.8](#) includes some changes that occurred earlier in the histories of some languages but that have more recently disappeared: for example, the



- 1 /ae:/ backed to /a:/
- 2 /a:/ from earlier /ae:/ restored
- 3 'sharpening'
- 4 /z/ > /r/
- 5 /fl-/ > /θl-/
- 6 masculine singular-s lost
- 7 masculine plural-s lost
- 8 reflexive pronoun lost
- 9 reduplicating verbs lost
- 10 inflected passive lost
- 11 umlaut introduced
- 12 dental fricatives lost
- 13 /n/ lost before /s/
- 14 /n/ lost before any voiceless fricative
- 15 extensive assimilation of consonant clusters
- 16 suffixed definite article introduced
- 17 mediopassive introduced
- 18 verbal infinitive becomes a noun
- 19 vowel 'breaking' introduced
- 20 consonant germination in certain circumstances
- 21 palatalization and assibilation of /k,g/ before front vowels
- 22 metathesis of /r/
- 23 final /-n/ lost in inflections
- 24 High German consonant shift
- 25 pitch accent introduced
- 26 pitch accent converted to glottalization

Figure 7.8 A wave diagram of the Germanic family (developed from Robinson 1992)

mediopassive that appeared earlier in the Scandinavian languages is only fully functional in Icelandic, having been grammaticalized as a single form passive in the continental North Germanic languages. As you might expect after looking at the earlier dialect maps, this wave diagram shows an altogether more complex picture than the corresponding tree

diagram. ‘Isoglosses’ of one sort or another link languages that in the tree diagram are shown as having split apart very early, and as belonging to separate branches: Gothic and the Scandinavian languages, Frisian and the Scandinavian languages, English, Frisian and Low German, and so on. A few of these, undoubtedly, are merely natural changes that have occurred independently in different branches of the family (note, for example, the loss of dental fricatives everywhere except in the distantly related Gothic, Icelandic and English). Others, however, surely represent changes that spread across the Germanic-speaking area *after* the ancestors of the various Germanic languages had already begun to diverge quite strongly (note, for example, the loss of /n/ before /s/ in the Scandinavian languages and in some Western languages).

A wave diagram like this one therefore shows quite graphically the continuing contact between dialects and languages that have already begun to diverge, and thereby demonstrates the unreality of the sudden and decisive splits required by the tree model. Nonetheless, the wave diagram still reveals the reality of the major splits posited in the tree diagram: you can see here that Gothic still comes out as the most divergent Germanic language, while both the Scandinavian languages and the West Germanic languages still appear to form coherent groupings, and even English and Frisian appear to form a valid subgroup.

In spite of its obvious advantages, however, the wave model also possesses a few shortcomings. Most obviously, it does not allow us to represent earlier and later stages of languages at the same time, something that the tree diagram does very easily. Wave diagrams are also tedious and cumbersome to prepare and to draw, and they are much harder on the eye. In practice, therefore, historical linguists generally use wave diagrams only when we want to draw attention to particular facts that cannot otherwise be easily presented; the rest of the time we use the simpler and more vivid trees. Neither system of analysis is terribly useful in describing the effects of language contact upon a particular member of a dialect continuum. We will approach this point in a number of ways in the later chapters.

7.5 The language families of the world

After some two centuries of comparative work, historical linguists have been quite successful at classifying the world’s 6,000 or so living languages, plus a number of recorded dead languages, into genetic families, often with a good deal of internal subgrouping. The majority of languages in the Old World have been assigned to scarcely more than a dozen families, some of them very large, although there remain some problem areas. The New World has so far proved much more difficult: even though it has far fewer languages than the Old World, specialists currently recognize 140 or more distinct American families. No doubt further research will reduce this number to some extent, but it really does appear that the Americas are linguistically far more diverse than most of the rest of the world, although minority views would claim the opposite.

Here I will briefly review some of these families. I begin with the vast *Indo-European* family. This family is conventionally divided into ten branches, some of them much larger than others. The ten branches are as follows:

- *Germanic* (discussed above).
- *Italic* (discussed above, with all surviving Italic languages belonging to the *Romance* group).
- *Celtic*, divided into two branches: *Brythonic*, including Welsh, Breton and the extinct Cornish, and *Goidelic*, including Irish, Scottish Gaelic and the extinct Manx. Surprisingly

little is known of the Celtic languages whose speakers formerly occupied a vast area of Europe but which have long since disappeared.

- *Balto-Slavonic*, divided into the *Baltic* and *Slavonic* groups. Baltic consists of Latvian and Lithuanian and the extinct Old Prussian. Slavonic consists of three groups: eastern (Russian, Byelorussian, and Ukrainian), western (Polish, Czech, Slovak, Sorbian (in parts of Germany), and Kashubian (in northern Poland) and southern (Slovenian, Serbo-Croatian, Macedonian and Bulgarian, plus the extinct Old Church Slavonic). Baltic and Slavonic may actually be separate varieties brought together through lengthy contact.
- *Albanian*, which some people think might be a descendant of the ancient Illyrian language once spoken in much of the Balkans.
- *Greek*, which has long constituted a single language.
- *Thraco-Phrygian*, including modern Armenian and at least two extinct languages, Thracian (in northern Greece) and Phrygian (in Anatolia).
- *Indo-Iranian*, divided into three branches. The *Iranian* languages include Persian (Farsi), Pashto (in Afghanistan and Pakistan), Kurdish (in Iraq, Iran, Turkey and Syria), Ossetic (in the Caucasus) and a large number of smaller languages. The Persian spoken in Tadjikistan is called Tadjik. Two very important ancient Iranian languages are well recorded, Avestan and Old Persian, the first being the language of the Zoroastrian religious texts and the second the language of the Empire of Cyrus and Xerxes. The huge *Indo-Aryan* branch includes Hindi, Urdu, Gujarati, Panjabi, Bengali, Nepali and hundreds of other languages of the Indian subcontinent. The ancient ancestor of these is represented in writing by Sanskrit, recorded in two forms: the earlier Vedic Sanskrit, the language of the Hindu scriptures, and the later Classical Sanskrit. Finally, the small *Dardic* branch includes Kashmiri and a few other languages.
- *Anatolian*, containing a number of languages, now all dead, formerly spoken in what is now Turkey. The most important of these is Hittite, the language of the Hittite Empire of the second millennium BCE.
- *Tocharian*, consisting of just two languages, imaginatively called Tocharian A and Tocharian B, now dead but once spoken in central Asia in the Xinjiang–Uyghur province of China.

Adjoining Indo-European is the *Uralic* family. This is divided into the *Samoyed* languages of Siberia and the *Finno-Ugric* branch. This last includes *Finnic* languages like Finnish, Sámi (Lappish) and Estonian (among others), and the *Ugric* branch, containing Hungarian and a number of other languages. Most Uralic languages are spoken in the Russian Federation. Some scholars believe that the *Yukaghir* languages of Siberia are distantly related to Uralic in a larger *Uralic-Yukaghir* family. A minority of scholars, however, led by Marcantonio (2002), deny the existence of even Finno-Ugric as a genetic unit, instead seeing the connection between Hungarian and the Finnic languages as being one of lengthy and intimate contact, rather than of relationship.

Next door again is another large family, *Altaic*. This is divided into three branches. The *Turkic* branch includes Turkish, Azeri and a large number of central Asian languages. The *Mongolian* branch includes the several Mongolian languages, all descended from the speech of Genghis Khan's invaders. The *Tungusic* branch includes Evenki (Tungus), a major language of Siberia, and Manchu, the now nearly extinct language of the Manchu conquerors of China. The genetic unity of the Altaic family is very controversial, and some

scholars reject the family altogether, seeing the obvious similarities between the languages as being due to extremely long-term contact between the three groups rather than genetic affinity.

North-eastern Siberia contains the *Chukchi-Kamchatkan* family (sometimes called *Luorawetlan*), whose main language is Chukchi.

Much of sub-Siberian Asia is occupied by the vast *Sino-Tibetan* family. This includes the several Chinese languages (called ‘dialects’ by the Chinese, but differing from one another as much as French and Romanian), plus Tibetan, Burmese and many other less well-known languages. Thanks to the billion or so Chinese-speakers, this family actually has more speakers than Indo-European. Some scholars believe that this family was brought about through contact rather than descent.

Southern India and north-east Sri Lanka are occupied by speakers of the large *Dravidian* family, whose best-known member is Tamil. There is one Dravidian outlier in Pakistan, and many linguists believe the family probably occupied most of the subcontinent before the spread of the Indo-Aryan languages several thousand years ago.

South-East Asia is home to the *Austro-Asiatic* family, whose main branch is *Mon-Khmer*, including Khmer (Cambodian) and probably Vietnamese (this is controversial), among others. The *Munda* languages of eastern Asia constitute a second branch, and Nicobarese, spoken on some islands in the Indian Ocean, is the third branch.

Next door is the *Tai* family (also called *Daic*), which includes Thai, Lao and dozens of other languages, many with millions of speakers. The small but engagingly named *Miao-Yao* family is scattered across much of southern China.

Beyond these three groupings lies the enormous expanse of the *Austronesian* family (once called ‘Malayo-Polynesian’), stretching from Madagascar to Rapa Nui (Easter Island). This family includes Malagasy (in Madagascar), Malay (in its Malaysian and Indonesian guises), all the other languages of Indonesia, all the languages of the Philippines, the indigenous languages of Taiwan and many languages of the Pacific. The *Polynesian* branch of the family includes such languages as Hawaiian, Tahitian, Samoan and the Māori of Aotearoa (New Zealand). Thanks chiefly to the phenomenal navigational skills of its speakers, this family occupied the greatest stretch of territory on the planet before the modern spread of the Indo-European languages into most corners of the world.

The large island of New Guinea is a major problem. A few Austronesian languages are spoken along the coast, but most of the island is occupied by speakers of about a thousand languages that have so far proved impossible to classify. These are collectively known as the *Papuan* languages, but this name is at present merely a convenient geographical label. The Papuan languages have not been shown to constitute a single genetic family, or even a few large families.

Most of Australia is (or until recently was) occupied by a single large family, *Pama-Nyungan*. Only the north-western corner contains a dense group of non-Pama-Nyungan languages, but some specialists are inclined to think that these languages are more distantly related to the Pama-Nyungan group. Some scholars believe that, like Altaic, Pama-Nyungan was formed through millennia of contact rather than descent.

Africa and most of South-West Asia are occupied by just four families, two of them very large (although some scholars now suspect that some of these families may represent areal features rather than genetic relationships). Most of northern and eastern Africa and part of western Africa, together with the Middle East, are occupied by the *Afro-Asiatic* family

(formerly called ‘Hamito-Semitic’). Six branches are recognized. Most familiar is the large *Semitic* branch, including Arabic, Hebrew, Maltese, several major languages of east Africa and a number of dead but formerly important languages, including Akkadian (the language of the Assyrian and Babylonian empires) and Phoenician, with its African offshoot Punic (the language of Carthage). One more Semitic language is Aramaic, once spoken throughout much of the Middle East, but today confined to small communities in Syria, Lebanon, Israel and the Palestinian territories.

A second branch of Afro-Asiatic is ancient Egyptian, the language of the hieroglyphs, and its descendant Coptic, which died out as a spoken language about 500 years ago, but remains the liturgical language of Coptic Christianity. A third is the *Berber* languages, formerly spoken right across North Africa but now somewhat displaced by Arabic, particularly in fertile and urbanized areas. There are still millions of speakers. A fourth branch is *Chadic*, spoken in West Africa, its best-known language being Hausa. A tiny fifth branch is *Omoti*, consisting of a few small languages in and near Ethiopia. The sixth branch is *Cushitic*, which extends along the Red Sea coast to the Indian Ocean; its best-known member is Somali. Specialists are not certain whether Cushitic is a valid grouping or not; it may just be that we are applying this label to the ‘residue’ of Afro-Asiatic languages which cannot be assigned to any recognized group.

South of the Sahara lies the *Nilo-Saharan* family, whose most famous member is Maasai in Kenya. The genetic unity of this family is in some doubt, and it may be that this label too is a purely geographical one.

The same question arises with the third African family, *Khoisan*, now confined to a small area in and near the Kalahari and Namib deserts of southern Africa, with two lonely outliers in Tanzania. These are the famous ‘click languages’, the ones with daunting names like !Kung. Their speakers, the Bushmen and the Nama (formerly Hottentots), clearly once occupied most of southern Africa, but they have been displaced by the spread of the Bantu (see below).

The fourth and largest family is the vast *Niger-Congo* (or *Niger-Kordofanian*) family, which occupies most of sub-Saharan Africa. Most of the prominent languages of West Africa belong to this family, including Igbo, Yoruba, Ewe, Twi, Temne and Wolof, and it was very largely speakers of these languages who were carried as slaves to the Americas centuries ago. One formerly obscure branch of this family has, during the last 2,000 years, spread out from a small area in Nigeria and Cameroon to occupy almost all of central, eastern and southern Africa. This is the *Bantu* branch, which includes such languages as KiKongo in Democratic Congo, LuGanda in Uganda, ChiCheŵa in Malawi, ChiBemba in Zambia, ChiShona and Ndebele in Zimbabwe, IsiZulu and IsiXhosa in South Africa (these two, as we will see in [Chapter 11](#), have exceptionally acquired click consonants from their Khoisan neighbours), and that most famous of all African languages, Kiswahili, formerly a trade language, now spoken throughout East Africa.

There still are a few small language families and other solitary languages whose genetic relationships among themselves and with other languages remain inconclusive at best. In the Caucasus, we find four small groups of typologically distinctive languages: *North-east Caucasian*, *North-central Caucasian*, *North-west Caucasian* and *South Caucasian*, more commonly called *Kartvelian*). Most specialists now seem to agree that the north-eastern and north-central groups can be united in a single family, but claims that the north-western group can also be added have not so far won general acceptance. Kartvelian, which includes

the best-known Caucasian language, Georgian, does not appear to be remotely related to any of the northern groups.

The Tai family has proved to be a particular headache, since many linguists are convinced that the Tai group belongs to one of the major families of the area, but they can't agree what family that is, and everything from Sino-Tibetan to Austronesian has been put forward as a home for the Tai languages, so far with no sign of general consent.

Finally, there remain the **isolates**, single languages that do not appear to be related to anything else at all. Most famous of these is Basque, spoken at the western end of the Pyrenees in Western Europe. We know that Basque is descended from a pre-Roman language called Aquitanian, and that it is the last surviving pre-Indo-European language in Western Europe, but the most strenuous attempts at relating Basque to something else, in spite of invoking most of the languages on the planet, have been completely unsuccessful, and the frequent assertions to the contrary in the literature may be safely disregarded. Another famous isolate is Burushaski, spoken in two Himalayan valleys and also seemingly related to nothing else at all (not even to Basque, although people have tried that, too). Two more isolates are Gilyak and Ket, both spoken in Siberia, although Ket is in fact merely the last survivor of the *Yeniseian* family, some other members of which were recorded before they died out.

You may have noticed that I have not mentioned two of the major languages of Asia, Japanese and Korean. That is because these two languages constitute one of the biggest problems of all. For generations each of them has been regarded as an isolate. Even though both are very similar in their grammatical structure, evidence of a common origin is almost impossible to find, and attempts to find a relative for Japanese have largely focused upon South Asia and the Pacific, so far without success. Recently, however, a number of linguists have begun to argue that there is clear evidence that Korean and Japanese are in fact related to each other, and that both of them are moreover related to the nearby Altaic family, perhaps most closely to its Tungusic branch. So far, however, the proponents of the Altaic link have not succeeded in convincing the majority of specialists that their evidence is good enough to support the hypothesis, and the issue continues to be debated.

As I remarked above, the Americas are linguistically far more diverse than the Old World, with at least 140 families being commonly recognized. Some of these families, however, are quite large. In the Arctic we find the *Eskimo-Aleut* family spanning the North American continent from Siberia to Greenland. There are two main Eskimo languages, Inuit (Inuktitut) and Yupik, while the more distantly related Aleut is spoken, unsurprisingly, in the Aleutian Islands.

Farther south is the *Na-Déné* family. This consists of one large group, the *Athabaskan* (or *Athapaskan*) languages of western North America (such as Navaho and Apache), plus a few more distantly related languages in Alaska and British Columbia.

To the east of this is another large family, *Algonquian*, which covers (or covered) much of central and eastern North America and parts of the western plains. These were the languages first encountered by British and French settlers in North America, and all those colourful place names in eastern Canada, New England and along the east coast of the USA are of Algonquian origin, as are words like *skunk*, *woodchuck* and *raccoon*. Among the better-known Algonquian languages are Cree, Ojibwa, Cheyenne, Blackfoot, Arapaho and Mohican.

Tucked into the middle of the Algonquian territory, around the Great Lakes and the Finger Lakes of New York State and extending up the St Lawrence River, is the *Iroquoian*

family. A number of these languages are recorded in place names: Huron, Erie, Oneida, Mohawk and so on. Iroquoian outliers are found as far south as North Carolina.

Most of the American Great Plains was formerly occupied by the large *Siouan* family, whose speakers provided the last desperate armed resistance to the US Army at Little Big Horn and Wounded Knee. Language names like Lakota, Osage, Kansa, Hidatsa and Crow are familiar to all English-speakers through one connection or another.

The American south-east is home to the sizeable *Muskogean* family, including Koasati, Creek and Alabama. Much farther west we find the *Hokan* family, including Mojave and Havasupai, and the *Caddoan* family, including Wichita and Pawnee. There are many other North American families: *Tunican*, *Salishan*, *Wakashan*, *Chimakuan* and so on, plus the occasional isolate, like Yuchi in the south-east.

Much of Mexico and the south-western USA is occupied by another large family, *Uto-Aztecan*. The chief member of this family, Nahuatl, was the language of the Aztec Empire and is still widely spoken today; Hopi is famed in the linguistic literature because of Benjamin Lee Whorf's articles about it which made the Sapir-Whorf hypothesis of linguistic relativity such a prominent feature of the linguistic landscape. In southern Mexico and Guatemala we find the *Mayan* languages, still spoken by the descendants of the inhabitants of the civilization of that name; knowledge of the modern Mayan languages assisted in the decipherment of the remarkable Mayan script, substantially achieved only in the late 1970s.

Much of northern South America and the Caribbean is (or was) occupied by the *Carib* family, which gives its name to the Caribbean Sea. A few years ago the Carib language Hixkaryana, with only 350 speakers, hit the headlines when it was found to be the first language ever discovered with OVS word order, thus providing a sobering reminder of the potentially devastating loss to linguistics when languages disappear.

In the Andes we find the *Quechuan* family, descended from the language spoken by the Quecha of the Incan empire. Farther east is the *Tupian* family, whose most important language, Guaraní, is remarkable for being the mother tongue of the majority of the population of Paraguay, including those who are largely or wholly of European descent.

Again, many other families are recognized in South America, but this continent is still the least investigated area on earth, and every now and again an entirely new language turns up, particularly in the Amazon rainforest.

It is clear that there is still a great deal of work to do in the Americas. From time to time someone proposes grouping two or three existing families into one larger family, and some of these proposals have won widespread acceptance. For example, many specialists now agree that Siouan, Iroquoian and Caddoan, plus a couple of isolates, can safely be grouped into a single larger family called *Macro-Siouan*. Partly because of the paucity of extensive and reliable descriptive work on most languages, however, and partly because American languages really do not appear to fall naturally into a handful of large families, most specialists are resigned to the necessity of several more generations of patient and careful work before the genetic picture of the New World can be declared even substantially complete – although in [Chapter 12](#) we will discuss a controversial attempt at taking a dramatic short cut.

Case study: a Martian's eye view on the Germanic language family

When a language family has been well documented and its history thoroughly analysed, it is sometimes difficult to approach the genetic analysis of that family with a fresh pair of eyes. Sometimes, therefore, I set my students the following exercise:

Imagine that you are a Martian palaeolinguist of the far future. In your exploration of the ruined cities of Europe, you find the following documents, all apparently of the same religious text. You have no idea of their relative dates, although your gut instinct is that they date from basically the same era. The language varieties represented appear to be related to each other, but how would you go about analysing this in more detail?

Text 1 (found in three variant versions, here collated)

Our father, [who/which] art in heaven, hallowed be thy name. Thy kingdom come, thy will be done on earth as it is in heaven. Give us this day our daily bread, and forgive us our [trespasses/debts], as we forgive [those who trespass against us/our debtors]. And lead us not into temptation, but deliver us from evil.

Text 2

Eise Papp am Himmel, dāin Numm sief gehellegt. Dāi Rāich soll kommen. Dāi Wēll soll geschēien, wēi am Himmel sou op der Äerd. Gēf āis haut eist deeglecht Brout. Verzei āis eis Schold, wēi mir och dene verzeien, déi an eiser Schold sin. Féier āis nēt an d'Versuchung, mā maach āis frāi vum Bēisen.

Text 3

Ons Vader wat in die hemel is, laat u Naam geheilig word; laat u koninkryk kom; laat u wil geskied, so os in die hemel net so ook op die aarde. Gee ons vandag ons daaglikse brood; en vergeef ons ons skulde, soos ons ook ons skuldenaars vergewe; en lei ons nie in versoeking nie, maar verlos ons van die Bose.

Text 4

Vår fader, du som är i himlen. Låt ditt namn bli helgat. Låt ditt rike komma. Låt din vilja ske, på jorden så som i himlen. Ge oss i dag vårt bröd för dagen som kommer. Och förlåt oss våra skulder, liksom vi har förlåtit dem som står i skuld till oss. Och utsätt oss inte för prövning, utan rädda oss från det onda.

Text 5

Onze Vader, die in de hemelen zijt, geheilgd zij uw naam, uw rijk kome. Uw wil geschiede, op aarde als in de hemel. Geef ons heden ons dagelijkse brood. En vergeef ons onze schulden, gelijk ook wij vergeven aan onze schuldenaren. En leid ons niet in bekoring, maar verlos ons van het kwade.

Text 6

Faðir vor, þú sem ert á himnum. Helgist þitt nafn. Til komi þitt ríki. Verði þinn vilji, svo á jörðu sem á himni. Gef oss í dag vort daglegt brauð. Og fyrirgef oss

vorar skuldir, svo sem vér og fyrirgefum vorum skuldunautum. Eigi leið þú oss í freistni, heldur frelsa oss frá illu.

Text 7

Insa vðar im himö, ghàiligt soi werdn dài' nãm. Dài' ràich soi kema, dài' wuin soi gschegn, wia-r-im himö, aso àf dar eadn. Gib ins hàind insa täglis broud, und vargib ins insar schuid, wia-r-à mia dene vagebm, dé an ins schuidig wordn sãn. Und fiar ins nét in d'vasuachung, sundan darles ins vom ibö.

In the first place, our Martian would establish some basic relationships. The use of *heaven* in passage 1 immediately marks it off as lexically different from the other language varieties, where a form of *himmel* is found. The only other exception is 6, with *himnum*.

Going beyond this, I would suggest that there are very striking similarities between passages 3 and 5, getting down often to the level of idiom, for instance:

3. Gee ons vandag ons daaglikse brood

in comparison with

5. Geef ons heden ons dagelijkse brood.

Phonologically (at least from what evidence writing presents), they appear similar. For instance, both use *op*, where 7 uses *àf*. On the other hand, all nouns in Text 3 have *die* as the definer, while Text 5 uses *het* on one occasion. This would suggest a noun-class system in the latter where none exists in the former (this is actually the remnants of a gender class system). Interestingly, Text 3 is in agreement with Text 1, where only *the* is used in these contexts. None of these three languages appears to change form according to function. All three also share a common word (found in 1 as *lead*) in the final sentence, demonstrating idiomatic similarities in comparison with 3 and 5.

Text 2 shares some similarities with 3 and 5 (for instance, the presence of *op*); on the other hand, the presence of <ch> in *Ràich* is in marked contrast to the <k> in both 3 and 5. On this occasion, 2 is similar to 7 *ràich*. Another similarity is that both languages appear to change forms of determiners, and modifiers in general, depending on function (or use of prepositions), e.g., 2 *am Himmel*; 7 *im himö*. A feature 2, 3, 5 and 7 share, but 1 doesn't, is the use of <g> at the beginning of a past participle, e.g., 2 *däin Numm sief gehellegt*; 3 *laat u Naam geheilig word*; 5 *geheiligd zij uw naam*; 7 *ghàiligt soi werdn dài' nãm*.

Texts 4 and 6 also have much in common: lexically (4 *i dag* 'today', compared with 6 *i dag*) or the distinctive form for 'our', with initial consonant <v> ; phonologically in, for example, the apparent diphthongization in 4 *jorden*, 6 *jöröi* in comparison with the 'unbroken' forms found in the other languages for 'earth'; grammatically, in not having preposed definite articles (in fact, they both have enclitic definite particles which change (for both 4 and 6) according to gender class and –

with 6 – according to function; I would not expect this to be obvious from such a short passage, however). It should be noted, however, that, if we recognize that <ð> actually stands for /ð/ in 6, and <th> for /θ/ in 1, these two languages seem similar in comparison with all the others.

Text 6 also appears morphologically ‘rich’ in comparison with 4, for example 4 *på jorden så som i himlen* in comparison with 6 *svo á jörðu sem á himni*. We might deduce from this that 6 has grammatical case, since the endings can be related to function as well as noun class; in that sense, it is similar to Texts 2 and 7. It should be noted, however, that the way Text 6 expresses function through form is not similar to the equivalent expression in Texts 2 and 7.

More could be said to add detail to this analysis. Indeed, if we were seriously trying to analyse these varieties typologically, we would have to look at much more than we have here – although it’s true that many ancient languages (for instance, some of the Italic varieties) may have only a couple of sentences extant, but genuine (and regularly perceptive) attempts at this type of analysis do take place. If such an analysis were undertaken, however, I don’t think its findings would be *that* different from what we have here.

How, therefore, would our putative ‘Martian’ comparative linguist depict the relationships found? In the first place, he/she (it?) would lay out a dialect continuum

3 5 2 7

Text 1 would then be placed beyond Text 3, but with a greater distance expressed along the continuum:

1 3 5 2 7

A suggestion might be made that Text 1 was spoken in a geographically distinctive position, perhaps on an island or over a particularly impenetrable mountain range.

Texts 4 and 6 would present more problems, however. It’s obvious that they’re closer to each other than they are to the other five; if it was not known that these varieties were contemporaneous with each other, there might be a temptation to say that Text 6 was at least a close relative of an ancestor of Text 4. If they are contemporary, however, then, again, the suggestion might be made that the two languages had been sundered geographically.

The relationship between these two languages and the other five is also difficult to piece together. Because of their phonological similarities, we might suggest that 6 and 1 are closer to each other than 6 is to the grouping:

3 5 2 7

This would be a considerable assumption to make on such small evidence, however. So, with some misgivings, the Martian might present the *Stammbaum* shown in [Figure 7.9](#).

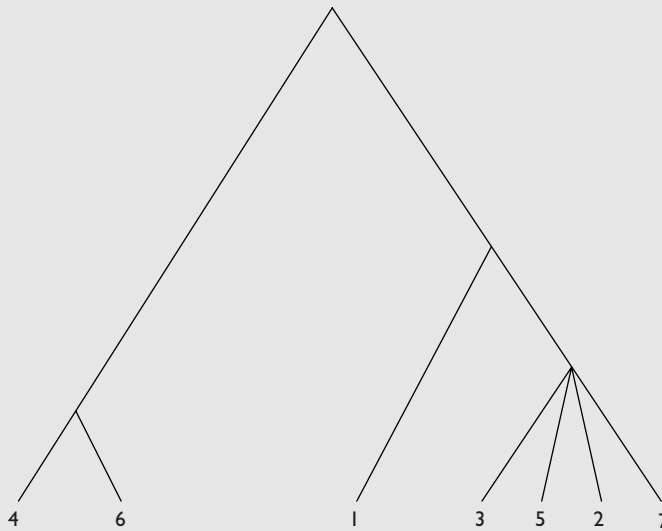


Figure 7.9 A Martian Germanic family tree

Let's bring this into the 'real world' and see how our suppositions match up to reality. In numerical order, the language varieties represented were: English, Luxembourgish, Afrikaans, Swedish, Dutch, Icelandic and Bavarian (a southern dialect of German).

In general, our family tree holds up pretty well. I would reverse the closeness of Icelandic (6) rather than Swedish (4) to English (1). The similarities between Icelandic and English are more to do with isolation on an island than close relationship (this probably explains the retention of case marking in Icelandic as well).

The other problem is Afrikaans (3), which is actually not – directly at least – part of the dialect continuum we proposed. Instead, it is a variety of Dutch that has gone through processes somewhat analogous with creolization in terms of its inflectional morphology in a distant colony. It's worth noting that this quote is very much from the *acrolect* of Afrikaans and that Dutch remained the language of scripture and liturgy in the Dutch Reformed Church in South Africa well into the twentieth century, so that idiom and even structure would mirror wherever possible the prior high variety.

An important point to note, however, is that the concept of dialect continuum across continental West Germanic is much more discernible when we analyse Middle German (Luxembourgish) and Upper German (Bavarian) dialects alongside Dutch rather than opposing standard High German and Dutch. The family tree system can be dangerous in emphasizing standard national languages over the diversity always present on the ground.

And with that thought, let's now move to a more disciplined form of linguistic comparison.

Further reading

There is a substantial literature on dialectology, both in general and dealing with the dialects of particular languages. Good general introductions include Petyt (1978), Francis (1983), Chambers and Trudgill (1998) and Trudgill (1994), which is very elementary. Trudgill (1986) is an introductory study of contact between dialects. Introductions to the dialects of English are, from simplest to most advanced, Hughes and Trudgill (1979), Trudgill (1999), Davis (1983), Trudgill and Chambers (1991) and Kirk *et al.* (1985). The dialect atlases are (for England) Orton *et al.* (1962–71) (data), Orton *et al.* (1978) (maps), Orton and Wright (1974) (atlas of words) and Upton *et al.* (1987) (a popular introduction with maps), (for Scotland) Mather and Speitel (1978–85) and (for the eastern USA) Kurath (1949). Trudgill and Hannah (1994) looks at variation in English around the world. Robinson (1992) is a survey of the older Germanic languages, focusing on similarities and differences. Elementary introductions to the Indo-European family include Lockwood (1969, 1972) and Baldi (1983). Despite their titles, Fortson (2004) and Mallory and Adams (2006) are somewhat more advanced; indeed, unless you are a specialist, most of what you need is included in these books.

There are innumerable popular books that provide information on the language families of the world; you might start with Crystal (1987; sect. IX). Two encyclopaedias, Bright (1992) and Asher (1994), provide good information on particular families. Voegelin and Voegelin (1977) is a comprehensive reference book on the languages and language families of the world, and Grimes (1992) is the latest edition of a regularly updated list of the world's languages. A classic but outdated summary is Meillet and Cohen (1952); a promised revision of this book has yet to appear. Kloss and McConnell (1974) is an attempt to carry out the same task from a sociolinguistic point of view. Moseley and Asher (1994) is a comprehensive atlas of the world's languages; if you are lucky, your library will have a copy of this magnificent but costly volume. Also worth looking at (and considerably cheaper) is *Ethnologue* (www.ethnologue.com), an attempt to describe and classify every language in the world. The best history of the attempts at classifying languages into families is Ruhlen (1991); be warned, however, that the book contains a few errors, and that Ruhlen accepts as valid some recent very large-scale groupings that are rejected as unsubstantiated by the vast majority of historical linguists. Bellwood (2013) provides an in-depth analysis of the early history of speakers of (practically) all of the world's language families. His views are likely to prove controversial, however, since he makes (for linguists) too close a connection between genetics, the archaeological record and the languages that individuals and groups spoke. It should be noted that Campbell and Poser (2008) express considerable doubts about the reality of some of the language families (as an expression of genetic relationship from a common ancestor) mentioned in this chapter. The classification expressed here, however, is probably as accurate as any presently available.

Exercises

Exercise 7.1

Each of the following paragraphs provides a few words and grammatical forms that are typical of some regional variety of English. How successfully can you identify each variety? (A good dictionary should give you some useful hints with the vocabulary.) If one of the varieties seems completely unremarkable, it's probably *your* variety. Many of the examples are taken from Trudgill and Hannah (1994).

Variety A

Coming home tomorrow he is.

You're going now, isn't it?

I can't do that, too.

It was high, high. (= It was very high.)

Is he ready? No, but he will in a minute.

I'll rise the drinks. (= I'll buy the drinks.)

del (a term of endearment)

llymrû (a type of porridge)

Variety B

I'm seeing her in the weekend.

The team is playing badly.

I have to uplift the children. (= I have to pick up the children.)

She's off to the varsity soon. (= to the university)

jack up 'arrange'

skite 'boast'

bach 'cabin, cottage'

pa 'village'

Variety C

I am going to cinema.

They like themselves. (= They like each other.)

The guests whom I invited them have arrived.

We should leave now, is it? (= shouldn't we?)

Hasn't he come home yet? Yes. (= No, he hasn't.)

balance 'change' (money returned to a customer)

carpet 'linoleum'

chop bar 'restaurant serving local food'

hot drink 'alcohol, spirits, liquor'

take in 'become pregnant'

Variety D

We did it already.

I've just gotten a letter from Sonya.

He snuck out of the house. (= sneaked)

I'm really buffaloeed by this one. (= intimidated, defeated)

She drove right past me – she must not have seen me.

Have you got rye bread? Yes, I do.

The dog wants out.

homely 'unattractive, somewhat ugly'

school 'any educational establishment, including a university'

muffler 'silencer' (on a car)

rookie 'player in his first season'

zucchini 'courgette(s)'

Variety E

He'd a good time last night. (= He had a good time last night.)

My hair needs washed. (= My hair needs washing.)

I doubt he's not coming. (= I expect he's not coming.)

I have to go the messages. (= I must go shopping.)

I stay at Portobello. (= I live in Portobello.)

burn 'stream'

dreich 'dull'

outwith 'outside'

pinkie 'little finger'

shoogly 'wobbly, shaky'

Exercise 7.2

Below are three proverbs (A, B and C) each rendered into the local speech of eight locations between Paris and Madrid. Which of the eight varieties appear to be most closely related? Is it possible to decide how many different languages are represented here?

Proverb A

1. *A chaque oiseau son nid est beau.*
2. *A chasqu' aucèu soun nis es bèu.*
3. *A cada ocell son niu es bell.*
4. *A cada ausètý lou nit qu'ey beròy.*
5. *A cada ausétch et so nit qu' éy bètch.*
6. *A cada paxarico li gusta lo suyo nido.*
7. *A cada pajarillo le gusta su nidillo.*
8. *Xori bakotxarendako bere kafira eder zako.*

Proverb B

1. *Comme est la chèvre, ainsi vient le chevreau.*
2. *Coum' es la cabra, ansin vèn lou cabrít.*
3. *Tal com és la cabra, aixi ès el cabrit.*
4. *Tàu coum' èy la crabe, que bat lou crabòt.*
5. *Coum' éy era crapo, atàu que bat ec crabòt.*
6. *Como yé la craba, así será lo crabito.*
7. *Como es la cabra, así será el cabrito.*
8. *Nola ahuntza hala pitika.*

Proverb C

- | | |
|---|--|
| 1. <i>Fille de chat prend les souris.</i> | 5. <i>Hilho de gat que gaho es souris.</i> |
| 2. <i>Filha de ca pren li gàri.</i> | 6. <i>Filla de gato pilla ratòns.</i> |
| 3. <i>Filla de gat agafa ratolins.</i> | 7. <i>Hija de gato coge ratones.</i> |
| 4. <i>Hilho de gat que gahe sourits.</i> | 8. <i>Gatu umeak saguak hartzen.</i> |

Exercise 7.3

The map in Figure 7.10 shows the regional words for 'young dog' in England. Look up the etymologies of *whelp* and of *pup(py)*, and comment on what seems to have happened with these words.

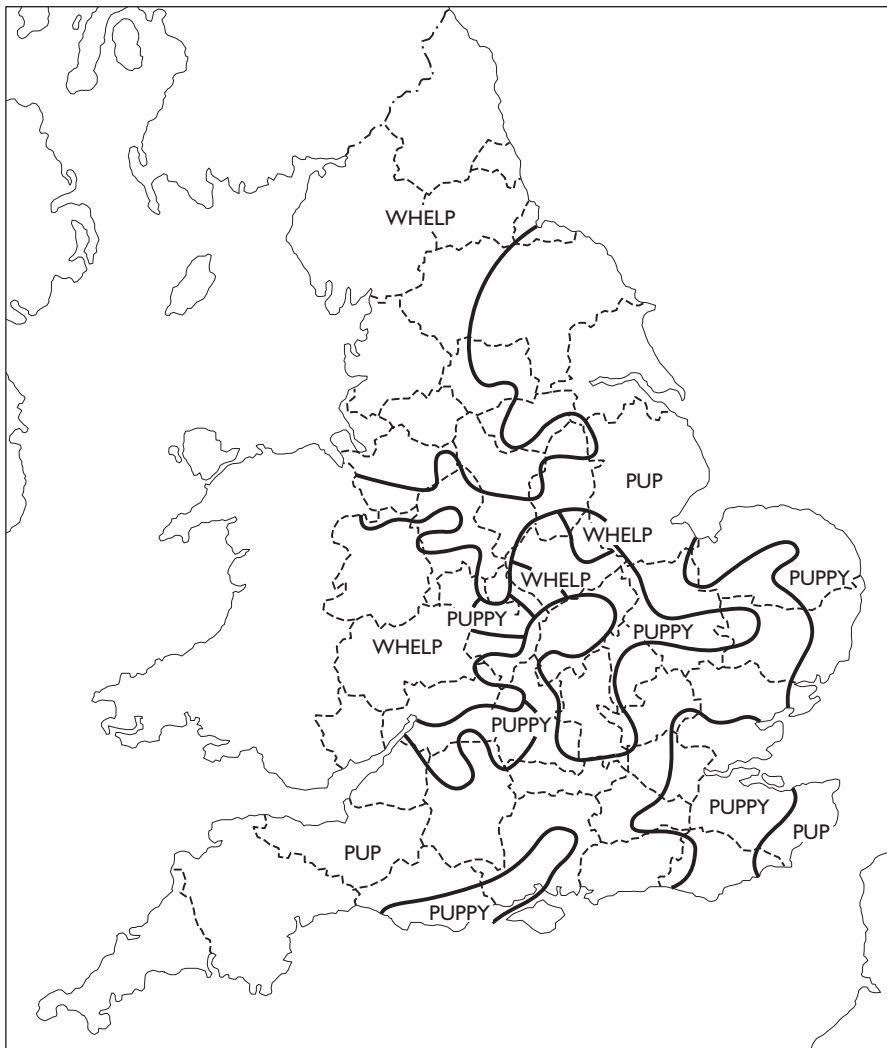


Figure 7.10 The local words for 'young dog' in England (Upton et al. 1987)

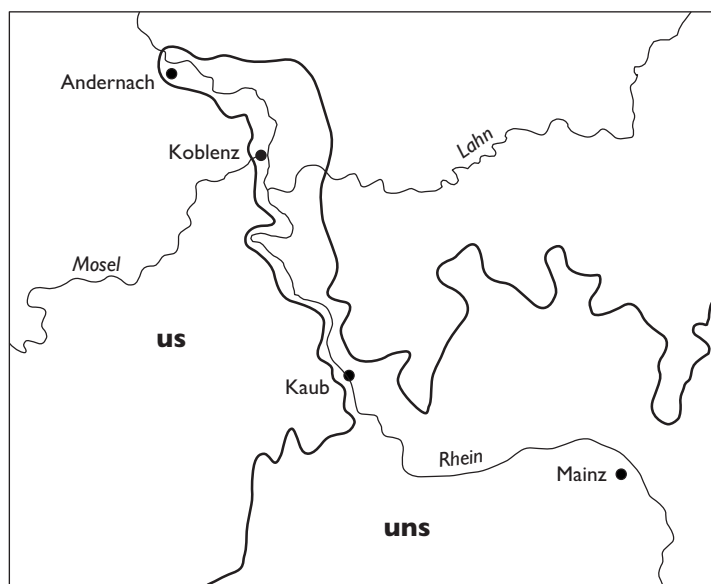


Figure 7.11 Part of the *us/uns* isogloss boundary

Exercise 7.4

In the north of Germany, the word for ‘us’ is *us*; in the south, it is *uns*. The map in Figure 7.11 shows part of the boundary between these two forms in the early twentieth century, in the vicinity of the Rhine. Explain as fully as you can why the isogloss boundary has such a curious shape here.

Exercise 7.5

The map in Figure 7.12, adapted from Dauzat (1922), shows the extent of the several regional words for ‘mare’ in French around 1900. Study the map and compare it with a map of the French-speaking region that shows features like mountains, rivers and cities. Explain the form of the map as carefully as you can. Which words are older, which newer? Which have been spreading, which retreating? How are the discontinuities in the distribution of each form to be explained? Which form do you suppose is the standard French word? What geographical or political factors can you see at work? If you have access to an etymological dictionary of French or of Romance, look up the histories of the three words. Does your interpretation match those histories?

Exercise 7.6

As is sometimes shown by wave diagrams, a change can spread across boundaries between language varieties that have already diverged substantially. In fact, it is even possible for a change to spread across boundaries between languages that are only



Figure 7.12 French words for 'mare' (Dauzat 1922)

very remotely related, or not related at all. A famous case in Western Europe is the spread of uvular /r/. Three centuries ago, all Western European languages had some kind of coronal /r/, but today a uvular /r/ is found in many varieties of eight languages: Basque, French, Italian, German, Dutch, Danish, Norwegian and Swedish. Figure 7.13 shows the approximate distribution of uvular /r/ today (it is still spreading). Examine this figure and try to propose an explanation for the steady historical spread of uvular /r/ in Europe. You will need to remember what was said in Chapter 2 about borrowing between languages, and you may find it helpful to recall what you know about political power and about linguistic and cultural prestige in the eighteenth and nineteenth centuries. You may also find it helpful to consult a map of Europe showing the locations of major cities.

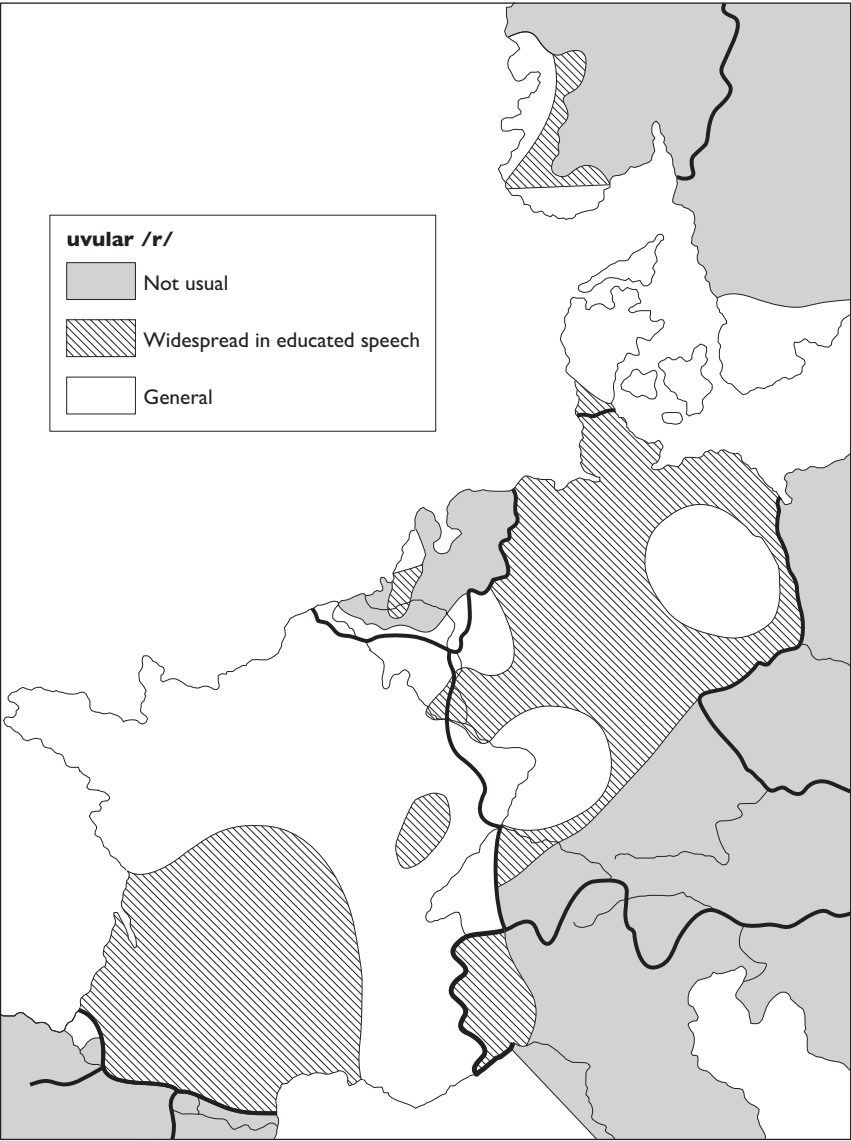


Figure 7.13 Uvular /r/ in Western Europe

The comparative method

Thus far, we have examined the various types of linguistic change, and considered the consequences of such changes in the form of dialects and language families. In this chapter and the next, we'll be turning our attention to the **historical methods**, the principal methods that linguists have developed in order to establish that certain languages are genetically related and to recover the histories of individual languages and of language families.

8.1 Systematic correspondences

Earlier in the book, I pointed out that there is good reason to believe that phonological changes are typically *regular* – that is, that they typically apply to all relevant words, and not just to some of them. I have still not demonstrated that this belief is necessarily true, but for the moment let's continue to assume that it probably is; the reason for making this assumption will become clear in a little while.

If we construct lists of words of similar meanings from several languages and put them side by side, most of the time we will notice nothing beyond the obvious fact that different languages have different words for things. Even if we somewhat astutely choose a set of words from one language that are phonologically very similar, most of the time we still get the same boring result. [Table 8.1](#) shows an example involving English, Welsh, and Basque, all spoken in Western Europe:

[Table 8.1](#) A comparison of three languages

English	Welsh	Basque
make	<i>gwneuthur</i>	<i>egin</i>
moon	<i>lleuad</i>	<i>hilargi</i>
mare	<i>caseg</i>	<i>behor</i>
my	<i>fy</i>	<i>nere</i>
melt	<i>toddi</i>	<i>urtu</i>
moth	<i>gwyffyn</i>	<i>sits</i>

Nothing very interesting here. But sometimes, if we have made a good choice of languages, we get a different result, one that is not boring at all. [Table 8.2](#) shows an example involving several languages of Western and Southern Europe. What do you see here? Of course, you will note some striking resemblances among these four words in the five languages, but the resemblances are not the point – in fact, they are almost irrelevant. What

Table 8.2 A systematic correspondence

	<i>Sardinian</i>	<i>Italian</i>	<i>Romansh</i>	<i>French</i>	<i>Spanish</i>
'100'	kəntu	tʃənto	tsjənt	sā	θjen
'sky'	kəlu	tʃelo	tsil	sjel	θjelo
'stag'	kərbu	tʃervo	tserf	sɛR	θjerbo
'wax'	kəra	tʃera	tsaira	siR	θera

is significant is the *patterns* we can see, and one pattern in particular stands out: the word-initial consonants. Again and again, we notice that a word that starts with /k/ in Sardinian starts with /tʃ/ in Italian, with /ts/ in Romansh (spoken in eastern Switzerland), with /s/ in French and with /θ/ in European Spanish (American Spanish has /s/ in every one of these words). We can sum up the pattern as follows (the hyphens indicate that we are talking only about word-initial position):

Sard *k*- : It *tʃ*- : Rom *ts*- : Fr *s*- : Sp *θ*-

This kind of pattern is called a systematic correspondence, and systematic correspondences are of crucial importance in identifying genetic links among languages. In the present case, there are two further points to be noted. First, the correspondence illustrated doesn't only apply to these four words; it also applies equally well to a number of other words. Second, this is not the only systematic correspondence connecting these five languages: there are dozens of others. One of these is the correspondence Sard *r* : It *r* : Rom *r* : Fr *R* : Sp *r*, which shows up in the last two words and in dozens of other words (no hyphens this time, because this correspondence applies in all positions, without exception).

How can we explain the existence of systematic correspondences? With certain rather obvious reservations, discussed below, there is only one explanation that can possibly be considered: the languages must be genetically related. And how does that follow? Easy: in the common ancestor of these five languages, the words for '100', 'sky', 'stag' and 'wax' all began with the same sound, and that sound has changed *regularly*, but differently, in each language. The existence of systematic correspondences provides powerful support for the idea that sound change is generally regular, and hence systematic correspondences provide some of the strongest possible evidence that languages displaying them must be genetically related.

And what was that ancestral sound in our case? This kind of question is often more difficult to answer, even though we may be certain that there was such an ancestral sound. But the difficulty is not insuperable. The best way to approach the question is this: what sort of sound could have developed naturally into the sounds we find in the daughter languages? Recall from [Chapter 3](#) that certain types of phonological change are far more natural and frequent than others, and we would therefore prefer a solution to our problem that invokes only such natural changes. Thus, in our case, we are hardly likely to consider something like [p] or [w] or [n] or [l] or [e] for the ancestral sound: the resulting sound changes in all the five daughters would be like nothing anybody has ever seen. If it were not for the Sardinian evidence, we might consider something like [ts], since Romansh has [ts] anyway and since a change from [ts] into [tʃ], [s] or [θ] looks reasonable enough. But that would require a change from [ts] to [k] in Sardinian, and this too would be a bizarre change of a sort not known to occur elsewhere.

In fact, of course, a satisfactory decision can be made only after we have considered the totality of evidence from all the languages involved. As it happens, specialists have long since concluded that the ancestral sound in question here must have been **k-* (the asterisk marks a sound that is not directly recorded, but which linguists have concluded was probably the original sound). With **k-* as the ancestral sound, Sardinian becomes easy: it has done nothing at all. But what about the other four languages? Why should a velar plosive develop into some kind of sibilant pronounced near the front of the mouth?

Well, in what circumstances might a [k] tend to move towards the front of the mouth? Think about this a minute before reading on, and have another look at the words in [Table 8.2](#).

If you remember what you read in [Chapter 3](#), the most obvious thing to consider is an assimilation: a [k] might move towards the front of the mouth if the sound next to it is pronounced in the front of the mouth. So, since there is no preceding sound in the words in question, look at the sound following the initial consonant in each one of the four words in all five languages. A front vowel is present on all occasions.

Even in English, the /k/ in, say, *key* is pronounced much farther forward in the mouth than the /k/ in *coal*, because of the influence of the following front vowel. We may therefore surmise that the ancestral **k-*, in all the daughter languages except Sardinian, when followed by a front vowel, moved so far forward that it developed into something like [ts] or [tʃ], with French and Spanish then going further and losing the occlusion altogether (a lenition) and thus winding up with fricatives in place of the ancestral [k].

All this makes perfect sense, since all the phonological changes we now need to posit are ones familiar from the study of many other languages. English long ago underwent something rather similar: German *Kinn* ‘chin’, *Käse* ‘cheese’ and *Kind* ‘child’ represent the approximate forms that the English words had many centuries ago, but English underwent much the same development as Italian, turning its original **k-* into [tʃ] before a front vowel.

Finally, returning to our five languages, I expect you’ve already realized that all five are Romance languages, and you perhaps recall from [Chapter 7](#) that the Romance languages are all descended from a spoken form of Latin. Since Latin is recorded, we can check to see what the written forms of the Latin words were. In fact, they were *centum* ‘100’, *caelum* ‘sky’, *cervus* ‘stag’ and *cera* ‘wax’. We might therefore feel justified in concluding that Latin orthographic <c> represents the sound [k] in all these words, and that is exactly what Latinists have decided on independent grounds.

These five languages (and all the other Romance languages) are thus genetically related: they are all descended from a common ancestor. The words for ‘100’ in these five languages are **cognate**: that is, they are descended from the same single ancestral word in that common ancestor, and of course the other sets of words are also cognate. Given the abundant systematic correspondences linking these four words and hundreds of other words in the Romance languages, we could be sure of this conclusion even if we had no Latin data to confirm it.

Most of the time, of course, we are not so fortunate as to have such direct ancient confirmation that languages are genetically related, but, when we can find systematic correspondences, we may nonetheless be sure that they are so related. Look at the data in [Table 8.3](#). (Hyphenated forms are stems; bracketed morphs are prefixes; the Greek represented is ancient Greek; the Irish word means ‘tonight’, not ‘night’, and it is archaic.) If you examine the word-initial consonants, you will see several systematic correspondences (the symbol Ø means ‘zero’, i.e., no consonant at all):

Table 8.3 Further systematic correspondences

English	Latin	Greek	Irish
<i>fish</i>	<i>piscis</i>	<i>ikhthys</i>	<i>iasg</i>
<i>father</i>	<i>pater</i>	<i>pater</i>	<i>athair</i>
<i>foot</i>	<i>ped-</i>	<i>pod-</i>	<i>troigh</i>
<i>for</i>	<i>pro</i>	<i>para</i>	<i>do</i>
<i>six</i>	<i>sex</i>	<i>hexa</i>	<i>se</i>
<i>seven</i>	<i>septem</i>	<i>hepta</i>	<i>seacht</i>
<i>sweet</i>	<i>suavis</i>	<i>hedys</i>	<i>milis</i>
<i>salt</i>	<i>sal</i>	<i>hal</i>	<i>salann</i>
<i>new</i>	<i>novus</i>	<i>neos</i>	<i>nua</i>
<i>night</i>	<i>noct-</i>	<i>nykt-</i>	<i>(in)nocht</i> ‘tonight’
<i>nine</i>	<i>novem</i>	<i>(en)nea</i>	<i>naoi</i>

Eng *f*- : Lat *p*- : Gk *p*- : Ir Ø

Eng *s*- : Lat *s*- : Gk *h*- : Ir *s*-

Eng *n*- : Lat *n*- : Gk *n*- : Ir *n*-

Of course, some of the words don’t match: the Greek word for ‘fish’ and the Irish words for ‘foot’, ‘for’ and ‘sweet’ don’t show the expected correspondences. Why do you suppose that is? The simple answer is that these words are not cognate with the words in the other languages: in these instances, the ancestral word has been lost, or changed meaning, and replaced by a different word. Recall from [Chapter 2](#) that the loss and replacement of words is a common kind of change. Such lexical replacement can always be expected to disrupt the pattern of correspondences to some extent; moreover, the greater the time that has elapsed since the ancestral language, the larger the number of ancestral words replaced in each daughter language, and hence the harder it is to find cognates and to spot systematic correspondences.

Since Latin is itself the ancestor of the Romance languages, it should be obvious that we are here looking at a set of languages that are genetically related at a point much further back in time than are the Romance languages. The Romance languages began to diverge from their Latin ancestor less than 2,000 years ago, but the forerunners of English, Latin, Greek and Irish must have split off from their common ancestor many thousands of years ago – after all, Greek itself is attested as early as the second millennium BCE. That means that these four languages have had some thousands of years to change independently and to become ever more different from one another. Accordingly, it is much harder work to identify systematic correspondences and cognates among these languages than it is for Romance, but, as you see, this can still be done.

And what ancestral consonants should we posit here? For the first set, the consensus of scholars is **p-*, since lenitions of [p] to [f] or Ø are frequent and readily understandable, while fortitions of other consonants to [p] are comparatively rare. For the second set, we posit **s-*, which requires no change at all except a lenition to [h] in Greek – again, you’ll recall from [Chapter 3](#), a familiar sort of change. Finally, for the third set there appears to be nothing to discuss: the ancestral **n-* has remained unchanged in all the daughter languages.

By now you have doubtless realized that we are looking here at a few of the languages belonging to the vast Indo-European family sketched out in [Chapter 7](#), and that the ancestral sounds **p-*, **s-* and **n-* that we have posited must therefore be among the sounds of

PIE, the remote ancestor of all these languages. Since we believe that PIE was spoken at least 6,000 years ago, it follows that the ancient initial [s] of *six* and *salt*, and the ancient initial [n] of *new* and *night*, have remained unchanged for some 6,000 years down into present-day English. The ancestral [p], in contrast, has changed into [f] in English, but it has done so with great regularity, and so the relationship is still clearly visible. Even six millennia of accumulated phonological change and lexical replacement have not been enough to obliterate all traces of the ancestral language.

In fact, in the case of Indo-European, 6,000 years have not been enough to prevent historical linguists from establishing rather easily that the languages are related. With this family, however, we have something of an unfair advantage, since early forms of Latin, Greek, Indo-Iranian and Anatolian are attested as early as the first millennium BCE, and sometimes even the millennium before that. There are very few other families for which we possess such early records. We might wonder, therefore, how far back we can go in establishing genetic links between languages.

Clearly there must be a limit to this. Only a handful of scholars (most of them archaeologists) would deny that we have been speaking languages since fully modern humans first appeared on the planet a little more than 100,000 years ago, and more than a few would put the origins of language very much further back in time, perhaps one or two million years ago, at the time of our early hominid ancestors. Further, most linguists would probably be happy to concede that all human languages are ultimately descended from a single common ancestral language, perhaps one that arose along with our own species. But it's impossible to trace genetic links back in time forever: eventually, the accumulated weight of phonological change, lexical replacement and grammatical reformation becomes so great that the last faint traces of a common ancestry must be extinguished, or at least disappear into the background noise of chance resemblances. How long does it typically take for this to happen? That is, for how long can two or more languages diverge from their common ancestor until we can no longer see the slightest evidence of their common origin?

There can be no hard and fast answer to this question, since it's always possible that some languages will change more slowly than average and thus preserve remnants of their common ancestry longer than average. If you put this question to a group of historical linguists, though, most of them will probably give you an estimate of about 6,000–8,000 years, even in the most favourable cases, for the families for which we have lots of languages and some substantial early texts. A few will go as high as 10,000 years ago, which is a nice round number. Almost everyone, however, would be deeply pessimistic about the chances of ever tracing any genetic links further back in time than that. Almost everyone – but not quite everyone. In the case study at the end of this chapter, we will encounter a few mavericks who believe that we can realistically push things back to perhaps 15,000 years ago. But don't get carried away: the overwhelming majority of historical linguists are deeply sceptical of reaching back 15,000 years. The safest estimate is probably 6,000–8,000 years.

8.2 Comparative reconstruction

We have already seen that the existence of systematic correspondences allows us to make at least educated guesses about the sounds that must have been present in particular words in ancestral proto-languages. But we can often go much further than this, in several respects.

First, we may be able to work out, not just individual ancestral sounds, but *all* the ancestral sounds in individual words. Second, as an immediate consequence, we may be able to work out roughly what whole words must have sounded like in the ancestral language. Third, as a further consequence, we may be able to work out what the entire phonological system of the ancestral language must have been like: what phonemes it had, and what the rules were for combining those phonemes. This process is **comparative reconstruction**, and the procedure we use for doing it is the **comparative method**. The comparative method is the single most important tool in the historical linguist's toolkit, and we have in many cases enjoyed great success in *reconstructing* important aspects of unrecorded proto-languages.

Informally, the comparative method works like this:

1. We first decide by inspection that certain languages are probably genetically related and hence descended from a common ancestor.
2. We place side by side a number of words with similar meanings from the languages we have decided to compare.
3. We examine these for what appear to be systematic correspondences.
4. We draw up tables of the systematic correspondences we find.
5. For each correspondence we find, we posit a plausible-looking sound in the ancestral language, one that could reasonably have developed into the sounds that are found in the several daughter languages, bearing in mind what we know about phonological change.
6. For each word surviving in the various daughters, we look at the results of 5 and thus determine what the form of that word must have been in the ancestral language.
7. Finally, we look at the results of 5 and 6 to find out what system of sounds the ancestral language apparently had and what the rules were for combining these sounds.

This, of course, is a vastly oversimplified picture of what happens in practice, but it gives you the general idea of what's going on. Let's look at a typical example, but first a warning. In practice, the successful use of the comparative method requires the use of large amounts of vocabulary from all the languages being compared. But, in a textbook, I just don't have the space to provide such huge amounts of data. I am therefore obliged to present, somewhat artificially, small sets of data by way of illustration: no more than 50 words, often no more than ten. This is not realistic, although it's the best that can be done in a textbook. But do not think that comparative reconstruction is normally done on tiny sets of data: it is not.

Table 8.4 lists, in phonemic transcription, a number of words from four Western Romance languages: Portuguese, Spanish, Catalan and French. Unless otherwise marked with an acute accent, stress falls upon the next-to-last syllable of a word of more than one syllable. We are interested in reconstructing Proto-Western-Romance as far as possible. We will therefore work through the data in an orderly way. Throughout the following discussion you should refer back wherever possible to Table 8.4. Read the next few pages *very* slowly and carefully, and check against the data in the table at every opportunity. This exercise will require a great deal of time and thought, but there is no other way to do comparative reconstruction.

We now begin setting up systematic correspondences. This may require some trial and error. Let's begin with the correspondences involving voiceless plosives, shown in Table 8.5. For correspondences 1 and 3 we can clearly reconstruct **p*. But 2 is slightly problematical. We would also like to reconstruct **p* here, but Portuguese appears exceptional, since it doesn't show the expected /p/. Before trying to reconstruct something different, though, let's look for a conditioning factor. Note that, in item 25, all the languages except

Table 8.4 Western Romance

	Portuguese	Spanish	Catalan	French
1. 'against'	kōtra	kontra	kontrə	kōt
2. 'bag'	saku	sako	sak	sak
3. 'bald'	kalvu	kalbo	kalp	fov
4. 'beard'	barba	barba	barbə	barb
5. 'believes'	kre	kree	krew	krwa
6. 'big'	grādi	grande	gran	grā
7. 'blood'	sāgi	sangre	saŋ	sā
8. 'bright'	klaru	klaro	kla	klər
9. 'country'	paiʃ	país	pəís	pei
10. 'court'	korti	korte	kor	kur
11. 'cup'	kopa	kopa	kop	kup
12. 'daughter'	fiʎa	ixa	fiʎə	fij
13. 'dear'	karu	karo	kar	fər
14. 'fire'	fɔgu	fwego	fɔk	fø
15. 'five'	siku	θinko	siŋ	sēk
16. 'foot'	pɐ	pje	pɐw	pjɛ
17. 'game'	ʒɔgu	xwego	ʒɔk	ʒø
18. 'green'	verdi	berde	bɛrt	vɛr
19. 'hard'	duru	duro	du	dʏr
20. 'high'	altu	alto	al	o
21. 'honey'	mel	mjel	mel	mjel
22. 'iron'	ferru	jerro	ferru	fɛr
23. 'lady'	dama	dama	dam	dam
24. 'late'	—	tardo	tar	tar
25. 'lead' (metal)	fūbu	plomo	plom	plɔ
26. 'low'	bajfu	baxo	baʃ	ba
27. 'moon'	lua	luna	ʎunə	lyn
28. 'new'	nɔvu	nwebo	nɔw	nøf
29. 'says'	dij	diθe	diw	di
30. 'sea'	mar	mar	mar	mɛr
31. 'seal'	selu	seʎo	səʒeʎ	so
32. 'seven'	setfi	sjete	set	set
33. 'sky'	sɐu	θjelo	sɛl	sjɛl
34. 'so much'	tātu	tanto	tən	tā
35. 'strong'	fɔrti	fwerte	fɔrt	fɔr
36. 'ten'	deʒ	djeθ	dɛw	dis
37. 'thousand'	mil	mil	mil	mil
38. 'tooth'	detfi	djente	den	dā
39. 'tower'	torri	torre	torrə	tur
40. 'well' (adv)	bej	bjen	be	bjɛ
41. 'wine'	vĩñu	bino	bi	vɛ
42. 'weight'	pezu	peso	pɛs	pwa
43. 'what'	ke	ke	kɛ	kwa
44. 'white'	brāku	blanko	blaŋ	blā
45. 'you' (sg)	tu	tu	tu	ty

Portuguese have an /l/ following the initial /p/, while Portuguese has no /l/ either. Hence the correspondence is more accurately stated as P /ʃ-/ : S /pl-/ : C /pl-/ : F /pl-/, and we can therefore reconstruct initial **pl* in this word, with **pl* developing into /ʃ-/ in Portuguese. At present it is not important to state how this change might have come about.

For sets 4 and 5, we reconstruct **t*. Set 6 is a problem, but observe that Catalan and French regularly fail to show the final vowels present in Portuguese and Spanish. Hence

Table 8.5 Correspondences involving voiceless plosives

	<i>Portuguese</i>	<i>Spanish</i>	<i>Catalan</i>	<i>French</i>	
1.	p-	p-	p-	p-	[9, 16, 42]
2.	/tʃ-	p-	p-	p-	[25]
3.	-p-	-p-	-p	-p	[11]
4.	t-	t-	t-	t-	[24, 34, 39, 45]
5.	-t-	-t-	-t-	-t-	[1]
6.	-t-	-t-	Ø	Ø	[10, 20, 34, 35?]
7.	-tʃ-	-t-	Ø	Ø	[38]
8.	-tʃ-	-t-	-t	-t	[32]
9.	k-	k-	k-	k-	[1, 5, 8, 10, 43]
10.	k-	k-	k-	ʃ-	[3, 13]
11.	-k-	-k-	-k	-k	[2]
12.	-k-	-k-	Ø	-k	[15]
13.	-k-	-k-	Ø	Ø	[44]

the expected /t/ in Catalan and French would have been word-final, and we may reasonably suppose that these two languages have simply lost word-final /t/. We therefore reconstruct **t* for this case too. Sets 7 and 8 are even messier, but note that they look just like sets 5 and 6 apart from Portuguese. As a matter of economy, let us therefore reconstruct **t* here too, and assume that there is some conditioning factor for the development of /t/ to /tʃ/ in Portuguese – a quite natural change in some environments, as we saw above, particularly since we have a following /i/ here.

For sets 9 and 11 we reconstruct **k*. Set 13 looks very much like set 6, and so we draw the same conclusion: we reconstruct **k*, and assume that final /k/ has been lost in Catalan and French. Set 12 is awkward: it seems as though French has this time failed to lose final /k/, as expected. Let us provisionally reconstruct **k* here too, and merely note the problem for later attention. That leaves set 10, in which French has /ʃ/ in place of the expected /k/. Can we find a conditioning factor? Before reading further, compare the cases in set 10 carefully with those in set 9, and see if you can spot a conditioning factor.

There is one, but it's subtle. Items 3 and 13 are the only ones in which the /k-/ of the other three languages is followed by /a/. So let's assume that original /k-/ developed to /ʃ-/ in French always and only before /a/. That works, but is it phonologically plausible? Well, we might expect a /k/ to be palatalized before a front vowel, so, if we can assume that /a/ in French has (or once had) a very front realization, it's just about plausible – and note that French now has /ɛ/ in these words. Let's therefore reconstruct **k* here too, on grounds of economy. (The alternative would be to reconstruct an additional phoneme, say a palatalized velar **k'*, but, since we have a conditioning factor available, that hardly seems to be necessary.)

So far, then, we have reconstructed three voiceless plosives **p*, **t*, **k* for our proto-language, with palatalization or loss in mostly identifiable circumstances in all the languages except Spanish. Now let's look at the correspondences involving voiced plosives, shown in Table 8.6.

These are altogether messier than the voiceless plosives, particularly the labials. In sets 14 and 16, all four languages have /b/, while in 15 and 17, only Spanish and Catalan have /b/ (or /p/), while Portuguese and French have /v/. Can we find a conditioning factor? Have a look and see if you can find one.

Table 8.6 Correspondences involving voiced plosives

	Portuguese	Spanish	Catalan	French	
14.	b-	b-	b-	b-	[4, 26, 40, 44]
15.	v-	b-	b-	v-	[18, 41]
16.	-b-	-b-	-b-	-b	[4]
17.	-v-	-b-	-p	-v	[3]
18.	-v-	-b-	-w	-f	[28]
19.	-b-	-m-	-m	Ø	[25]
20.	d-	d-	d-	d-	[19, 23, 29, 36, 38]
21.	-d-	-d-	Ø	Ø	[6]
22.	-d-	-d-	-t	Ø	[18]
23.	?	-d-	Ø	Ø	[24]
24.	g-	g-	g-	g-	[6]
25.	-g-	-g-	Ø	Ø	[7]
26.	-g-	-g-	-k	Ø	[14, 17]

Not much leaps to the eye. If you make a list of the environments for all the cases in these four sets, they look pretty miscellaneous. With more data, perhaps we could spot something, but, as it stands, if we try to reconstruct **b* for all four sets, we're going to have to posit a change to /v/ in some rather mysterious circumstances. This time, then, it looks as though we have to reconstruct two different segments. The obvious guesses are **b* for sets 14 and 16 and **v* for sets 15 and 17, with a merger of these two in Spanish and Catalan, and a devoicing of final [b] in Catalan. So let's do that.

While set 18 is seemingly more complicated, it should remind you of what we decided above. There, it appeared, final consonants were lost in Catalan and French – except for the labial /p/. This time we have another final labial, so let's reconstruct **v* here, on the basis of the Portuguese and Spanish evidence, and assume that final /v/ develops as shown in Catalan and French. (Note that final /b/ is not lost in French in set 16.)

Finally, set 19 is so messy that it might be a good idea to leave it for later.

But we have a clear pattern emerging here. Catalan and French tend to lose final vowels, and the resulting final consonants are usually lost if they are coronal or velar – although once in a while they survive, in circumstances we haven't identified. This pattern is repeated in the next two groups, and we can therefore reconstruct **d* and **g* with some confidence.

Let's turn our attention to the nasals, shown in Table 8.7; here the notation \tilde{V} means a nasalized vowel. For set 27 we at once reconstruct **n*. For sets 28 to 32 we would like to

Table 8.7 Correspondences involving nasals

	Portuguese	Spanish	Catalan	French	
27.	n-	n-	n-	n(-)	[28]
28.	- \tilde{V} -	-n-	-n-	- \tilde{V} -	[1, 6, 15, 34, 38]
29.	- \tilde{V} -	-n-	-ŋ	- \tilde{V}	[7, 44]
30.	-Ø-	-n-	-n	-n	[27]
31.	- \tilde{V}	-n	-Ø	- \tilde{V}	[40]
32.	-ñ-	-n-	-Ø	- \tilde{V}	[41]
33.	m-	m-	m-	m-	[21, 30, 37]
34.	-m-	-m-	-m-	-m	[23]
35.	- \tilde{V} -	-m-	-m	- \tilde{V}	[25]

do the same, but we have some work to do explaining the variable behaviour in all the languages but Spanish. We can see that nasal vowels generally result in Portuguese and French when the nasal is syllable-final in the other languages. Set 30 differs in that the nasal is not syllable-final, and this time we get \emptyset in Portuguese and $-n$ in French. In set 29, Catalan shows an unexpected velar nasal, but here Portuguese and Spanish show a following velar plosive, so we can take this as a reasonable conditioning factor, even though the velar plosive has disappeared in Catalan itself (we already know that Catalan loses final consonants). In set 32, and perhaps also in set 33, Catalan has apparently also lost a final $*n$. That leaves only the Portuguese palatal nasal in set 32 to account for. Here we might have expected zero, by analogy with set 30, but note that in item 41, the only one in set 32, the nasal is preceded by the vowel /i/, so let's assume this is the conditioning factor.

For sets 33 and 34, of course, we reconstruct $*m$. Set 35 is a puzzle, but recall that Portuguese and French get nasal vowels from a syllable-final $*n$, so let's assume that the same happens with syllable-final $*m$.

Hence we reconstruct two nasals, $*n$ and $*m$. Of these, $*n$ remains in all positions in Spanish and initially in all four languages; French converts $*n$ to nasalization in syllable-final position but otherwise retains it; Portuguese also converts $*n$ to nasalization syllable-finally, but loses it intervocally except after i , where it becomes \tilde{n} ; Catalan loses $*n$ finally, converts it to a velar nasal before an original velar plosive, and otherwise retains it. With $*m$, Portuguese and French convert this to nasalization syllable-finally, but $*m$ is otherwise unchanged everywhere.

Next, the fricatives, shown in Table 8.8. For set 36, it seems we should reconstruct $*s$. But now what do we do with set 37? Comparison of items 32 and 33 reveals no conditioning factor for the s/θ contrast in Spanish. It really looks as if we need to reconstruct *two* sibilants. We might call them $*s$ and $*\theta$, but here I will cautiously call them $*s_1$ and $*s_2$; these remain distinct in Spanish as /s/ and /θ/ respectively, but fall together in the other languages. Naturally, we would like to reconstruct $*s_2$ also for sets 38 and 39, but French and Portuguese are a problem. (Catalan /w/ is surprising, too, but let's assume that this has something to do with the usual Catalan loss of final consonants.) Rather than multiply sibilants, however, let's assume that there must be conditioning factors at work: note that the segment in question is word-final in Spanish in set 39 but word-medial in set 38. Now it looks as if we need to reconstruct $*s_1$ for sets 40 and 41, with the familiar loss in final position in French (but not in Catalan this time), and different results in Portuguese depending on position. Finally, for sets 42 and 43, we can easily reconstruct a single segment,

Table 8.8 Correspondences involving fricatives

	Portuguese	Spanish	Catalan	French	
36.	s-	s-	s-	s-	[2, 7, 31, 32]
37.	s-	θ-	s-	s-	[15, 33]
38.	-ʃ	-θ-	-w	∅	[29]
39.	-ʒ	-θ	-w	-s	[36]
40.	-z-	-s-	-s	∅	[42]
41.	-ʃ	-s	-s	∅	[9]
42.	ʒ-	x-	ʒ-	ʒ-	[17]
43.	-ʃ-	-x-	-ʃ	∅	[26]
44.	f-	∅-	f-	f-	[12, 22]
45.	f-	f-	f-	f-	[14, 35]

Table 8.9 Correspondences involving liquids

	Portuguese	Spanish	Catalan	French	
46.	-r-	-r-	-r-	-r(-)	[1, 4, 5, 6, 10, 13, 18, 24, 35]
47.	-r	-r	-r	-r	[30]
48.	-r-	-r-	Ø	-r	[8]
49.	Ø	-r-	Ø	Ø	[7]
50.	-r-	-r-	Ø	-r	[19]
51.	-rr-	-rr-	-rr-	-r	[22, 39]
52.	-l-	-l-	-l-	-l-	[8]
53.	-l	-l	-l	-l	[21, 37]
54.	-l-	-l-	-l(-)	Ø	[3, 20]
55.	Ø	-l-	-l(-)	-l(-)	[25, 33]
56.	l-	l-	ù-	l-	[27]
57.	-l-	-ù-	-ù	Ø	[31]
58.	-ù-	-x-	-ù-	-j	[12]
59.	-r-	-l-	-l-	-l-	[44]

with different positions in the word accounting for the variable outcomes, but what should that segment be? If we choose **z*, we have a curious devoicing in intervocalic position in Portuguese. Let us therefore choose **f*, which undergoes initial voicing in all but Spanish and becomes /x/ everywhere in Spanish.

Hence we reconstruct three sibilants, **s*₁, **s*₂ and **f*, with the developments outlined.

For set 45, we obviously reconstruct **f*. Set 44 is at first puzzling, but observe that, in set 45, Spanish /f-/ is always followed by /w/, but never so in set 44. We may therefore reconstruct **f* for both sets, with initial **f*- retained in Spanish before /w/ but lost otherwise.

Next, we examine the liquids, shown in Table 8.9. For sets 46 and 47 we reconstruct **r*. For sets 48 to 50, we'd like to do the same, but we need some conditioning factors to explain the losses. We already know that Catalan tends to lose final consonants, and for the unique set 49 we can appeal to the presence of the awkward cluster **ngr* to account for the additional losses in Portuguese and French. For set 51, however, we must apparently reconstruct **rr*, which we might view either as a distinct consonant or as a gemination of **r*; since we have reconstructed no other geminates, let's treat it as a separate consonant.

For sets 52 and 53 we reconstruct **l*. Set 54 is more difficult, but note that the items in this set all have /alC/ in the other languages, where C is a consonant, while French has /o/. Let's therefore reconstruct **l* for this set too, and posit that **al* has developed to /o/ in French before a consonant – a very common type of change, as it happens. For set 55, only Portuguese is a problem, but note that we have already explained the loss of **l* in item 25, while item 33 is the only one in the data with an intervocalic *l*, so let's assume that **l*, like **n*, was simply lost intervocalically in Portuguese. Set 56 presents a different problem, but observe that this is the only set with word-initial *l*, so let's reconstruct **l* here, too, and posit a change of initial **l* to *ù* in Catalan. Set 57 is a much bigger puzzle. Since we have already decided that intervocalic **l* is lost in Portuguese, we can't reconstruct **l* here, because Portuguese shows intervocalic /l/ in this set. We must therefore reconstruct something different. We could try **λ*, but then we have a problem with set 58, which is different from 57 but which also looks like a good bet for **λ*. Without further data, we appear to be at an impasse, and so I will somewhat helplessly reconstruct **λ*₁ for 57 and **λ*₂ for 58, while recognizing that this is phonetically very implausible. Finally, set 59 is

Table 8.10 Proto-Western-Romance

Gloss	Reconstruction	Gloss	Reconstruction
1. 'against'	*kontra	24. 'late'	*tardo
2. 'bag'	*s ₁ ako	25. 'lead'	*plombo
3. 'bald'	*kalvo	26. 'low'	*bafo
4. 'beard'	*barba	27. 'moon'	*luna
5. 'believes'	*kree	28. 'new'	*noɲvo
6. 'big'	*grande	29. 'says'	*dis ₂ e
7. 'blood'	*s ₁ angre	30. 'sea'	*mar
8. 'bright'	*klaro	31. 'seal'	*s ₁ eʎ ₁ o
9. 'country'	*paɪs ₁	32. 'seven'	*s ₁ ete
10. 'court'	*korte	33. 'sky'	*s ₂ elo
11. 'cup'	*kopa	34. 'so much'	*tanto
12. 'daughter'	*fiʎ ₂ a	35. 'strong'	*forte
13. 'dear'	*karo	36. 'ten'	*des ₂
14. 'fire'	*fɔgo	37. 'thousand'	*mil
15. 'five'	*s ₂ inko	38. 'tooth'	*dente
16. 'foot'	*pe	39. 'tower'	*torre
17. 'game'	*fɔgo	40. 'well'	*ben
18. 'green'	*verde	41. 'wine'	*vino
19. 'hard'	*duro	42. 'weight'	*peso
20. 'high'	*alto	43. 'what'	*ke
21. 'honey'	*mel	44. 'white'	*blanko
22. 'iron'	*ferro	45. 'you'	*tu
23. 'lady'	*dama		

a mystery, since Portuguese differs here from every other set, and particularly from set 52, which is otherwise identical. We might decide to set up yet another liquid here, but we've already reconstructed five liquids, and not many languages have six contrasting liquids, so let's just reconstruct the obvious **l* and assume that there is an invisible conditioning factor for the odd Portuguese development.

So far, then, we have reconstructed the following phonemes for Proto-Western-Romance: **p, *t, *k, *b, *d, *g, *v, *m, *n, *s₁, *s₂, *f, *f, *r, *rr, *l, *λ₁ and *λ₂*. These apparently suffice to account for all the data, apart from one or two puzzling forms that we have put aside as problems.

We now need to reconstruct the vowels. For lack of space, I won't attempt that here; instead, I suggest that you continue the reconstruction by yourself, drawing up correspondence sets for the vowels and reconstructing an appropriate vowel system for the proto-language. It would be a *very* good idea to attempt this before reading further.

As it happens, these data require seven different proto-vowels, and only seven. (In fact, it is only in stressed syllables that we require seven vowels; elsewhere, five suffice.) These I will represent as **i, *e, *ε, *a, *ɔ, *o* and **u*. When we have finished, we can then display the reconstructed PWR forms of all 45 items; this is done in Table 8.10. With just a couple of outstanding puzzles, the forms in this table appear to represent the best available reconstructions. You can see that Spanish appears to be the most conservative of the four languages and French the least conservative.

And is this reconstruction the definitive last word on Proto-Western-Romance? No, it is not. Examination of a much wider set of data has shown that we have oversimplified in a few places, and specialists in fact reconstruct a couple more consonants in addition to the

ones we have identified here, and they make different reconstructions in several cases. But the methods involved do seem to work. The work is verifiable.

8.3 Pitfalls and limitations

The comparative method is not a form of magic. We cannot just pick some arbitrary languages, compare them, and expect to see systematic correspondences pop up in front of our eyes – even if the languages selected truly are genetically related, which is unlikely to be so with languages chosen arbitrarily. The method has to be applied thoughtfully and carefully, and we have to take advantage of every available piece of information we have which might possibly be relevant. Further, we have to be aware of a number of pitfalls, of potential difficulties which might lead us into error. Here I will discuss some of these difficulties.

Perhaps the most obvious point is that the comparative method cannot recover any feature of the ancestral language that has disappeared without trace in all the attested daughters. For example, not one of the Romance languages shows the slightest evidence for an ancestral consonant /h/, and we therefore reconstruct Proto-Romance without an /h/ – and yet we happen to know, on independent grounds, that the Latin ancestor of the Romance languages *did* have an /h/. It's just that this consonant vanished completely everywhere, and so we have no reason to reconstruct it.

A more interesting point is the following question: how do we know which languages to compare at all? In some cases, this is easy. The Polynesian languages, or the Bantu languages, or the Algonquian languages, are all so strikingly similar to one another, in phonology, grammar and vocabulary, that no one examining several of these languages could fail to realize that they must be related. The same is true of the Indo-European languages, or rather of some of them. Some of the earliest-attested languages, like Latin, Greek, Avestan (the earliest known Iranian language) and Sanskrit (the ancient language of northern India) are likewise so similar that, almost as soon as European linguists began to acquire a knowledge of the Eastern languages in the late eighteenth century, they realized that all these languages simply must be related. After that, it didn't take long to realize that Germanic, Baltic and Slavonic were also part of the same family. Celtic and Armenian took a little longer, because these languages have changed more dramatically than most other Indo-European languages. Most difficult of all was Albanian, which has no particularly close relatives and which has undergone an overwhelming amount of lexical borrowing, leaving its inherited Indo-European vocabulary (rather than that borrowed from its distant relatives) perhaps no greater than 200 words. Still, the Indo-European languages are sufficiently closely related that their affinity is impossible to deny.

However, in virtually all of the Old World, and in much of the New, the languages whose genetic affinity is obvious upon inspection have already been identified: this is why I was able to list language families so confidently in [Chapter 7](#). Even in such comparatively ill-studied regions as New Guinea and the Amazon rainforest, linguists have already picked up most of the obvious genetic links. In historical linguistics, as in geography, the age of the great discoveries is over. There is now perhaps no possibility that you will be able to glance at descriptions of two or three Brazilian languages and spot a genetic relationship that has not previously been noticed.

That doesn't mean, however, that there is nothing more to be done – far from it. It is hardly likely that we have already identified all of the genetic links that can ever be

Table 8.11 Algonquian, Yurok and Wiyot

	Proto-Algonquian		Yurok	Wiyot
1st person	*ne-	*ne(t)-	?ne-	d-
2nd person	*ke-	*ke(t)-	k'e-	kh-
3rd person	*we-	*we(t)-	?we-	w-

discovered. It's merely that we have reached the limits of what we can hope to achieve by mere inspection of attested languages, and we now have to turn to other approaches.

Chief among these is the comparison of proto-languages. Once we have good reconstructions of a number of proto-languages, we can then inspect these in the same way earlier linguists did with attested languages, to see if we can spot any evidence of remote genetic links. For example, linguists have been rather successful in reconstructing Proto-Siouan and Proto-Iroquoian, and it was very largely the comparison of these proto-languages that allowed specialists to conclude that the Siouan and Iroquoian languages (and some others) must be linked in a larger Macro-Siouan family.

Of course, we can only do this after we have succeeded in assembling moderately complete pictures of our proto-languages. In some cases, as with Proto-Indo-European and Proto-Algonquian, this has already been done in considerable detail, and we are well placed to compare these proto-languages with others. For example, it was noticed decades ago that Yurok and Wiyot, two seemingly isolated languages of California, show striking affinities with Proto-Algonquian. Table 8.11, for instance, shows the personal agreement markers in verbs in all three languages. Such systematic grammatical matches are very unlikely to result from anything other than a genetic link, and hence specialists are now satisfied that these two languages, spoken many hundreds of miles away from the nearest Algonquian language, must nevertheless be related to them in a larger family sometimes called *Algic* – a conclusion that might have been much harder to reach if we had compared Yurok and Wiyot only with particular Algonquian languages of the present day.

In the majority of cases, however, reconstruction of proto-languages has not proceeded far enough for us to appeal to them readily in seeking out distant comparisons. Even Proto-Afro-Asiatic and Proto-Niger-Congo, the ancestors of huge families containing large numbers of attested languages, have not as yet been reconstructed in any great detail. In the Niger-Congo case, this is chiefly due to the huge size of the family, which contains dozens of groups and subgroups and perhaps 1,000 languages in total. Ideally, we need to work from the bottom up, reconstructing recent proto-languages and comparing those to obtain more distant proto-languages, until we finally work back all the way to Proto-Niger-Congo – a procedure that is, naturally, enormously time-consuming. In the Afro-Asiatic case, the problem appears to be the time depth: the ancestral language is thought to have been spoken at least 8,000 years ago, and the mass of accumulated changes in all the daughters is so great that systematic correspondences and grammatical parallels are just at the very edge of our ability to reconstruct, or perhaps even beyond, and so we may never have a satisfactory picture of Proto-Afro-Asiatic.

Most historical linguists are therefore resigned to the necessity of further generations of patient reconstruction before we will be in a position to place the resulting proto-languages side by side to see if anything then leaps out at us – although in Chapter 12 we will consider whether statistical methods might be invoked to make the job easier, as well as some highly controversial attempts at finding truly dramatic short cuts.

Table 8.12 A pitfall

	Arabic	Urdu	Turkish	Kiswahili	Malay
'news'	<i>xabar</i>	<i>xabar</i>	<i>haber</i>	<i>habari</i>	<i>khabar</i>
'time'	<i>waqt</i>	<i>vaqt</i>	<i>vakit</i>	<i>wakati</i>	<i>waktu</i>
'book'	<i>kitāb</i>	<i>kitāb</i>	<i>kitap</i>	<i>kitabu</i>	<i>kitab</i>
'service'	<i>xidmat</i>	<i>xidmatgari</i>	<i>hizmet</i>	<i>huduma</i>	<i>khidmat</i>
'beggar'	<i>faqir</i>	<i>faqir</i>	<i>fakir</i>	<i>fakiri</i>	<i>fakir</i>

But even painstaking reconstruction can go astray if it is not applied with sufficient care. Consider the data in Table 8.12. These are very striking matches, and you can quickly see what look like convincing systematic correspondences. For example, we have multiple instances of Arabic *x* : Urdu *x* : Turkish *h* : Kiswahili *h* : Malay *kh*, and also of Arabic *q* : Urdu *q* : Turkish *k* : Kiswahili *k* : Malay *k*, among others. At first glance, therefore, you might think that we were looking at prima-facie evidence of a genetic link. But we are not. In fact, there is no reason to believe that any two of these five languages are genetically related: they all belong to different major families. So what is the explanation for these striking matches, apparently complete with systematic correspondences? Think about this for a minute. What could account for such data, if not a genetic relationship?

The solution lies in something we discussed in Chapter 2: borrowing. All these words, and hundreds of others, have been borrowed into a large number of Asian and African languages from a single source. That source is Arabic. In the seventh century, the Arabs burst out of their desert homeland and, for the next few centuries, Arab soldiers, traders, missionaries and scholars made their presence felt across much of the Old World. Wherever the Arabs went, their Arabic language went with them, and such was the brilliance of Arab civilization that Arabic words were borrowed in their hundreds into local languages everywhere. Also, Arabic was associated with Islam as the language of divine revelation. Therefore, non-Arab Moslems have generally incorporated a great deal of Arabic vocabulary into their native languages, often without realizing this. But just like English-speakers borrowing words from Norman French, the speakers of Urdu, Turkish, Swahili and Malay adjusted the pronunciations of the borrowed words to match the phonologies of their own languages – and so the Turks, for example, lacking the Arabic sounds [q], [x] and [w], systematically replaced these unfamiliar sounds with the nearest Turkish equivalents, [k], [h] and [v]. This is why we appear to see ‘systematic correspondences’ that are totally spurious.

In this case, the borrowing took place in historical times, and it is a trivial matter to identify these numerous loan words and to exclude them from consideration. But loan words are not always so easy to identify. There is no reason to doubt that the borrowing of words has been going on for as long as human beings have had at least two different languages to speak. Hence, some loan words have been present in the borrowing languages for so long that they are almost indistinguishable from native words. Identifying such ancient loans is thus a crucial issue: if we inadvertently accept several dozen ancient loans as native words, we may be fatally misled into seeing a genetic link where none exists.

The best way of coping with this problem, when searching for possible genetic links, is to confine ourselves to what I called *basic vocabulary* in Chapter 2: pronouns, grammatical words, body-part names, the lower numerals and other high-frequency items that are not often borrowed. Words for ‘me’, ‘two’ or ‘head’ are very rarely borrowed, while words like ‘news’, ‘book’ and ‘service’ are far more likely to be borrowed. Hence, if we can’t

Table 8.13 Another pitfall

Hawaiian		Ancient Greek	
<i>aeto</i>	‘eagle’	<i>aetos</i>	‘eagle’
<i>noonoo</i>	‘thought’	<i>nous</i>	‘thought’
<i>manao</i>	‘think’	<i>manthano</i>	‘learn’
<i>mele</i>	‘sing’	<i>melos</i>	‘melody’
<i>lahui</i>	‘people’	<i>laos</i>	‘people’
<i>meli</i>	‘honey’	<i>meli</i>	‘honey’
<i>kau</i>	‘summer’	<i>kauma</i>	‘heat’
<i>mahina</i>	‘month’	<i>men</i>	‘moon’
<i>kia</i>	‘pillar’	<i>kion</i>	‘pillar’
<i>hiki</i>	‘come’	<i>hikano</i>	‘arrive’

find any evidence for a genetic link when comparing the basic vocabularies of two candidate languages, we should be rather suspicious if we then stumble across apparent ‘cognates’ with meanings like ‘chariot’, ‘caterpillar’, ‘stocking’ or ‘bronze’: they might very well be ancient loans.

There is another potential pitfall, one that looks innocuous at first glance but that has in practice often produced monumental confusion among linguists who were not sufficiently aware of it. Take a look at Table 8.13, which compares some words from Hawaiian and ancient Greek. Very striking, right? What do you suppose is going on this time? How can we explain these data? Could Hawaiian and Greek be genetically related? Could the Greeks and the Hawaiians somehow have contrived to borrow words from each other, or both from some third language? Did a Greek ship manage to reach Hawaii a couple of thousand years ago?

No. The true explanation is far less interesting than any of these exciting suggestions. We are looking at a bunch of pure coincidences. Entirely by chance, Hawaiian and Greek happen to have settled on some words that are very similar in form and meaning. That’s all there is to it: no Greeks in the Pacific, no Hawaiian migrations from Greece, nothing interesting at all – just pure chance. Indeed, it should be noted that, when Ancient Greek was spoken, no one lived in Hawaii.

It is possible that you find this very hard to believe. Many people with little experience of comparative linguistics are incredulous when they are told that such impressive-looking lists are the result of sheer coincidence; they protest indignantly, ‘But this just *can’t* be coincidence. Look at the words for “honey” – they’re absolutely identical! There *must* be another explanation.’ Even a number of professional linguists have taken this line, and insisted hotly in the literature that data sets like Table 8.13 just *have* to be considered evidence for some kind of connection. But they’re wrong.

Every language has thousands of meanings to provide forms for, and only a small number of speech-sounds to construct those forms, and hence, by the ordinary laws of probability, any arbitrary languages will always exhibit a number of such coincidences – maybe only eight or ten, maybe dozens, depending chiefly on how similar their phonologies are and on how willing you are to accept some pair of words as similar. Failure to appreciate this truth is merely one more manifestation of that very widespread human failure to understand the laws of probability. For example, how many arbitrary people do you need to assemble in one room before there is a better than 50 per cent chance that at least two of them will celebrate their birthdays on the same date? Fifty? 100? 183? Any idea?

In fact, the answer is 23. By the time you have 40 people in the room, the probability of shared birthdays is around 90 per cent. You can win a few bets this way, since most people won't believe these figures. And languages are no different: chance coincidences of form and meaning will always be present and we must, of course, be careful to exclude them from our comparisons. But how can we do that?

There are two things we can do. First, we can insist on systematic correspondences and deny the value of mere resemblances. This is what most historical linguists do: aware that mere resemblances can always be the result of chance, they assign full weight only to systematic correspondences, which (once loan words have been excluded) can result only from a genetic relationship. Second, we can apply statistical tests to our data, as explained in [Chapter 12](#), to see whether we have anything more than we would expect by chance alone. Both of these are good policies. But, whatever we do, we must not allow ourselves to be persuaded that a mere list of arbitrary and unsystematic resemblances, however long, constitutes by itself persuasive evidence for anything. It is sad to report that a number of linguists have failed to grasp this elementary point, and have as a result squandered their careers in collecting lists of resemblances among whichever languages have caught their eye (always with success, of course). They have proudly announced their 'findings' and declared them to be evidence of an ancient link between the languages they are looking at, and they are baffled and hurt when no one pays the slightest attention.

Yet another pitfall is presented by nursery words, imitative words and phonaesthetic words generally (a phonaesthetic word is one that is coined more or less out of thin air because it has an appealing sound). Nursery words like *mama* and *tata* are found all over the planet with meanings like 'mother', 'father', 'breast', 'milk', and they cannot be cited as evidence for anything. The same is true of imitative words. For example, items of the general form *ber(ber)* are found everywhere as onomatopoeic words for 'boil', and they often acquire transferred senses like 'hot', 'fire' or 'cook'; such forms should not be adduced as comparative evidence, because they are so treacherous. A fine example of a phonaesthetic word is the Basque word *pinpirin* 'butterfly', which has often been compared with similar-looking names for insects in various other languages. However: 1) it has been established by Vasconists (specialists in Basque) that no native Basque word of any antiquity ever begins with /p/; 2) this word has a large number of variant forms that are not at all typical of ordinary phonological variation in Basque; 3) it means not only 'butterfly' but also 'bud', 'garfish', 'undeveloped fruit', 'pretentious', 'elegant' and 'favourite'; 4) it is confined to one small corner of the Basque country, all other regions having quite different (and mostly also phonaesthetic) words for 'butterfly'; 5) this region shows a notable fondness for phonaesthetic words in *pin-* or *pan-*. It is therefore safe to conclude that this item is a recent and localized formation in Basque, one that cannot reasonably be projected into the distant past and adduced in comparisons.

Finally, there is one more potential pitfall in comparative work, perhaps the most surprising of all. This involves a type of mistake that is easy to avoid in principle, but apparently not always in practice. Take a look at [Table 8.14](#), which presents a selection of proposed cognates between Basque and the North Caucasian languages. You will quickly note that this is another list of miscellaneous resemblances, but that is not the point here. There is something else that has gone wrong here, but it's probably impossible to spot, or perhaps even to guess.

To begin with, the Basque words *akain*, *azeri*, *beko*, *gela*, *kaiku*, *kolko*, *kuma*, *matel*, *mulo* and *tiña* are all loan words from neighbouring languages (Latin or its Romance

Table 8.14 An unexpected problem

Basque		Caucasian	
<i>abets</i>	'voice'	<i>abɜə</i>	'voice'
<i>akain</i>	'tick'	<i>*q'(q')in?V</i>	'louse'
<i>azeri</i>	'fox'	<i>zeru, zaru</i>	'fox'
<i>beko</i>	'face, beak'	<i>*bɛk'wV</i>	'mouth'
<i>beri</i>	'this same'	<i>abri</i>	'this'
<i>(bi)rika</i>	'lung'	<i>*jerk'w; i</i>	'heart'
<i>d-</i>	3Sg prefix	<i>d-</i>	3Sg prefix
<i>gela</i>	'room'	<i>*qəlV</i>	'dwelling'
<i>*ika</i>	'one'	<i>ak'ə</i>	'one'
<i>ilu</i>	'move'	<i>-la-ra</i>	'go'
<i>kaiku</i>	'wooden bowl'	<i>*qwaqwV</i>	'vessel'
<i>kala</i>	'castle'	<i>*qəlV</i>	'house'
<i>kolko</i>	'female breast'	<i>-k'ək'a-</i>	'female breast'
<i>kuma</i>	'mane'	<i>q'(q')amhā</i>	'mane'
<i>maño</i>	'masculine'	<i>*mVnXV</i>	'male'
<i>matel</i>	'cheek'	<i>*mæt'V</i>	'face'
<i>mulo</i>	'small hill'	<i>*muʃaIV</i>	'mountain'
<i>tiña</i>	'tick'	<i>*t'ānhV</i>	'nit'
<i>tu</i>	'spit'	<i>*tuk'</i>	'spit'
<i>(u)kab(il)</i>	'fist'	<i>*GwabV</i>	'paw'
<i>(u)kondo</i>	'elbow'	<i>*q'wVntV</i>	'elbow'
<i>zaro</i>	'night'	<i>*s'wVrV</i>	'night'
<i>ze</i>	'small'	<i>-sa</i>	'small'
<i>ziri</i>	'sharp'	<i>-c'ar</i>	'sharp'

daughters). Moreover, *kolko* 'space between one's chest and one's clothes' and *tiña* 'ring-worm' do not have the meanings imputed to them, and *mulo* 'haystack' is glossed as 'small hill' only in one very doubtful source. (It is completely unjustifiable to cite forms or meanings that are severely localized or attested only in sources of questionable reliability when such forms and meanings conflict with the bulk of the evidence available.) Basque *birika* is attested in our earliest texts as *biri*, showing that *-ka* is a late accretion to the word. Basque *d-* is not a third-singular prefix, but a present-tense prefix. Basque *maño* does not mean 'masculine'; it means '(little) mule', and the confusion has arisen because Spanish *macho*, used to gloss it in a bilingual dictionary, means both 'mule' and 'masculine'. Basque *tu* is an imitative word: many languages have similar imitative words for 'spit'. Basque *ukabil* and *ukondo* are both transparent and completely regular compounds of *uko* 'forearm', with *-bil* 'round' and *ondo* 'bottom'. Basque *ze* can be securely reconstructed as **zene*, destroying the match. Finally, the alleged Basque **abets* 'voice', **beri* 'this same', **ika* 'one', **ilu* 'move', **kala* 'castle', **zaro* 'night' and **ziri* 'sharp' do not exist at all: these are either blunders resulting from misunderstanding the secondary sources used or sheer fantasies on the part of the people drawing the comparisons.

The point of all this is that the people who drew these comparisons did not know anything about Basque. They contented themselves with extracting items uncomprehendingly from bilingual dictionaries and other secondary sources, not all of them reliable, and as a result they made a spectacular series of blunders. So: you can't always trust data merely because you see them in print. If you see comparative work done by specialists in the relevant languages, then you can (probably) trust it. But, when you see work done by

people on languages they don't know well, you should be very cautious about accepting any of it at face value. It's hard enough to do historical work on languages you know intimately; trying to work on languages you don't know is likely to lead to disaster. We'll discuss these problems in more depth in the case study at the end of this chapter.

8.4 The Neogrammarian Hypothesis

Throughout this book I have been assuming that phonological change is usually regular, that a sound change typically applies without exception to all words of relevant form in the language. In this chapter we have seen that we can find systematic correspondences between languages that are genetically related, even when these languages have spent many thousands of years diverging from their common ancestor. Such correspondences provide excellent confirmation of the overriding regularity of sound change. Still, there do appear to be cases in which regularity is not observed.

Recall from [Chapter 3](#) the case of intervocalic plosives in Italian, which have sometimes undergone voicing but other times not, in a seemingly haphazard manner. Old English *hūs*, *mūs*, *lūs*, *dūn*, *tūn*, *mūþ*, all with /u:/, have developed into modern English *house*, *mouse*, *louse*, *down*, *town*, *mouth*, all with /au/, because of the GVS, but Old English *rūm*, also with /u:/, has become *room*, still with /u:/. And other cases like these are not difficult to find.

Noting such troublesome data, the nineteenth-century founders of historical linguistics were mostly inclined to the view that sound change is *not* regular. They spoke of sound changes as 'tendencies', and were quite happy to accept that sound changes could apply to some words but not to others. An illustration that particularly engaged their attention is one which we have already discussed – the **First Germanic Consonant Shift**, otherwise known as Grimm's Law. As you'll remember, there was an apparent anomaly in this set of changes, with some expected forms actually being represented by their voiced equivalent. As we saw, however, the incorporation of the stress rules underlying Verner's Law returns the Shift to a 'pristine', exceptionless state.

The discovery of Verner's Law removed *all* of the outstanding exceptions to Grimm's Law. When we recognize both Grimm's Law and Verner's Law, *every single word* in Germanic can be seen to have developed perfectly regularly. This outcome at once suggested to a number of linguists that sound changes must *always* be regular, and that apparent exceptions must mean only that we have not yet succeeded in identifying the relevant conditioning factors. This position, the absolute regularity of sound change, was taken up with enthusiasm by a group of younger linguists, mostly at the University of Leipzig, who began loudly proclaiming their new doctrine. Older linguists, deeply sceptical of such a doctrine, jeered at the youngsters as *Junggrammatiker*, literally 'young grammarians', but this word is commonly rendered into English as *Neogrammarians*. The young linguists accepted the label with pride, and their doctrine became known as the **Neogrammarian Hypothesis**. Among the leading Neogrammarians were Brugmann, Delbrück, Leskien and Osthoff. It is Brugmann's formulation of the Neogrammarian Hypothesis that is best known: 'Every sound change takes place according to laws that admit no exception.' For the Neogrammarians, sound changes were no longer just tendencies: instead, they were absolute laws.

As so often happens in scholarly disciplines, the older opponents of the new doctrine gradually retired or died, leaving the field to the younger generation who fervently espoused the doctrine. By the end of the nineteenth century, the Neogrammarian Hypothesis had become the established orthodoxy in historical linguistics: the writings of the Neogrammarians

were now the standard textbooks, and each new generation of students was being firmly trained in the new approach.

Not that opposition vanished overnight. Chief among the opponents of the Neogrammarians was Hugo Schuchardt, a formidable if eccentric figure. Among his other achievements, he virtually founded the study of creoles, and he was an outstanding Vasconist: coming to Basque late in life, he took the study of that language, formerly little more than an amateur pastime, and turned it into a serious scholarly discipline. But Schuchardt had a background in dialectology, and, like many dialectologists, he could not reconcile the bold new doctrine with the complex and messy facts he found in the examination of real language data. He preferred to maintain the dialectologists' own particular creed: 'Every word has its own history.'

Schuchardt's fierce attacks upon the Neogrammarian ideas led to ostracism. By the end of his career, he had virtually been declared an unperson by the new linguistic establishment, and for decades after his death the standard textbooks noted him, if at all, as a figure of fun: a crotchety old stick-in-the-mud who had never been able to grasp the new scientific approach of the Neogrammarians. However, as we will see in [Chapter 10](#), it was Schuchardt who ultimately had the last laugh.

The Neogrammarian Hypothesis was warmly received because it seemed to many linguists to be a more rigorous and scientific approach than had previously been practised. For the Neogrammarians, the earlier linguists had pursued little more than butterfly-collecting, noting some changes here but some exceptions there, and taking no interest in explaining the exceptions. In the new doctrine, real exceptions could not exist. There could only be *apparent* exceptions, and the job of historical linguists was to find the explanations for those apparent exceptions, explanations that simply *had* to exist.

The new doctrine proved to be valuable, for an obvious reason. If you don't believe that problematic data need an explanation, then you're not going to look for one, and hence you're not likely to find an explanation even if one exists. If, however, you are convinced that there must be an explanation, then looking for it becomes a high priority, and, if there really is one, there is an excellent chance that you will find it. Like Verner before them, the Neogrammarians were often successful in finding explanations for troublesome data, and these successes reinforced their belief that they must be right. Exceptional data for which no explanation could be found were explicitly recognized as problems requiring further work, an approach that is in fact typical of scientific work in all disciplines. (For example, all existing theories of gravity utterly fail to account for the orbit of Neptune, but no astrophysicist is prepared to abandon our highly successful theories of gravity merely because of that planet's peculiar orbit: Neptune is merely seen as a problem requiring further work, a problem that will doubtless be solved one day.)

Today most historical linguists probably still take the Neogrammarian approach as their everyday working method, as the approach that is to be preferred unless they can find good reason to look at things differently. Nevertheless, as we will see in [Chapter 10](#), the Neogrammarian Hypothesis has run into some surprising difficulties from an unexpected direction.

8.5 Semantic reconstruction

Once we have established the systematic phonological correspondences linking the members of a family, on the basis of words with very similar meanings in all or most of the daughters, we are invariably faced with a residue of further words that, on the basis of their

phonological forms, would appear to be cognates, but that have different meanings in the various daughters. A few of these may be chance resemblances, not cognate at all, but others will be true cognates which have undergone significant shifts in meaning. As we saw in [Chapter 2](#), change in meaning is far from rare. Even if an ancestral word survives for millennia in several daughter languages, there is no guarantee that it won't change its meaning in some or all of those daughters, perhaps radically. Such shifts can make genuine cognates very difficult to detect. Our first problem, therefore, is to try to decide if the words are cognate.

A simple case is English *chin*, which, by the ordinary systematic correspondences, ought to be cognate with Latin *gena* 'cheek', Greek *genus* 'lower jaw' and Old Irish *gin* 'mouth', none of which means 'chin'. However, as I mentioned in [Chapter 2](#), names of face-parts are notorious in the world's languages for changing their meanings, and hence scholars are satisfied that all of these words genuinely are cognate: this degree of semantic shift is familiar and permissible. In this case, our best guess is that the original meaning of the PIE word was 'jaw, chin'.

Much nastier is the case of English *clean* and German *klein*. English and German are fairly closely related, and, by the usual correspondences, these words ought to be cognate – and yet the German word means 'small'. Is it really possible that two such dissimilar meanings could arise from a single source? Could we just be looking at two unrelated words whose resemblance is the result of chance? As it happens, we have abundant textual evidence for earlier German, and the earliest attested sense of the German word is 'bright, shining'. With some assistance from the texts, therefore, scholars have concluded that the German word has undergone an extraordinary sequence of semantic shifts, roughly 'shining' > 'clean' > 'fine' > 'delicate' > 'small'. Everyone is therefore satisfied that the words really are cognate – but, if there had been no textual evidence to consult, possibly very few linguists would have been happy to accept such a seemingly bizarre shift in meaning, and we would remain uncertain whether the two words were actually cognate at all.

In the majority of cases, we have no texts to consult, and so we have to decide how much leeway in meaning we can allow before we are forced to conclude that the words we are looking at, however persuasive the phonological match might be, are most likely not related at all. As I pointed out in [Chapter 2](#), the search for universals of semantic change has not so far yielded many reliable principles and so, in practice, we are forced to rely largely on experience. If certain types of semantic change are well attested in a number of languages, we may feel fairly confident about positing similar changes in other languages. But, if we seem to require a semantic shift not otherwise recorded then, unless we have some pretty impressive supporting evidence from somewhere, we are probably wise to be suspicious, or at least to reserve judgement.

Even when we are quite certain that words are cognate, it may be a tricky problem to reconstruct the original meaning. PIE **agro-* is the source of Sanskrit *ajrás* 'uncultivated field, pasturage', of Greek *agrós* and Latin *ager* '(cultivated or uncultivated) field', and of Gothic *akrs* and its Germanic cognates 'cultivated field' (English *acre* is cognate). These senses conflict: did the word originally mean 'cultivated field' or 'uncultivated field' or perhaps something else?

Some significant evidence comes from derivatives of the word. Latin *agrārius* 'agrarian' is not much help. But Latin *agrestis* 'wild', Greek *agriós* and *agroteros*, both 'wild' and Greek *agraulós* 'spending the night in the open' all rather point to the conclusion that **agro-* might once have denoted specifically 'uncultivated land'. Moreover, Latin *peregrinus*

‘foreign’, literally ‘beyond the *ager*’, appears to imply that Latin *ager* had once meant something like ‘known land around a settlement’. This weight of evidence suggests that ‘uncultivated land’ was probably the earliest sense of the word, and that ‘cultivated field’ was a later innovation.

Confirmation comes from the observation that **agro-* itself appears to be a derivative of PIE **ag-* ‘drive (animals)’: no doubt the **agro-* was the (uncultivated) land to which animals were driven for pasturage.

This example illustrates the necessity of not considering words in isolation, but rather together with other words that are morphologically related. A further valuable practice is to consider together words that are related, not morphologically, but semantically.

We have seen that historical linguists have often been very successful in reconstructing sizeable vocabularies for their proto-languages. But no language has a vocabulary that is just a miscellaneous collection of individual words. Instead, certain areas (at least) of the vocabulary of any language are *structured*: that is, words within a certain area of meaning are related in important ways. For example, pronouns, numerals and kinship terms typically show a good deal of organization, and the same may be true of colour terms, cooking terms, names of plants and animals, verbs of motion and many other areas. Such a potentially structured part of the lexicon may be called a **lexical domain** or a **semantic domain**. A good description of a modern language will usually devote some attention to these domains, and historical linguists may also be interested in reconstructing such structured domains within their proto-languages.

Unfortunately, work in this area is largely still in its infancy, with the partial exception of Proto-Indo-European. Let us briefly consider some examples.

It is easy to reconstruct PIE **owi-* ‘sheep’. This shows (apparently) that PIE-speakers were acquainted with sheep. But does it follow that they practised sheep-herding on a significant scale? We can examine this question by looking for other words in the same domain. We find that we can also reconstruct PIE words for ‘lamb’ and for ‘wool’, which is very encouraging. Moreover, there are good PIE reconstructions for ‘goat’ and ‘he-goat’, confirming that smaller domestic animals were a prominent feature in the life of the PIE-speakers. On top of that, the PIE root **peku-*, in all the languages in which its descendants appear, denotes ‘sheep and goats’ (at least). We may therefore be confident, on the basis of this network of related words, that PIE was spoken by people for whom sheep and goats were an important part of the economy.

More interesting is the case of the Indo-European (IE) numerals. PIE numerals for ‘one’ to ‘ten’ can be confidently reconstructed, and their reflexes appear in all IE languages. After ‘ten’, however, things get complicated: we find a variety of systems and formations in the daughter languages, involving addition, subtraction and multiplication, and we find counting in both tens and twenties. For example, Germanic and Baltic render ‘11’ and ‘12’ as ‘one left’ and ‘two left’ (Old English *endleofan* and *twelf*), while Latin and Greek have ‘one-ten’ and ‘two-ten’. The numerals ‘18’ and ‘19’ are ‘eight-ten’ and ‘nine-ten’ in Germanic, but ‘two from 20’ and ‘one from 20’ in Latin. For ‘20’, Germanic has ‘twice ten’, while Latin, Greek and Sanskrit all have the curious formation ‘in-half ten’.

Earlier generations of European linguists, almost all of them speakers of IE languages, tended to assume without discussion that such a fine, upstanding proto-language as PIE, the speech of those splendid folk who carried their language into a huge area of the globe, must naturally have been equipped with a full set of numerals up to ‘100’, at least, and therefore tried stoutly to reconstruct a PIE numeral system of this size, invoking in the

process any number of ‘replacements’ and ‘analogical formations’ to account for the wide discrepancies in the formation of the attested numerals. More recently, however, some specialists have begun to question this assumption, and to put forward the awful suggestion that the speakers of PIE *could not count beyond ten*. Their idea is that the numbers beyond ‘ten’ were created independently in the various daughter languages after they had diverged from the ancestral tongue.

This makes a good deal of sense, and there is support for it. Most notably, the PIE word **kmtóm*, found in all daughters and meaning ‘100’, did not necessarily have that precise sense in PIE. In Homeric Greek, the word seems to have meant simply ‘a large number’, while in Germanic it often means ‘120’ or ‘112’, as in the British *hundredweight* ‘112 pounds’. It therefore appears too rash to assume without discussion that PIE had numerals all the way up to 100 and even beyond.

There is a moral here: even if a feature is found in all the daughter languages, we cannot presume it must necessarily have been present in the ancestral language, unless no other reasonable explanation is available.

8.6 The use of typology and universals

Linguists have long been interested in **typology** (the classification of languages into structural types) and **universals** (statements that are true of all languages), but, as I pointed out in [Chapter 6](#), it is chiefly since the pioneering work of Joseph Greenberg in the 1960s that these topics have often been seen as central concerns – and historical linguistics has not been immune.

The natural sciences have a *principle of uniformity*, which may be informally stated as follows: the same natural laws apply everywhere, all the time, whether we’re looking or not. Historical linguistics has its own version of this: prehistoric languages were not different from modern languages. Human languages have been spoken, we believe, for at least many tens of thousands of years, and so the few thousands of years into the past that we can reach with our historical methods cannot take us appreciably closer to the remote origins of language. Consequently, we should not find ourselves reconstructing proto-languages that have properties different from anything we can see in modern languages.

This principle is not infrequently invoked in evaluating proposed reconstructions. A simple example is provided by the reconstructed vowel system of PIE. It seems quite clear to specialists that /e/ and /o/ alternated in PIE roots for purely grammatical reasons, as reflected in such cases as Greek *legō* ‘say’ and *logos* ‘word’, or in Latin *tegō* ‘cover’ and *toga* ‘covering’. Further, the vowels /i/ and /u/ seem to occur only as positional variants of the glide consonants **y* (= [j]) and **w*. Finally, /a/ does not seem to occur at all except as a conditioned variant of /e/ in certain circumstances (see [Chapter 9](#)). Consequently, a number of linguists have reached the conclusion that PIE had only a single vowel, commonly represented as **e*, with all other vowels deriving from **e*, **y* or **w*. But no language is known that has only a single vowel, and this reconstruction is therefore suspect. The smallest number of vowels that we ordinarily find is three, usually /i u a/, although the North Caucasian language Kabardian is sometimes described as having only two (this is controversial). Hence many specialists would prefer to posit for PIE a more normal vowel system, with at least three vowels and possibly four or five. The thinking is that, no matter how clever we might be in deriving all the later vowels from just one vowel, a one-vowel language is not reasonable: it conflicts with everything we know about attested languages.

Here is a morphological example. Anderson (1973: 76–8), in attempting to make sense of the so far undeciphered inscriptions written in the ancient Iberian language of Spain, has posited an extraordinary process of sequential metatheses as operating regularly in that language, so that, for example, an underlying sequence *t + be + din* is successively metathesized from *tbedin* to *tebdin* to *tebidn* to *tebind*, in order to produce a phonologically acceptable result. This may be ingenious, but no known language exhibits such sequential metatheses, and hence few linguists would consider this a plausible interpretation.

On the syntactic side, Winfred Lehmann has noted, in a series of publications, that the earliest IE languages display a number of characteristics typical of SOV languages; many of his observations were made a century ago by Delbrück: verb-final sentences are frequent; there are postpositions instead of prepositions; modifiers usually precede nouns; subordinate clauses often precede main clauses; there is an extensive case-system. Lehmann therefore proposes, on typological grounds, that PIE must have been an SOV language. He supports his case with further observations. For example, even though all the daughter languages have relative pronouns, they use different items for this purpose, and no relative pronoun can be securely reconstructed for PIE (absence of relative pronouns is another typical SOV characteristic).

The point of Lehmann's case, following Greenberg's observations, is that it is hardly normal for a VO language to have all these characteristics, and hence PIE must have been SOV in order to maintain typological harmony. Lehmann's conclusions are controversial, but his case is substantial, and he has succeeded in persuading a number of other specialists that PIE was indeed a typical SOV language. Since the great majority of modern IE languages are SVO or VSO, it follows that they have undergone a change of word order.

But undoubtedly the most famous and controversial instance of a typological criticism of a reconstructed language is that involving the PIE plosive system. Since the early nineteenth century, specialists have generally agreed that PIE had at least the following plosives:

p	t	k	k ^w
b	d	g	g ^w
bh	dh	gh	gh ^w

(Some would add a fifth, palatal, order /kⁱ gⁱ ghⁱ/, but this is irrelevant here.) This reconstruction is very successful at accounting for the phonologies of the daughter languages. In particular, the /p/ series and the /b/ series appear to survive unchanged in most branches of Indo-European, apart from Germanic, Armenian and Tocharian, which are assumed to have undergone changes, while the /bh/ series appears to survive unchanged in Sanskrit and to have undergone understandable changes elsewhere. So, for example, PIE **ped-* 'foot' yields *ped-* in Latin, *pod-* in Greek and *pad-* in Sanskrit; PIE **dekm* 'ten' yields Latin *decem*, Greek *deka* and Sanskrit *dāśa* (with palatalization of **k*); and PIE **bher-* 'carry, bear' yields Latin *fer-*, Greek *pher-* and Sanskrit *bhar-*.

Many years ago, however, Roman Jakobson pointed out that this reconstructed system is typologically aberrant, in that it has a 'voiced aspirated' series /bh dh gh gh^w/ but no voiceless aspirated series /ph th kh kh^w/. No attested language has ever been found with such a system. Many languages have no aspirated plosives; some have only voiceless aspirates; others (like Sanskrit) have both voiceless and voiced aspirates. But no known language has voiced aspirates but no voiceless ones. Indeed, typologists have often proposed a phonological universal: if a language has voiced aspirates, it has voiceless aspirates. And the reconstructed PIE system violates this universal. So we have a problem.

One way out is to argue that PIE also had a fourth, voiceless aspirated, series /ph th kh kh^w/, and a number of linguists have attempted to find evidence for such an additional series of plosives. On the whole, however, such evidence is sparse and unconvincing, and most specialists are not persuaded by it.

Accordingly, a number of linguists have in recent years adopted a more robust line: they argue that the traditional reconstruction is wrong and should be replaced by a typologically more reasonable system. Most such proposals suggest the same solution, one which has become known as the **glottalic theory** of PIE. The glottalic theory of PIE was first suggested by Martinet as early as 1953, but it attracted no attention at the time. Then, in 1973, Hopper and, independently, Gamkrelidze and Ivanov put forward a more fully developed version of the idea. All of them begin with an interesting observation: in PIE, the segment commonly reconstructed as **b* was extremely rare, perhaps even non-existent – a very odd state of affairs for a voiced labial plosive. They then ask this question: in what series of plosives is a labial member often missing?

The answer they suggest is a *glottalic* (that is, an ejective) series. Very many languages have a series of ejective consonants, which are pronounced with a simultaneous glottal stop and the larynx moving up like a piston to expel air from the mouth with an audible pop when the closure is released. Such plosives are notated [p' t' k' q'], and so on, in IPA. What is interesting is that ejectives are most frequent in the back of the mouth; they are less frequent towards the front, and some languages with ejective consonants lack a labial ejective altogether. This makes some phonetic sense, since it appears to require greater articulatory effort to produce an ejective at the front of the mouth.

The proposal, then, is that the PIE series traditionally reconstructed as voiced plosives /b d g g^w/ was actually an ejective series /p' t' k' k^w/, which would at once explain why the segment /p'/ (the traditional /b/) was rare or absent. Of course, this proposal by itself does not solve the typological problem, since the voiced aspirated series is still there. But Hopper and Gamkrelidze and Ivanov go on further to reinterpret the former /p t k k^w/ series as a voiceless aspirated series /ph th kh kh^w/, Their resulting system now looks like this:

ph	th	kh	kh ^w
bh	dh	gh	gh ^w
p'	t'	k'	k ^w '

And this series is typologically natural.

This new analysis has certain additional advantages. For example, it is well known that PIE roots did not permit two occurrences of the /b/ series, and hence roots like **bed-* were impossible. This makes little sense in the traditional reconstruction, since such sequences are perfectly normal in thousands of languages. But, in the new system, the impossible roots are reinterpreted as having the form **p'et'-*, with two consecutive ejectives – and it is a fact that languages with ejective consonants, such as the Caucasian languages, do not permit such sequences of ejective consonants, for sound phonetic reasons: it is difficult to move the larynx up and down rapidly enough to produce ejectives one after another.

The glottalic theory of PIE has accordingly won a measure of support among specialists, since it simultaneously solves the typological problem and provides explanations for certain other puzzling facts. If it wins the day, it will be a paradigm case of the application of typological reasoning to a historical problem. But the theory is not without its critics, who

argue that the supposed advantages are more apparent than real, and point out that it requires all the daughter languages *except* Germanic and Armenian to have undergone substantial phonological change. At present the glottalic theory is supported by perhaps no more than a sizeable minority of Indo-Europeanists, although, as Mallory and Adams (2006: 52) point out, the glottalic replacements to the older paradigm, 'would seem to fail the test of providing typologically appropriate transitional phases between Proto-Indo-European and the attested Indo-European languages . . . there are rare but attested systems which show the same sort of imbalances of features necessitated by the traditional reconstruction of Proto-Indo-European'.

Finally, lest you get the impression that arguments from typology and universals must always be decisive, let's look at one more case. Michelena (1977) is a magisterial reconstruction of the phonology of an ancestral stage of Basque dating to around 2,000 years ago. This reconstruction has been enormously successful, but it has one curious feature: it posits that pre-Basque entirely lacked /m/. In modern Basque, /m/ is very frequent indeed, although it mostly occurs in loan words and in phonaesthetic formations. For the small number of clearly ancient native words containing /m/ today, Michelena posits a source either from */b/ (as in *mihi* 'tongue' < **bini* and *mehe* 'thin' < **bene*) or from a cluster */nb/ (as in *seme* 'son' < **senbe*).

Several non-specialists in Basque have attacked this reconstruction on the universalist ground that languages without /m/ are virtually unheard of. This may appear a worrying argument, but consider some facts:

- Most (possibly all) of the native words with /m/ today either contain, or formerly contained, an /h/ in the following syllable (like *mihi* and *mehe*), and so we can invoke a nasal assimilation of */b/, a process that is abundantly attested in loan words.
- In the dialects of Basque retaining the ancient aspiration /h/, that /h/ can readily follow *any* liquid or nasal *except* /m/: *senhar* 'husband', *alhaba* 'daughter', *erhi* 'finger', *urrhe* 'gold' and so on – but */mh/ is absolutely unattested, just as is */bh/.
- Virtually every ancient Basque consonant makes an appearance somewhere in the rich inflectional morphology of the language, and /n/ in particular is very frequent indeed – but /m/ is absolutely lacking in the inflectional morphology.
- Basque is very rich in word-forming suffixes, and almost all other consonants occur in some of these suffixes, but, with the single exception of the abstract-noun-forming suffix *-mendu*, borrowed from Latin *-mentu*, /m/ is totally absent from these suffixes.
- In grammatical words like pronouns, conjunctions, determiners, quantifiers and postpositions, /m/ is absolutely lacking.

In this case, then, the evidence for the correctness of Michelena's reconstruction is overwhelming: pre-Basque had no /m/. We must therefore accept this conclusion, no matter how strange it may seem from a cross-linguistic point of view. This time the evidence is too substantial and monolithic to be overridden by universalist considerations.

In fact, the absence of /m/ may not be so unusual as the critics suggest. In the famous UPSID sample of the world's languages reported in Maddieson (1984), fully 5 per cent of languages either lack /m/ altogether or have it only very marginally. But even if pre-Basque were the first language ever discovered without an /m/, we would still have to respect the internal evidence from Basque. Typological and universalist arguments cannot be taken as absolutely decisive.

8.7 Reconstructing grammar

Historical linguists have often enjoyed great success in reconstructing ancestral phonological systems and vocabularies. Naturally, we would also like to be able to reconstruct as much as possible of ancestral grammatical systems. How feasible is this goal?

With morphology, it is often highly feasible. Like a lexical item, a bound morpheme largely has a fixed phonological shape, it typically remains a part of the language from one generation to the next, and it undergoes the ordinary processes of phonological change. However, as we saw in [Chapters 5 and 6](#), morphological patterns may often be severely disturbed by such processes as analogy, grammaticalization, renewal and typological shift. The several daughters of an ancestral language may therefore diverge much more dramatically in their morphology than they do in their phonology, or even in their lexicons. Consequently, it is not very often that a group of daughter languages will exhibit morphological systems that are virtually identical apart from the effects of phonological change. Still, linguists have, in many cases, succeeded in reconstructing substantial portions of the morphology of a proto-language.

Consider the nominal morphology of PIE. All of the oldest IE languages have three grammatical genders, masculine, feminine and neuter, and so we may reasonably assume that PIE had the same. All of these same daughters exhibit a large number of noun classes, with each class taking a somewhat different set of grammatical endings, and we may confidently project the same property back to PIE, even though the daughters do not always agree as to how many classes they have or which nouns belong to which classes. All IE languages distinguish singular and plural, and the oldest languages show at least traces of a dual, so that we may suppose that PIE distinguished all three numbers. All the oldest daughters exhibit extensive case-systems for nouns, and therefore so, in all likelihood, did PIE.

But the daughters do not distinguish the same number of cases: Greek has four cases, with fragmentary or archaic traces of two more; Latin has five, with a sixth case distinguished for only one class of nouns and fragmentary traces of a seventh; Gothic has five, but not quite the same five as Latin; Sanskrit has no fewer than seven. We might therefore surmise that PIE had seven or more cases, with some of them being lost in each of the daughter languages, but we must not be rash about this: it is always possible that (say) Sanskrit has acquired some new cases not present in PIE.

As it happens, many of the case-endings in the oldest IE languages are similar enough in form to show that they are cognate and have therefore been directly inherited from PIE. [Table 8.15](#) illustrates these endings for the noun meaning ‘foot’ in Greek, Latin and Sanskrit, and a possible PIE reconstruction. Scholars do not agree about all the details, and here I follow Lehmann (1993: 145) in most respects. Latin and Greek forms that are not inherited from PIE are excluded; bracketed forms are marginal or archaic. You will see that Sanskrit appears to be by far the most conservative language in its nominal morphology, although note the effect of the categorical pre-Sanskrit change $*e > a$. In spite of the complications, then, it is often possible to reconstruct prehistoric morphological systems in some detail.

There is one further point that needs to be stressed. In reconstructing morphology, some of the most valuable evidence of all, when we can find it, consists of **shared anomalies** – unusual morphological idiosyncrasies common to two or more languages. These, when they turn up, constitute very powerful evidence that the languages are related and that the anomalies must have been inherited from the parent language. Consider English and German, two Germanic languages known to be fairly closely related. These share a significant

Table 8.15 The inflection of PIE *pēs ‘foot’

	PIE	Sanskrit	Greek	Latin
<i>Singular</i>				
Nominative	*pēs	pāt	poús	pēs
Accusative	*pédm	pādam	póda	pedem
Instrumental	*pedé	padā		
Dative	*pedéy	padé	[podí]	pedi
Ablative	*pedés	padás		
Genitive	*pedés	padás	podós	pedis
Locative	*pedí	padí		[pede]
<i>Plural</i>				
Nominative	*pédes	pādas	pódes	pedēs
Accusative	*pédns	padás	pódas	pedēs
Instrumental	*pedbhís	padbhís	[po-pi]	
Dative	*pedbh(y)ós	padbhyás		pedibus
Ablative	*pedbh(y)ós	padbhyás		pedibus
Genitive	*pedōm	padām	podōn	pudem
Locative	*petsú	patsú	[posí]	

amount of their regular morphology: English *deep/deeper/deepest*, German *tief/tiefer/tiefste*; English *love/loved/loved*, German *lieben/liebte/geliebt*. This, of course, is already good evidence for a genetic link (recall the case of Yurok, Wiyot and Proto-Algonquian discussed above). But English and German also share a number of morphological anomalies: English *good/better/best*, German *gut/besser/beste*; English *sing/sang/sung*, German *singen/sang/gesungen*. It is almost unimaginable that such shared peculiarities could result from anything other than common inheritance – in this case, from Proto-Germanic. Therefore, not only do such forms confirm the relationship between English and German, but they also tell us something about the morphology of Proto-Germanic.

Something similar can be observed with the earliest attested Indo-European languages. Latin, Sanskrit and Hittite all exhibit a class of nouns with rather peculiar behaviour, the so-called *heteroclitic nouns*. Such nouns present a highly unusual alternation in their inflection between stems in *-r* and stems in *-n*: Latin *iecur* ‘liver’, genitive *iecinoris*; Sanskrit *ūdhar* ‘udder’, genitive *ūdhnas*; Hittite *watar* ‘water’, genitive *wetenas*; Latin *iter* ‘road’, genitive *itineris*; Sanskrit *ásrg* ‘blood’, genitive *asnás*. Such stem-alternations are out of line with the more usual morphology of these languages, and it cannot be reasonably doubted that this odd pattern has been inherited in every case from the ancestral language, PIE. Already in Latin and Sanskrit the heteroclitic inflectional pattern was rare and unproductive; it was clearly no more than a fossilized residue of some ancient state of affairs. In Hittite, however, heteroclitic nouns were numerous, and it seems that the pattern was still highly productive in that language. We may, therefore, surmise that the heteroclitic declension was an important feature of PIE, or perhaps even of some ancestor of PIE, and that it had been steadily losing ground to other, more familiar, types of inflection during the period when PIE was breaking up into its several daughter languages. (This historical pattern also explains why the word for ‘water’ in the West Germanic languages is a variant of *water*, while in the North Germanic it is a variant of *vatr*: originally the final syllables represented different suffixes of the same paradigm.)

Morphology, then, can often be reconstructed in some detail, and comparative work on morphology may shed considerable light on the nature of the proto-language we are working on. With syntax, however, things are far more difficult. Indeed, more than a few linguists would maintain that the reconstruction of syntax is impossible in principle. Consider, for example, the word order of PIE. Among the attested languages, we find VSO order in Celtic, SOV order in Indo-Iranian and SVO order in most of the other languages (although Germanic is rather complicated). But does this information allow us to reconstruct a basic word order for PIE? Probably not, in fact surely not. The problem is that syntactic structures do not have quite the same kind of individual existence as lexical items or even grammatical morphemes. A lexical item may persist as a recognizable entity over many generations; for example, PIE **new-* still survives in English today as *new*, some 6,000 years later. But syntactic patterns like word order do not behave like this: an ancient SOV order (say) does not develop gradually and continuously into an SVO order; instead, a large number of individual smaller changes in grammar are responsible for the cumulative effect of a word-order change (recall the Chinese case from [Chapter 6](#)).

On the other hand, we saw above that Winfred Lehmann, by concentrating on a large number of smaller grammatical details, has been able to construct at least a substantial case that PIE must have been an SOV language. Perhaps, therefore, it is going too far to claim that no syntactic reconstruction can ever be done at all, but it does appear that syntax must always be a less fertile field for reconstruction than phonology or lexicon, or even morphology.

8.8 The reality of proto-languages

It is accepted by everyone that genetically related languages must have had real ancestors, real languages spoken by real people. Comparative reconstruction allows us to recover substantial information about such long-vanished ancestral languages. Naturally, we can't hope to recover a proto-language down to the last detail. There must always be aspects of an ancestral language that have disappeared without trace in every recorded daughter, or that have undergone such complex developments that untangling them is beyond our powers. Nevertheless, in favourable cases like Proto-Algonquian, Proto-Romance or even Proto-Indo-European, we are confident that our substantial reconstructions of phonology, lexicon, morphology and even syntax represent a very good approximation to the ancient linguistic facts. But are we right to be so confident? Is it really possible to recover the speech of people long dead?

Consider a simple case like the reconstructed PIE word **kmtóm* '100'. With no more than minor disagreements over small details, everyone accepts this reconstruction as valid. But what exactly does it represent?

Broadly speaking, there have been two kinds of answer proposed. A minority of linguists would take a very conservative, even pessimistic, view of such a reconstruction. They argue that this **kmtóm* is nothing more than a piece of algebra, a kind of notational shorthand that summarizes in a convenient manner the correspondences we find among real language data like Latin *centum*, Greek *(he)katón*, Sanskrit *śatá*, Gothic *hunda* and so on. In this view, we have no right to presume that **kmtóm* represents any kind of phonetic reality, because ancient phonetic reality is unrecoverable. This sceptical view gains added force when we find, as we will in the next chapter, that advances in the reconstruction

of PIE have led to the (very successful!) reconstruction of PIE forms such as **g^wrHtó-*, **plHnó-* and **bhwHtó-*, which scarcely look like pronounceable words in a natural language.

The majority of historical linguists reject this gloomy point of view. They consider such reconstructions, based on real language data and on an understanding of real language changes, be trustworthy in most respects. These linguists are happy to believe that the speakers of PIE really did pronounce their word for ‘100’ (or whatever it meant!) with a voiceless velar plosive, a syllabic bilabial nasal and so on. Naturally, it is the proponents of this second view who are most inclined to attach importance to typological arguments and to linguistic universals. If you believe that the phonemes reconstructed for a proto-language are nothing but empty algebraic symbols, you are hardly likely to care what symbols those are, or to worry about whether the resulting system looks phonologically plausible. But, if you sincerely believe you are reconstructing something very close to an ancient phonetic reality, you are not going to be happy with a reconstructed system that looks like nothing ever encountered in a natural language.

On the whole, then, it would seem best, if only as a methodological principle, to cling to the second view. After all, it hardly seems likely that our successful reconstructions can be *totally* devoid of linguistic reality, and therefore it is surely better to attach some weight to arguments from typology and universals. In historical linguistics, as in any discipline, it is usually unwise to reject any possible evidence from any possible source. We do not have to believe that our reconstructions are perfect, down to the last phonetic detail, in order to believe that we have been substantially successful in reconstructing a vanished linguistic reality.

There is a further point to be considered. Our reconstructed proto-languages often come out looking very homogeneous. But we know that real languages are not like that. A real language always exhibits some degree of regional variation (it is spoken differently in different places) and also social variation (different people speak it differently even in the same place, and the same person speaks it differently on different occasions). In so far as our reconstructions fail to reveal such variation, then, we can be sure that they are, to some extent, oversimplifications of languages that were surely messier than our reconstructions make them appear.

Case study: a reconstruction too far?

Linguists have been highly successful at grouping the world’s languages into genetic families, some of them very large. The great majority of the languages of the Old World have been grouped into fewer than two dozen families, almost all of them regarded as secure constructs, with only half a dozen or so isolates and a few problem areas, such as New Guinea, South-East Asia and the Caucasus. The position in the Americas is at present much less satisfactory, with 140 or more distinct families being generally recognized, but this number is being steadily reduced by continuing research, especially in South America, still perhaps the least well-investigated area on earth.

Even in the Old World, however, there is an obvious question to be asked: are any of the recognized families themselves genetically related? The answer to this question

must surely be ‘yes’. It is inconceivable that every major language family we have so far been able to identify is completely unrelated to every other family. The ancestors of at least some of these families must undoubtedly have diverged from some much more remote common ancestor, in the familiar way. But which of our families are so related? How can we find out? *Can* we find out?

In considering these questions, the conventional position among historical linguists is a decidedly pessimistic one. What we may safely call the ‘mainstream’ view can be briefly summarized as follows:

- Human languages have been spoken for many tens of thousands of years, probably for at least 100,000 years, and possibly for much longer.
- The rate of linguistic change, while quite variable, is great enough for a few thousand years of divergent development of languages to be generally sufficient to obliterate all but the faintest traces of a common origin.
- Hence the familiar and reliable historical methods can be invoked to identify only a common ancestry that is not more than a few thousand years earlier than our oldest substantial information.
- But written records are a very recent development in comparison with speech. No known written text is more than about 5,000 years old. Only for a tiny handful of languages do we have texts as old as 2,000 years. The vast majority of languages were never written down at all before the European expansion of the modern era, and most are still not normally written today.
- Consequently, we cannot hope to identify any ancestral languages that were spoken more than a few thousand years ago – perhaps 6,000–8,000 years ago in a few particularly favourable cases, probably not more than 3,000–4,000 years ago in most cases. Older genetic links than this undoubtedly exist, but they will remain forever beyond our reach.

This mainstream position has been the view of most historical linguists for generations, and it is still unquestionably the majority view today. However, there have always been a few dissenters prepared to argue that things are not nearly as bleak as the mainstream position would imply. Today these dissenters are more numerous, more vociferous, and more determined than ever before. In this case study we will consider the often deeply controversial proposals of one such dissenting school.

For as long as it has been known that some languages were related to other, often distant, languages, interested parties have attempted to demonstrate a relationship between these languages and others, particularly when these last languages have social, cultural or political prestige. Other languages, such as Basque, Japanese or Korean, have come under particular scrutiny in these contexts since they have defeated (almost) all attempts at classification.

It would be a considerable feather in the cap to convince the scholarly world of a new connection.

Since the advent of comparative philology in the early nineteenth century, however, these ideas have generally, at least when emanating from the scholarly community, followed something approaching the strict comparative methodology of the subject. That does not mean that suggestions of this type have been universally accepted – at least at first – by other scholars.

For instance, in 1913, Eduard Sapir announced that he had found a genetic link between Wiyot and Yurok, two otherwise isolated languages of California, and the great Algonquian family of north-eastern North America. Sapir's conclusion was bitterly denounced by some distinguished Algonquianists, who rejected it out of hand, to Sapir's considerable exasperation. This dismissal continued for nearly half a century – and yet today Sapir's proposal is practically universally accepted. Undeterred by the rebuff, Sapir went on in 1915 to make a further proposal: that the Alaskan languages Haida and Tlingit were remotely related to the great Athabaskan family of western Canada and the south-western USA in a family for which Sapir proposed the name 'Na-Déné'. This proposal too stirred up a storm of controversy, complete with more fulminations from leading Athabaskanists. Today Na-Déné is almost universally accepted as a valid genetic grouping, though there remains some disagreement over the details, as discussed by Campbell and Poser (2008: 280–2).

Thus new proposals of distant genetic connections are very frequently greeted with indifference, with outright rejection, and even with considerable hostility, sometimes spilling over into what comes alarmingly close to personal abuse. Why should this be so? There are several reasons. For one thing, not a few such proposals are undeniably bad. Even the most enthusiastic and open-minded linguist is sometimes forced to conclude, after looking at some proposal, that it is little better than garbage. Data are sometimes grotesquely in error or manipulated in a manner that is transparently irresponsible and occasionally even downright deceptive. Some proposals come from the pens of obvious cranks, and can be dismissed as frankly crazy. But there must be more to it than that, since there are so many instances of proposed relations that were furiously rejected at first and for decades after, only to pass quietly into the body of received knowledge some time later.

Some of these other reasons are ones that are all too human and familiar from other disciplines than linguistics. A little over a century ago (1901), the great phonetician Henry Sweet wrote:

In philology, as in all branches of knowledge, it is the specialist who most strenuously opposes any attempt to widen the field of his methods. Hence the advocate of affinity between the Aryan [IE] and the Finnish [Finno-Ugric] languages need not be alarmed when he hears that the majority of Aryan philologists reject the hypothesis. In many cases this rejection merely means that our specialist has his hands full already, and shrinks from learning a new set of languages . . . Even when this passively agnostic attitude develops into aggressive antagonism, it is generally little more than the expression of mere prejudice against

dethroning Aryan from its proud isolation and affiliating it to the languages of yellow races; or want of imagination and power of realizing an earlier morphological stage of Aryan; or, lastly, that conservatism and caution which would rather miss a brilliant discovery than run the risk of having mistakes exposed.

Sweet here puts his finger on several important points. First, specialization. A linguist who chooses to become a top-flight specialist in one family of languages usually pays the price of knowing little about other families: life is too short for one person to master even three or four sizeable families. Consequently, few linguists are in a position to undertake a magisterial examination of far-flung families that, superficially at least, often appear very different. Moreover, such a specialist is often less than eager to be told that his area of expertise is no more than one corner of a much vaster linguistic edifice, and may thus be apathetic towards, or even resentful of, proposals to incorporate his specialist family into a larger grouping. Second, racism. It is clear, for example, that one of the reasons for the long resistance to the inclusion of Chadic in Afro-Asiatic was that Chadic speakers are incontrovertibly black, while speakers of the best-known Afro-Asiatic languages are white. The nineteenth-century prejudice that regarded language as intimately bound up with culture and with race – a prejudice that has perhaps not entirely disappeared – made it hard for the linguists of the time to accept ‘black’ languages in a ‘white’ family. Third, fear. Anyone who puts forward a sweeping proposal to relate distant families of languages – often languages of which he can have little or no specialist knowledge – runs the risk of being found embarrassingly wrong, if not in the main lines, then surely in many of the details. Even if he’s right, he will often, as we have already seen, encounter professional scorn and hostility from his fellow linguists, resulting at least in damage to the ego and possibly even in more tangible penalties, such as difficulty in obtaining jobs, promotions or research grants. It is far safer to be a solid, distinguished specialist in a small area than to whip up controversy with bold hypotheses.

Such human factors, combined with the undoubtedly real difficulty of finding adequate evidence to support a remote relation, have largely had the effect of relegating the search for remote genetic links to the periphery of historical linguistics. Very many reputable linguists are inclined to think that the search for remote relations is not quite respectable, that it must intrinsically be the preserve, if not of outright cranks, then of misguided linguists who waste their talents in chasing will-o’-the-wisps, in deluding themselves into seeing a handful of chance resemblances as evidence, instead of doing serious work. Nevertheless, I believe that we can gain considerable insight into what reputable scholars might be looking for or feel they have found, in terms of relationships between languages, by evaluating their methodology and analysis.

In 1903, Holger Pedersen proposed a genetic relation between IE, Uralic, Altaic, Afro-Asiatic and Kartvelian; this super-family he dubbed **Nostratic**, from the Latin word *nostras* ‘our countryman’. Pedersen did little work on his idea, and the Nostratic

proposal languished half-forgotten in the literature for decades. In the 1960s, however, V. M. Illich-Svitych and A. Dolgopolsky independently began to work seriously on Pedersen's proposal. Only after several years did they discover their common interest and begin collaboration on Nostratic, to which Illich-Svitych had added a sixth family, Dravidian. Illich-Svitych in particular chose to make the reconstruction of Proto-Nostratic (PN) his life's work, and he undertook an ambitious programme of sifting through the available materials for all six of his families. Reportedly, he was able to reconstruct some 700 PN lexical items to his own satisfaction, as well as a fairly complete PN phonological system and a few aspects of PN grammar. Since his early death, a number of his students and colleagues have collaborated on editing and publishing his papers. A number of volumes have now appeared, allowing us to look at a fairly substantial sample of Illich-Svitych's results. Meanwhile, Dolgopolsky (now working in Israel) and others (notably Mark Kaiser, Vitaly Shevoroshkin and Alexis Manaster-Ramer, and also Allan Bomhard, whose version of Nostratic is, however, very substantially different from the 'Moscow/Ann Arbor' interpretation of the other scholars) have also been contributing to the PN research programme and, of all the proposed super-families, Nostratic is unquestionably the one that has received the greatest amount of detailed work. (Some workers have proposed extending Nostratic to include such additional families as Chukchi-Kamchatkan, Eskimo-Aleut, Sumerian, Nilo-Saharan and Niger-Congo, but these additions are somewhat controversial even among Nostraticists, and we ignore them here.)

It must be stated from the beginning that the proponents of Nostratic, and Illich-Svitych in particular, have tried to adhere firmly to conventional methods in their research. They have worked with reconstructed proto-forms for their six families (in so far as these are available), they have looked for rigorous systematic correspondences among the forms of these proto-languages, they usually assign full value only to items that appear to be attested in at least three of their six families, they have reconstructed a phonological system for PN, and they have tried to identify regular phonological developments leading from PN to each of the six daughter languages.

Here is a sample of Illich-Svitych's Nostratic work taken from Kaiser and Shevoroshkin (1988). Table 8.16 illustrates the proposed systematic correspondences involving the four velar and uvular plosives reconstructed for PN: ***q'*, ***k'*, ***k* and ***g*. (The double asterisk marks a reconstruction itself based on reconstructions for the direct ancestors of the six daughter languages; a prime marks an ejective

Table 8.16 Some Nostratic correspondences (adapted from Kaiser and Sherovshkin 1988)

PN	PIE	PAA	PK	PU	PD	PAIt	[PTk	PM	PTg]
<i>**q'</i>	<i>*k/*kⁱ/*k^w</i>	<i>*k'</i>	<i>*q'</i>	<i>*k</i>	<i>*k</i>	<i>*k^h</i>	<i>*k^h</i>	<i>*k</i>	<i>*x</i>
<i>**k'</i>	<i>*k/*kⁱ/*k^w</i>	<i>*k'</i>	<i>*k'</i>	<i>*k</i>	<i>*k</i>	<i>*k^h</i>	<i>*k^h</i>	<i>*k</i>	<i>*x</i>
<i>**k</i>	<i>*g/*gⁱ/*g^w</i>	<i>*k</i>	<i>*k</i>	<i>*k</i>	<i>*k</i>	<i>*k</i>	<i>*k</i>	<i>*k</i>	<i>*k</i>
<i>**g</i>	<i>*g^h/*g^{hi}/*g^{hw}</i>	<i>*g</i>	<i>*g</i>	<i>*k</i>	<i>*k</i>	<i>*g</i>	<i>*k^h</i>	<i>*g</i>	<i>*g</i>

(‘glottalized’) consonant). Observe that Illich-Svitych works with a very traditional version of PIE phonology, one that precedes the ‘glottalic’ hypothesis, includes no laryngeals and recognizes a distinct ‘palatal’ series of obstruents for PIE, such as **kʲ*; this palatal series has been traditionally recognized in the standard handbooks but it is rejected by many specialists today on the ground that the evidence for it is scanty. The table also includes the reflexes in the three main daughters of Proto-Altaic. The languages cited are Proto-Indo-European (PIE), Proto-Afro-Asiatic (PAA), Proto-Kartvelian (PK), Proto-Uralic (PU), Proto-Dravidian (PD), Proto-Altaic (PAlt) and the three daughters of this last, Proto-Turkic (PTk), Proto-Mongolian (PM) and Proto-Tungusic (PTg).

The reason for the three reflexes in each case in PIE, Illich-Svitych argues, is as follows. The PN vowel system collapsed in PIE, but certain qualities of the old vowels were retained in a preceding velar plosive, as follows: before a front vowel, an ancestral velar (or uvular) became a palatalized plosive (such as **kʲ*) in PIE; before a rounded vowel, an ancestral velar (or uvular) became a labialized plosive (such as **kʷ*); before **a*, an ancestral velar (or uvular) became a plain plosive (such as **k*). Schematically, then, using K as a cover symbol for any back plosive, and E and U as cover symbols for front vowels and rounded vowels, respectively, PIE supposedly developed as follows: ***KU-* > PIE **Kʷe-*, ***KE-* > PIE **Kʲe-*, and ***Ka-* > PIE **Ke-*.

Here now are some examples of putative cognates exhibiting these systematic correspondences:

PN ***qʻ-*:

PN ***qʻ[iw]IV* ‘hear’: PIE **kʲleu-* ‘hear’; PK **qʻ* ur- ‘ear’; PAlt **[kʰ]ul-* ‘ear’; PU **küle* ‘hear’; PD **kēl-* ‘hear’.

PN ***qʻarV* ‘smell, reek’: PIE **ker-m-* ‘reeking plant’; PAA **kʻ r-* ‘smell’; PK **qʻ (a)r-* ‘reek’.

PN ***kʻ-*:

PN ***kʻ udi* ‘tail’: ? PIE **kaud-* ‘tail’; ? PAA **kʻ dr* ‘tail’; PK **kʻ wad-l *kʻ ud-* ‘tail’; PAlt **kʰ udi-rga* ‘tail’.

PN ***kʻ olV* ‘round’: PIE **kʷel-* ‘round, revolve’; PAA **kʻ (w)l* ‘round, revolve’; PK **kʷwer-/*kʷwal-* ‘round’; PAlt **KolV-* ‘mix, rotate’; ? PU **kola* ‘circle’; ? PD **ku/ül-* ‘round, whirl’.

PN ***kʻ áčä* ‘cut’: PIE **kʲes-* ‘cut’; PAA **kʻ s* ‘cut, beat, break’; PK **kʻ áč-* ‘cut’; PAlt **kʲäsä* ‘cut’; PU **kääcV/*kečä* ‘knife, sharp point’; ? PD **kacc-* ‘bite, sting’.

PN ***kʻ adV* ‘weave’: PIE **ket-* (Slavic **koti-* ‘wicker, wattle’); PAA **kʻ d-* ‘build’; PK **kʻ ed-* ‘build’; PD **katt-* ‘tie together, build; woven thing, vessel’.

PN ***k-*:

PN ***küni* ‘wife, woman’: PIE **gʷen-* ‘wife, woman’; PAA **k(w)n/*knw* ‘wife, woman’; PTk **küni* ‘one of the wives (in polygamy)’.

PN ***kālU* ‘female in-law’: PIE **g'lōu-* ‘brother’s wife’; PAA **kl(l)* ‘sister-in-law, bride’; ? PK **kal-* ‘woman’; PAlt **kāli(n)* ‘wife of younger brother or son; sister’s husband’; PD **kal-* ‘father’s brother’s wife’.

PN ***kamu* ‘grasp, grab, squeeze’: PIE **gem-* ‘grab, take, squeeze’; PAA **km-* ‘grab, take, squeeze’; PAlt **kamu-* ‘seize, take, squeeze’; PU **kamo-* > **kama-lV*, **koma-rV* ‘handful’; PD **kamV-* ‘grab, take, hold’.

PN ***g-*:

PN *gUrV* ‘live coals’: PIE **g^{hw}er-* ‘burn, hot, live coals’; PAA **g(w)r* ‘fire coals’; ? PAlt **gur(V)-* ‘live coals; catch fire’.

PN ***gilV* ‘sickly; bad state, grief’: PIE **g^hi[e]l-* ‘illness, damage’; ? South Arabian (AA) **gil* ‘illness’; PK **gl-* ‘grief’; ? PTg **gil(a)-* ‘be sad, grieve’.

PN ***gara* ‘thorn, thorny branch’: PIE **g^her-/ *g^herH-/ *g^hreH-* ‘thorn, sharp point, branch/twig’; PAlt **gara* ‘sharp point, branch, conifer’; PU **kara* ‘thorn, branch, twig, conifer’; PD **kar(a)-* ‘thorn, sharp point’.

This small sample can do no more than provide some of the flavour of Nostratic work. Nevertheless, it should be obvious that such work lies solidly within the mainstream of comparative methodology, and that it is not riddled with wild speculations or outrageous assumptions. Consequently, one might have expected that the Nostratic hypothesis would have received a certain amount of interest, and even enthusiasm, from the linguistic establishment. This, however, has not been the case.

For one thing, until very recently, nearly all the relevant work was published in Russian, a language that few Western linguists can read comfortably. Moreover, the Western linguists who could read the work were often those who were by training and inclination most deeply suspicious of proposed remote relations. On top of this, several fairly distinguished Russian linguists fiercely attacked the Nostratic work, which did little to encourage its dissemination to the West. As a result, the Nostratic hypothesis for some years remained, for most Western linguists, little more than a rumour. Curiously, what finally seems to have broken the logjam was two articles in popular American magazines dealing with remote relations generally (Ross 1991; Wright 1991), in which the Nostratic hypothesis was mostly discussed by linguists who were critical of it.

Since the early 1990s the Nostratic hypothesis has become far more prominent than formerly. Translations, reviews and original articles are beginning to appear in English in some numbers. Manaster-Ramer (1993) has provided the first detailed review in English of the three volumes based on Illich-Svitych’s work; the review is critical but supportive, and Manaster-Ramer pleads with his fellow linguists to accord Nostratic a more respectful and sympathetic reception than it has so far managed to obtain.

Most linguists have apparently adopted a ‘wait-and-see’ attitude to the Nostratic hypothesis, while some are openly sceptical or even hostile. A particularly interesting critique of Nostratic has been advanced by Ringe, who argues that the statistical

distribution of putative cognates across the six branches of the proposed family is indistinguishable from a chance distribution and hence that Illich-Svitych's putative cognates might be nothing more than chance resemblances (Ringe 1995); Ringe compares the distribution of cognates within the IE family and shows that this is very different from a chance distribution.

In a volume of papers edited by Salmons and Joseph (1998), the views of leading Nostraticists, 'Agnostics' and their opponents are represented in a fair-minded and scholarly manner. Manaster-Ramer *et al.* (1998: 79) claim that 'we will soon develop a reconstruction of Nostratic, consistent with what we know of the attested daughter languages, and plausible as real language once spoken by real people'. Lyle Campbell notes (1998: 142) that:

given the attention it has received in general, however, the [Nostratic] hypothesis definitely deserves more extensive investigation and in particular careful and extensive evaluation. However, to confess my own opinion, based on what I have seen, I doubt that further research will come up with significantly greater support for the overall hypothesis.

(These views are expanded upon in Campbell and Poser 2008: 243–64). Part of this – respectful – scepticism seems based on the fact that so much needs to be done to achieve even a basic consensus on what Nostratic is comprised of or how its internal relationships are to be judged.

Only time will tell, of course, whether the Nostratic family will ever achieve even the measure of support enjoyed by, say, the controversial Altaic family, let alone IE. If Nostratic does finally win widespread support, however, one thing is clear: the time depth tolerated by the mainstream view described at the beginning of this chapter will have to be significantly increased. If there ever was a PN language, it must have been spoken at least 10,000 years ago, and those who have considered the question seem inclined to suggest a date of 15,000 years ago. Can we therefore say that this is a set of reconstructions too far?

Further reading

There is an abundant literature on the comparative method. Classic presentations include Bloomfield (1933: Chapter 18), Hoenigswald (1950 (very brief), 1960 (book-length) and 1973) and Thieme (1964). Recent brief introductions include Baldi (1991b) and the articles in Bright (1992) and Asher (1994). All other textbooks of historical linguistics devote some attention to the comparative method; particularly noteworthy is Anttila (1988), whose chapter on the topic is exceptionally detailed and highly recommended. Also highly recommended is Fox (1995), a book-length treatment of reconstruction and related issues. Among the many examples of the successful application of the comparative method, I would particularly draw attention to Bloomfield (1925, 1946) on Proto-Algonquian and Hall (1950,

1976) on Proto-Romance. A number of readable comparative studies can be found in Baldi (1990), some of them reprinted in Baldi (1991a). Campbell and Mithun (1979) contains a good deal of work on Native American languages; Campbell (2000) considers the histories of, and connections between, these languages in greater depth. For those of you interested in the Nostratic debate, probably the best starting point is the essays found in Salmons and Joseph (1998), along with Campbell and Poser (2008), discussed above. We will return to distant relationships in [Chapter 12](#).

For an historical account of the development of the comparative method and of the Neogrammarian Hypothesis, see the article on historical linguistics in Asher (1994), which is brief, or Pedersen (1931), especially [Chapter 7](#). Vennemann and Wilbur (1972) examines the confrontation between Schuchardt and the Neogrammarians.

Benveniste (1954) is an illuminating study of semantic reconstruction, while [chapter 12](#) of Harris and Campbell (1995) is a textbook examination of syntactic reconstruction, still of great use.

Exercises

Exercise 8.1

Generally speaking, a finite Basque verb agrees in person and number with its subject, without exception. It may also agree with its direct object in person and number; there is, however, no overt agreement marker for a third-singular object:

Neska ikusi dut
girl-the saw Aux-I
'I saw the girl'

Neskak ikusi ditut
girls-the saw Aux-them-I
'I saw the girls'

When, as here, the direct object is definite, object agreement is obligatory in all dialects and has been so since our earliest texts. But when the object is indefinite, there are two possibilities: agreement or no agreement:

Neska bat ikusi dut
girl a saw Aux-I
'I saw a girl'

Neska batzuk ikusi dut
girl some saw Aux-I
'I saw some girls'

Neska batzuk ikusi ditut
girl some saw Aux-them-I
'I saw some girls'

The distribution of these last two forms is as follows. In the eastern dialects, absence of agreement is usually obligatory. In the central dialects, agreement is obligatory. In the westernmost (Bizkaian) dialect, agreement is obligatory today but was optional in the earliest texts in that dialect.

Explain what has been happening to object agreement in Basque, and describe the earliest reconstructible state of affairs. Comment on the geographical distribution of the two patterns.

Exercise 8.2

A number of Indo-European languages have a demonstrative pronoun meaning ‘that’ which is inflected in a similar but decidedly irregular manner in all of them (the Old English item is the source of modern *that* and *the*, and the Greek word *toō* means ‘the’). The similarities are great enough for linguists to have managed to reconstruct the paradigm of the PIE demonstrative. Table 8.17 lists the forms in several languages; bracketed forms are innovations not directly inherited from PIE. The languages are Sanskrit (Skt), Greek, Lithuanian (Lith), Gothic (Go) and Old English (OE) (data from Anttila 1988: 358).

Table 8.17 Some demonstrative paradigms in early IE varieties

	PIE	Skt	Greek	Lith	Go	OE
NomSgMasc	*so	sá[s]	ho	[tàs]	sa	sē [pē]
AccSgMasc	*tom	tám	tón	tā	þan[a]	þone
GenSgMasc	*tosyo	tásya	toío	[tō]	þis	þæs
DatSgMasc	*tasmōi	tásmāi	[tōi]	tamui	þamma	þæm
NomAccSgNeut	*tod	tád	tó	ta[ī]	þat[a]	þæt
NomPlMasc	*toi	té	toí, [hoi]	tie	þai	þā

The reconstructed PIE forms are unusual in several respects. First, the *s/-t* alternation in the stem is unique. Second, the nominative singular masculine lacks the usual PIE case-ending *-s. Third, the *-sm-* formative in the dative is unparalleled.

Now, propose answers to the following questions. In the nominative singular masculine:

- How did Sanskrit acquire the form *sás*?
- How did Old English acquire the form *þe*?
- How did Lithuanian acquire the form *tàs*?

Otherwise:

- How did some dialects of Greek acquire the nominative plural masculine form *hoi*?
- Where might you look for a source for the final *-a* in the Gothic accusative singular forms, and for the remaining innovations in Greek and Lithuanian?

Exercise 8.3

The word-forms in [Table 8.18](#), taken from four Turkic languages, illustrate a number of monosyllabic nouns and numerals with inflectional and derivational suffixes. So far as is possible with these very scanty data propose a reconstructed Proto-Turkic form from each of the 16 items, and describe the changes that have occurred in each language. Point out and discuss any difficulties. Here <š, č, j> = IPA [ʃ tʃ dʒ] and <ü, ö, ı> IPA [y ø u].

Table 8.18 Turkic monosyllabic nouns with suffixes: a comparison (adapted from Hahn 1991)

	Qazaq	Uzbek	Uyghur	Turkish
'my way'	<i>jolım</i>	<i>yolım</i>	<i>yolum</i>	<i>yolum</i>
'my lake'	<i>kölüm</i>	<i>kolım</i>	<i>kölüm</i>	<i>gölüm</i>
'salty'	<i>tuzdı</i>	<i>tuzlı</i>	<i>tuzluq</i>	<i>tuzlu</i>
'dairy'	<i>sütti</i>	<i>sütli</i>	<i>sütlük</i>	<i>sütlü</i>
'our way'	<i>jolımız</i>	<i>yolımız</i>	<i>yolumız</i>	<i>yolumuz</i>
'our lake'	<i>kölimiz</i>	<i>kolımız</i>	<i>kölümüz</i>	<i>gölümüz</i>
'tenth'	<i>onınşı</i>	<i>onınçı</i>	<i>?onunçı</i>	<i>onunju</i>
'third'	<i>üшінші</i>	<i>učinči</i>	<i>?üčünči</i>	<i>üçünjü</i>
'the way's'	<i>joldı</i>	<i>yolni</i>	<i>yolni</i>	<i>yolun</i>
'the lake's'	<i>köldı</i>	<i>kolni</i>	<i>kölni</i>	<i>gölün</i>
'salt-free'	<i>tuzsız</i>	<i>tuzsiz</i>	<i>tuzsiz</i>	<i>tuzsuz</i>
'milk-free'	<i>sütsiz</i>	<i>sutsiz</i>	<i>sütsiz</i>	<i>sütsüz</i>
'its way'	<i>joli</i>	<i>yoli</i>	<i>yoli</i>	<i>yolu</i>
'its lake'	<i>köli</i>	<i>koli</i>	<i>köli</i>	<i>gölü</i>
'the salt' (Acc)	<i>tuzdı</i>	<i>tuzni</i>	<i>tuzni</i>	<i>tuzu</i>
'the milk' (Acc)	<i>sütti</i>	<i>sutni</i>	<i>sütni</i>	<i>sütü</i>

Exercise 8.4

Tabla and Sentani are two closely related Papuan languages of New Guinea. Consider the cognates listed in [Table 8.19](#), identify the systematic correspondences, and reconstruct forms for Proto-Tabla-Sentani. Comment on your decisions and on any difficulties. Material in parentheses is not cognate (data from Gregerson and Hartzler 1987).

Table 8.19 Correspondences between two closely related Papuan languages (adapted from Gregerson and Hartzler 1987)

	Tabla	Sentani
1. 'arrow'	<i>pəra</i>	<i>fəla</i>
2. 'bad'	<i>peko</i>	<i>peyo</i>
3. 'bedbug'	<i>opi</i>	<i>obi</i>
4. 'bitter'	<i>pet</i>	<i>fær</i>
5. 'blood'	<i>saa</i>	<i>haa</i>
6. 'casuarina'	<i>jaru</i>	<i>jalu</i>
7. 'cheek'	<i>katu</i>	<i>kahu</i>
8. 'coconut'	<i>to</i>	<i>ho</i>
9. 'daughter'	<i>womi</i>	<i>omi</i>
10. 'day'	<i>dai(sjə)</i>	<i>rai</i>

Table 8.19 (cont'd)

	<i>Tabla</i>	<i>Sentani</i>
11. 'dead'	tətə	hərə
12. 'dirty'	niki	niki
13. 'dog'	joku	joɣu
14. 'drum'	waku	wayu
15. 'eat'	anə-	anə-
16. 'egg'	doŋ	ro
17. 'excrement'	etə	əhə
18. 'fat'	ju	ju
19. 'fence'	erə	ələ
20. 'fish'	ka	ka
21. 'frog'	sika	hikæ
22. 'good'	poi	foi
23. 'hand'	mə	mə
24. 'hole'	buru	pulu
25. 'hut'	parə	falə
26. 'in front of'	bə(tu)	pə
27. 'leg'	oto	oro
28. 'life'	wari	wali
29. 'like' (v.)	kəna	kəna
30. 'louse'	miŋ	mi
31. 'mango'	(e)wei	wæi
32. 'matoa'	emə	əmə
33. 'middle'	noro	nolo
34. 'moon'	oko	oyo
35. 'nest'	narə	nalə
36. 'path'	nipi	nibi
37. 'penis'	muŋ	mu
38. 'pig'	opo	obo
39. 'pus'	jəmə	jəmə
40. 'raw'	koru	kolu
41. 'road'	nipi	nibi
42. 'rope'	sa	ha
43. 'skirt'	maro	malo
44. 'soil'	kani	kani
45. 'sugar cane'	juŋ	ju
46. 'sun'	su	hu
47. 'tail'	dəmə	ramə
48. 'three'	namɪŋ	name
49. 'tongue'	peu	fæu
50. 'tree trunk'	no	no
51. 'two'	be	pe
52. 'very'	təre	hələ
53. 'village'	jo	jo
54. 'vomit'	mike	mikæ
55. 'water'	bu	pu
56. 'west'	wai	wai
57. 'wind'	aru	alu

Exercise 8.5

Table 8.20 lists the forms of a number of Basque words in four dialects: Bizkaian (B), Gipuzkoan (G), Lapurdian (L) and Zuberoan (Z). Identify the systematic correspondences, and reconstruct the forms of the words in an earlier stage of Basque. Comment on your decisions and on any difficulties. Note that <s> and <ś> represent laminal and apical sibilants, <ts> and <tś> are the corresponding affricates, <ñ> is a palatal nasal, <ɬ> is a palatal lateral, <r> is an apical trill, <ɾ> is an apical tap, <ʀ> is a voiced uvular fricative, and <ü> is a front rounded vowel.

Table 8.20 Comparative Basque dialect forms

	B	G	L	Z
1. 'bird'	tʃori	tʃori	fori	foi
2. 'blind'	itsu	itsú	itsú	ütśü
3. 'bowel'	ešte	ešte	hertse	hertse
4. 'bring'	ekari	ekari	ekhari	ekhari
5. 'crazy'	śoro	soro	soro	soo
6. 'daughter'	alaba	alaba	alhaba	alhaba
7. 'donkey'	ašto	ašto	ašto	ašto
8. 'eat'	dʒan	xan	ʃan	Zan
9. 'eight'	śortsi	sortsi	sortsi	sortsi
10. 'fire'	śu	śu	śu	śu
11. 'five'	bošt	bošt	borts	borts
12. 'flute'	tʃirula	tʃirula	ʃirula	ʃiula
13. 'grapes'	maats	maatś	mahatś	mahatś
14. 'head'	buru	buru	buru	büü
15. 'hen'	o/o	o/o	oilo	o/o
16. 'hit'	dʒo	xo	ʃo	zo
17. 'house'	etʃe	etʃe	etʃe	etʃe
18. 'long'	luše	luse	luse	lüse
19. 'new'	beri	beri	beri	beri
20. 'old woman'	atso	atśo	atśo	atśo
21. 'proud'	aro	aro	haro	haro
22. 'salt'	gats	gats	gats	gats
23. 'seeking'	bi/la	bi/la	bilha	bilha
24. 'sir'	dʒaun	xaun	ʃaun	ʒaün
25. 'six'	śei	śei	śei	śei
26. 'sound'	śoñu	śoñu	soinu	śoñü
27. 'stone'	ari	ari	hari	hari
28. 'ten'	amar	amar	hamar	hamar
29. 'than'	baño	baño	baino	baño
30. 'wheat'	gari	gari	gari	gai
31. 'window'	leio	leio	leiho	leiho
32. 'word'	its	its	hits	hits
33. 'yellow'	ori	ori	hori	hoi
34. 'yesterday'	atso	atso	atso	atso
35. 'you'	śu	su	su	sü

Exercise 8.6

Most of the examples of reconstruction we have seen so far involve isolated lexical items, but linguists are not always so fortunate. Not infrequently, we have to work with highly inflected forms of lexical stems or roots. **Tables 8.21–8.23** list three forms of a number of verbs in three Slavonic languages. Try to reconstruct a single invariant ancestral (Proto-Slavonic) form for each verb stem, and reconstruct as much as

you can of the Proto-Slavonic morphology. Note that certain verbs in some languages exhibit aspectual prefixes or suffixes in some or all forms; these affixes you will need to identify and to remove from consideration. The diacritic <˘> marks a palatalized consonant; Czech ř is a palatalized rhotic; Russian ě denotes a former e which has developed to o.

Table 8.21 Comparative Slavonic reconstruction (Russian)

	<i>Infinitive</i>	<i>1 Sg present</i>	<i>Past (masc.)</i>
1. 'be able'	<i>moč</i>	<i>mogu</i>	<i>mog</i>
2. 'burst'	<i>pučit'</i>	<i>jpuču</i>	<i>pučil</i>
3. 'fall'	<i>pas't</i>	<i>padnu</i>	<i>pal</i>
4. 'flash'	<i>m'ignut'</i>	<i>m'ignu</i>	<i>m'ig</i>
5. 'flow'	<i>prat'eč</i>	<i>prat'eku</i>	<i>pratek</i>
6. 'help'	<i>pamoč</i>	<i>pagu</i>	<i>pamog</i>
7. 'lead'	<i>v'es't'i</i>	<i>v'edu</i>	<i>v'el</i>
8. 'pierce'	<i>bodnut'</i>	<i>bodnu</i>	<i>bodnul</i>
9. 'say'	<i>atr'ečs'a</i>	<i>atr'ekus'</i>	<i>atr'eks'a</i>
10. 'shake'	<i>tr'as't'i</i>	<i>tr'asu</i>	<i>tr'as</i>
11. 'steal'	<i>kras't</i>	<i>kradu</i>	<i>kral</i>
12. 'tighten'	<i>t'agat'</i>	<i>t'agaju</i>	<i>t'agal</i>

Table 8.22 Comparative Slavonic reconstruction (Czech)

	<i>Infinitive</i>	<i>1 Sg Present</i>	<i>Past (masc.)</i>
1. 'be able'	<i>motsi</i>	<i>mohu</i>	<i>mohl</i>
2. 'burst'	<i>puknouti</i>	<i>puknu</i>	<i>pukl</i>
3. 'fall'	<i>padnout'i</i>	<i>padnu</i>	<i>padl</i>
4. 'flash'	<i>mihnouti</i>	<i>mihnu</i>	<i>mihl</i>
5. 'flow'	<i>prote:tsi</i>	<i>proteku</i>	<i>protekl</i>
6. 'help'	<i>pomotsi</i>	<i>pomohu</i>	<i>pomohl</i>
7. 'lead'	<i>ve:st'i</i>	<i>vedlu</i>	<i>vedl</i>
8. 'pierce'	<i>bodnout'i</i>	<i>bodnu</i>	<i>bodl</i>
9. 'say'	<i>ři:tsi</i>	<i>řeknu</i>	<i>řekl</i>
10. 'shake'	<i>třa:st'</i>	<i>třesu</i>	<i>třa:sl</i>
11. 'steal'	<i>kra:st'i</i>	<i>kradu</i>	<i>kradl</i>
12. 'tighten'	<i>sta:hnutí</i>	<i>sta:hnu</i>	<i>sta:hl</i>

Table 8.23 Comparative Slavonic reconstruction (Serbo-Croatian)

	<i>Infinitive</i>	<i>1 Sg present</i>	<i>Past (masc.)</i>
1. 'be able'	<i>moči</i>	<i>mogu</i>	<i>mogao</i>
2. 'burst'	<i>jpuči</i>	<i>puknem</i>	<i>pukao</i>
3. 'fall'	<i>pasti</i>	<i>padnem</i>	<i>pao</i>
4. 'flash'	<i>mignuti</i>	<i>mignem</i>	<i>migao</i>
5. 'flow'	<i>proteči</i>	<i>protečem</i>	<i>protekao</i>
6. 'help'	<i>pomoči</i>	<i>pomognem</i>	<i>pomogao</i>
7. 'lead'	<i>povesti</i>	<i>pvedem</i>	<i>poveo</i>
8. 'pierce'	<i>bosti</i>	<i>bodem</i>	<i>bo</i>
9. 'say'	<i>reči</i>	<i>reknem</i>	<i>rekao</i>
10. 'shake'	<i>tresti</i>	<i>tresem</i>	<i>tresao</i>
11. 'steal'	<i>krasti</i>	<i>kradem</i>	<i>krao</i>
12. 'tighten'	<i>steči</i>	<i>stegnem</i>	<i>stegao</i>

Internal reconstruction

The comparative method is the most important of the historical methods, but it can be used only when we have identified two or more languages sharing a common ancestor. It cannot be applied to a language with no known relatives, and it may be of minimal use with a language whose only identifiable relatives are very distantly related to it. In such circumstances, we must fall back on a second method, one that requires no data from related languages. This is the **internal method**, which can sometimes be applied to a single language so as to allow us to reconstruct important characteristics of earlier stages of that language; such reconstruction is **internal reconstruction**. In this chapter, we'll look at how internal reconstruction can be carried out.

9.1 A first look at the internal method

The term *internal reconstruction* is in fact applied to several slightly different procedures. In the simplest and most central of these, we proceed as follows:

1. We note that a certain pattern is visible in the language.
2. We note that some forms are exceptions to this pattern.
3. We hypothesize that the exceptional forms originally conformed to the pattern.
4. We posit an ancestral stage of the language with no exceptional forms.
5. We identify the changes that disrupted the original perfectly regular pattern and led to the introduction of exceptional cases.

As always, when carrying out step 5 we attempt to ensure that the changes we are positing are as natural and comprehensible as possible.

Here is a simple example. A certain class of Latin verbs forms its first-singular present by suffixing *-o* to the stem, its infinitive by suffixing *-ere*, its first-singular perfect by suffixing *-si* and its supine by suffixing *-tum*. (Note that Latin *x* represents [ks] and is equivalent to *cs*.)

- | | | | | |
|-----------------|-----------------|----------------|-----------------|---------|
| 1. <i>carpo</i> | <i>carpere</i> | <i>carpsi</i> | <i>carptum</i> | 'pluck' |
| <i>dico</i> | <i>dicere</i> | <i>dixi</i> | <i>dictum</i> | 'say' |
| <i>duco</i> | <i>ducere</i> | <i>duxi</i> | <i>ductum</i> | 'lead' |
| <i>repo</i> | <i>repere</i> | <i>repsi</i> | <i>reptum</i> | 'creep' |
| <i>scalpo</i> | <i>scalpere</i> | <i>scalpsi</i> | <i>scalptum</i> | 'carve' |
| <i>serpo</i> | <i>serpere</i> | <i>serpsi</i> | <i>serptum</i> | 'crawl' |

However, a number of verbs in this class show slightly anomalous behaviour. Here is one group:

2.	<i>cingo</i>	<i>cingere</i>	<i>cinxi</i>	<i>cinctum</i>	‘gird’
	<i>figo</i>	<i>figere</i>	<i>fixi</i>	<i>fictum</i>	‘fix’
	<i>finjo</i>	<i>fingere</i>	<i>finxi</i>	<i>finctum</i>	‘form’
	<i>infligo</i>	<i>infligere</i>	<i>infixi</i>	<i>inflictum</i>	‘strike on’
	<i>iungo</i>	<i>iungere</i>	<i>iunxi</i>	<i>iunctum</i>	‘join’
	<i>nubo</i>	<i>nubere</i>	<i>nupsi</i>	<i>nuptum</i>	‘marry’
	<i>pingo</i>	<i>pingere</i>	<i>pinxi</i>	<i>pictum</i>	‘paint’
	<i>rego</i>	<i>regere</i>	<i>rexī</i>	<i>rectum</i>	‘rule’
	<i>scribo</i>	<i>scribere</i>	<i>scripsi</i>	<i>scriptum</i>	‘write’
	<i>stringo</i>	<i>stringere</i>	<i>strinxi</i>	<i>strictum</i>	‘strip’
	<i>sugo</i>	<i>sugere</i>	<i>suxi</i>	<i>suctum</i>	‘suck’
	<i>tego</i>	<i>tegere</i>	<i>texi</i>	<i>tectum</i>	‘cover’
	<i>ungo</i>	<i>ungere</i>	<i>unxi</i>	<i>unctum</i>	‘anoint’

On the basis of the stem exhibited in the first two columns, we would have expected **figsi*, **figtum* for ‘fix’, **nubsi*, **nubtum* for ‘marry’, and so on throughout the list. Let us therefore posit that these *were* the forms in some ancestral variety of Latin. What changes do we now have to recognize on the way to classical Latin? Easy: a voiced plosive *b* or *g* is devoiced when it is followed by a voiceless consonant like *s* or *t*. This is a perfectly natural phonological change, one of voicing assimilation in clusters. Is our scenario plausible?

What we need to do is to look to see if there are any Latin words with clusters like *bs* and *gt*. As it happens, there are none, exactly as our account predicts. All such clusters, wherever they existed, must have undergone voicing assimilation. (There are a few *apparent* exceptions, like *urbs* ‘city’, but these are purely orthographic: this word was in fact pronounced [urps].) Note, by the way, that we might in principle have tried the opposite reconstruction. We might have posited that the third and fourth columns represent the ancestral state of affairs, and that verb stems like **cinc-*, **fic-* and **nup-* might have undergone voicing of plosives in intervocalic position or after a nasal, so that original **cinco*, **fico* and **nupo*, for example, would have been voiced to the attested *cingo*, *figo* and *nubo*. Voicing in such positions is also a perfectly natural process, so you might think at first glance that this second account was equally plausible. But it’s not.

Look again at the *first* set of forms, the ones I described as regular. Observe that forms like *carpo*, *dico* and *duco* do *not* undergo any intervocalic voicing. So, if we tried to postulate originally voiceless plosives in the second group, we could give a good-looking account of that group, but we would then be unable to explain the first group. Positing original voiced plosives in the second group leads to no such difficulties, and so that is the solution we adopt.

This is a point you must always bear in mind in any historical work, not just in internal reconstruction. If you propose a particular change in order to explain some problematic data, you must then check to see if your proposed change messes up some other data that were not a problem before. Failure to do this will lead you quickly into serious trouble.

So: we reconstruct the verb for ‘cover’ as the originally entirely regular *tego*, *tegere*, **tegsi*, **tegtum* by the process of internal reconstruction, and we posit a single phonological change, a voicing assimilation applying to obstruent clusters.

We are not done with this class of Latin verbs, because other verbs in this class exhibit different anomalies. Here are a few; note that *qu* and *gu* represent [kw] and [gw], respectively, while *v* represents [w]:

3.	<i>como</i>	<i>comere</i>	<i>compsi</i>	<i>comptum</i>	‘deck’
	<i>demo</i>	<i>demere</i>	<i>dempsi</i>	<i>demptum</i>	‘take off’
	<i>promo</i>	<i>promere</i>	<i>prompsi</i>	<i>promptum</i>	‘bring out’
	<i>sumo</i>	<i>sumere</i>	<i>sumpsi</i>	<i>sumptum</i>	‘take up’
4.	<i>coquo</i>	<i>coquere</i>	<i>coxi</i>	<i>coctum</i>	‘cook’
	<i>extinguo</i>	<i>extinguere</i>	<i>extinxi</i>	<i>extinctum</i>	‘extinguish’
5.	<i>flecto</i>	<i>flectere</i>	<i>flexi</i>	<i>flectum</i>	‘bend’
	<i>necto</i>	<i>nectere</i>	<i>nexi</i>	<i>nectum</i>	‘bind’
6.	<i>cedo</i>	<i>cedere</i>	<i>cessi</i>	<i>cessum</i>	‘yield’
	<i>claudio</i>	<i>claudere</i>	<i>clausi</i>	<i>clausum</i>	‘close’
	<i>divido</i>	<i>dividere</i>	<i>divisi</i>	<i>divisum</i>	‘divide’
	<i>explodo</i>	<i>explodere</i>	<i>explosi</i>	<i>explosum</i>	‘hiss off’
	<i>laedo</i>	<i>laedere</i>	<i>laesi</i>	<i>laesum</i>	‘hurt’
	<i>ludo</i>	<i>ludere</i>	<i>lusi</i>	<i>lusum</i>	‘play’
	<i>rado</i>	<i>radere</i>	<i>rasi</i>	<i>rasum</i>	‘scrape’
	<i>rodo</i>	<i>rodere</i>	<i>rosi</i>	<i>rosum</i>	‘gnaw’
7.	<i>gero</i>	<i>gerere</i>	<i>gessi</i>	<i>gestum</i>	‘carry’
	<i>uro</i>	<i>urere</i>	<i>ussi</i>	<i>ustum</i>	‘burn’
8.	<i>traho</i>	<i>trahere</i>	<i>traxi</i>	<i>tractum</i>	‘draw’
	<i>veho</i>	<i>vehere</i>	<i>vexi</i>	<i>vectum</i>	‘carry’
	<i>vivo</i>	<i>vivere</i>	<i>vixi</i>	<i>victum</i>	‘live’
9.	<i>edo</i>	<i>edere</i>	<i>edi</i>	<i>esum</i>	‘eat’
	<i>emo</i>	<i>emere</i>	<i>emi</i>	<i>emptum</i>	‘buy’
	<i>excudo</i>	<i>excudere</i>	<i>excudi</i>	<i>excusum</i>	‘hammer out’
	<i>premo</i>	<i>premere</i>	<i>pressi</i>	<i>pressum</i>	‘press’
	<i>rumpo</i>	<i>rumpere</i>	<i>rupi</i>	<i>ruptum</i>	‘break’

Try to reconstruct the ancestral forms of each of these subclasses of verbs. Each subgroup is perhaps a little more difficult than the one before it, and subgroup 9 is a mixed bag of difficult forms.

Subgroup 3 consists of stems ending in *m*, and we might have expected the last two columns to show forms like **comsi* and **comtum*. Instead, we find *compsi* and *comptum*, and so on. But this is easy to understand: it is difficult to coordinate all the speech organs perfectly enough to move from *m* to a voiceless coronal obstruent, and the slightest mistiming will immediately produce an epenthetic *p* in between. By way of confirmation, we never find Latin words with the clusters *ms* and *mt*; instead, we find only *mps* and *mpt*.

Subgroup 4 is not much harder. These verbs have stems in *kw* and *gw*, and we might have expected **co[kw]si* and **co[kw]tum* in the last two columns. But such clusters are almost impossible to pronounce (and are not found at all in Latin). We may therefore conclude that the glide [w] was simply lost in these clusters, while remaining before a vowel.

Subgroup 5 shows stems in *ct*, and we might have expected forms like **flectsi* and **flecttum*. Again these are awkward clusters, and we may reasonably infer that **cts* was reduced to *cs* (= *x*), while **ctt* was reduced to *ct*, yielding the observed forms.

Subgroup 6 apparently shows stems in *d*, and so we could posit forms like **rodsi* and **rodtum* for the verb meaning ‘gnaw’, and so on. Now, by parallelism with subgroup 2, we might expect **ds* to be devoiced to **ts*, but that’s not what we find – and in fact *ts* is absolutely unattested in Latin. It looks, then, as though the original cluster **ds* was reduced all the way to *s*, producing the observed result, and that the cluster **dt*, also unattested in Latin, was likewise reduced to *s*. This explains all the verbs in this subgroup except for the one meaning ‘yield’, where we find *cessi* and *cessum* in place of the now expected **cesi* and **cesum*. This is a puzzle: we might have expected the clusters **ds* and **dt* to be reduced first to **ss* and then to the observed *s*, but this verb does not appear to have developed like the others. Either it has developed irregularly, or its original form was something more complicated than we have assumed, such as perhaps **ceddo*, **ceddere*. We cannot tell, and here we have reached the limits of what we can achieve with internal reconstruction.

Subgroup 7 appears to show stems in *r*, and so our first guess is to posit for the last two columns forms like **gersi* and **gertum*. This means, of course, that we must also postulate the development of **rs* to *ss* and of **rt* to *st*. The first of these looks phonetically natural enough, but it is troubling to find, on looking, that Latin has words like *ursus* ‘bear’ and *cursus* ‘course’, which have apparently undergone no such change. The second change does not seem particularly natural, and again Latin has plenty of words like *certus* ‘certain’ and *fortis* ‘strong’, which have undergone no such change. We have a problem. But there is no rule in linguistics that says we have to take the leftmost column as representing the most conservative form of a stem, so let’s make the opposite choice. Let’s try positing stems **ges-* and **us-* for these verbs. That means that the last two columns are perfectly regular, but we are now postulating **geso*, **gesere* for ‘carry’ and **uso*, **usere* for ‘burn’. Consequently, we are forced to posit a quite different sort of phonological change: the change of original **s* to *r* between vowels. Ever seen that before? Yes, in [Section 4.1](#) we observed that original **s* did indeed develop into *r* in intervocalic position in early Latin, producing alternations like *flōs* ‘flower’, plural *flōres*. We have solved our problem: these verbs had stems ending in *s*.

Subgroup 8 is decidedly nastier. The last two columns suggest stems ending in *c* or *g*, but instead we find *h* or *v* in the first two columns. We could, of course, suggest that the first two columns represent the ancestral stems, and that original **h* and **v* both developed into *c* (= [k]) before *s* or *t*, but these are not obviously natural changes, and it is hard to feel confident about such a scenario. Again, we seem to have reached the limit of what we can achieve with internal reconstruction: there is something about the histories of these verbs that escapes us.

Finally, subgroup 9 is a whole collection of nasties. In each case, we can easily explain some of the observed forms by appealing to one of the subgroups we have just been considering, but for every verb there is at least one form that is so irregular that we appear to have no hope of explaining it by internal reconstruction: it really looks as though some of these forms were never regular to begin with, but were simply constructed in an irregular manner. Internal reconstruction can tell us nothing about this. Remember, our original assumption was that irregular forms were once regular; if that assumption does not hold, we are powerless.

To sum up this exercise, we began by noting that the Latin verbs in a certain class generally show a consistent type of behaviour that we can reasonably regard as regular. Some of these verbs, however, show irregularities of one sort or another. In each case, we have proceeded by assuming that the irregular forms were once regular, and that the irregular forms developed as a consequence of regular phonological changes in the language. (Recall the first half of Sturtevant's paradox: phonological change is regular, but produces irregularities.) In this way, we have succeeded in reconstructing earlier regular forms for many of the verbs in question, and we have further succeeded in identifying a number of regular phonological changes which must have applied to ancestral forms of Latin. This is typically what happens in internal reconstruction.

Observe further that the irregularities in this case consisted of **alternations** in the forms of certain verb stems. Alternations are by no means the only grist for internal reconstruction, but they are very frequently the kind of data we deal with when reconstructing internally. In the next section, we explore this topic further.

9.2 Alternations and internal reconstruction

Alternations in the forms of particular stems or affixes are very frequent in the languages of the world, and in most cases such alternations result from the application of regular phonological changes to what were originally non-alternating morphemes. This makes alternations particularly profitable targets for internal reconstruction.

Consider the German alternations illustrated in [Table 9.1](#) (the vowel alternations in some forms are irrelevant here and will be ignored). You can see from the table that there are two kinds of stems in German. One group, such as /ta:t/ 'deed' and /verk/ 'work', shows no alternations, while a second group, including /ra:t/ ~ /re:d-/ 'wheel' and /tsverk-/ ~ /tsverg-/ 'dwarf', shows alternations in the voicing of stem-final plosives. Invoking the principle that alternations derive from non-alternating forms by phonological change, we may therefore reconstruct for the second group invariant stems with final voiced plosives, like */pfa:d/ 'path', */ra:d/ 'wheel' and */tsverg/ 'dwarf'. The phonological change required is nothing more than devoicing of word-final plosives, an extremely common and natural

Table 9.1 Voicing alternations in German

	<i>Singular</i>	<i>Plural</i>
'deed'	/ta:t/	/ta:tən/
'path'	/pfa:t/	/pfa:də/
'degree'	/gra:t/	/gra:də/
'edge'	/gra:t/	/gra:tə/
'councillor'	/ra:t/	/re:tə/
'wheel'	/ra:t/	/re:dər/
'hand'	/hant/	/hendə/
'mottled'	/bunt/	/buntə/
'league'	/bunt/	/bundə/
'healthy'	/gəzunt/	/gəzundə/
'work'	/verk/	/verkə/
'dwarf'	/tsverk/	/tsvergə/
'advised'	/ri:t/	/ri:tən/
'avoided'	/fərmi:t/	/fərmi:dən/

Table 9.2 Final devoicing in German

	'mottled'		'league'	
	Sg	Pl	Sg	Pl
pre-German	* <i>bunt</i>	* <i>buntə</i>	* <i>bund</i>	* <i>bundə</i>
Devoicing	<i>bunt</i>	<i>buntə</i>	<i>bunt</i>	<i>bundə</i>

Table 9.3 Nominative and genitive in ancient Greek

Nom Sg	Gen Sg	Nom Pl	English
/pýlaks/	/pýlakos/	/pýlakes/	'guard'
/gýps/	/gypós/	/gýpes/	'vulture'
/t ^h ɛ:s/	/t ^h ɛ:tos/	/t ^h ɛ:tes/	'serf'
/elpís/	/elpídos/	/elpídes/	'hope'
/méla:s/	/mélanos/	/mélanes/	'black'
/stá:s/	/stántos/	/stántes/	'standing'

development. Thus, for /bunt/ 'mottled' and /bunt/ 'league', we reconstruct the histories shown in Table 9.2. Since modern German contains no word-final voiced plosives, this reconstruction looks very satisfactory, and it can be confirmed by comparison with related Germanic languages, for example, German /hant/ and English *hand*.

Observe, however, that grammatical words like /mit/ 'with', /ap/ 'off', and /vek/ 'away' never take suffixes and therefore can never exhibit any alternations. Consequently, we have no way of telling, from internal reconstruction alone, whether these words originally ended in a voiced plosive or a voiceless one. Internal reconstruction can be successfully applied only when there is material to work with, especially alternations.

Let us turn now to a slightly more complex example. Ancient Greek has a class of masculine nouns and adjectives in which the nominative singular form is marked by the case-ending *-s*, the genitive singular is marked by the case-ending *-os*, and the nominative plural is marked by the ending *-es*. Table 9.3 lists a few examples.

Here we shall ignore the position of the word-accent, which turns out not to be relevant (although it *might* have been relevant, of course). The first two words, those for 'guard' and 'vulture', appear to be perfectly regular: the endings are added to the same stem in every instance. But the words for 'serf' and 'hope' are a little more complicated. The second and third columns clearly show the stems /t^hɛ:t-/ and /elpíd-/ , and so we might have expected the nominative singular forms */t^hɛ:ts/ and */elpíds/. But we find instead /t^hɛ:s/ and /elpís/. We may therefore surmise that the word-final clusters */-ts/ and */-ds/ have been reduced to /-s/ in Greek – a plausible enough change, and one supported by the observation that we never find any Greek words ending in /ts/ or /ds/.

The words for 'black' and 'standing' are different again. The second and third columns exhibit the stems /mélan-/ and /stánt-/ , and so we might have expected nominative singulars */mélans/ and */stántns/. Instead, we find /méla:s/ and /stá:s/. Of course, we have already decided that word-final */-ts/ developed to /-s/, so that the second should have become */stáns/. But the attested forms, with no nasals but with long vowels, oblige us to posit a loss of */n/ before word-final /s/, with compensatory lengthening of the preceding vowel.

Table 9.4 The history of Greek nominatives

	‘guard’	‘vulture’	‘serf’	‘hope’	‘black’	‘standing’
Original	<i>p^hylaks</i>	<i>gy^hps</i>	<i>t^hɛ:ts</i>	<i>elpids</i>	<i>melans</i>	<i>stants</i>
ts, ds > s	<i>p^hylaks</i>	<i>gy^hps</i>	<i>t^hɛ:s</i>	<i>elpis</i>	<i>melans</i>	<i>stans</i>
Vn > V: before s	<i>p^hylaks</i>	<i>gy^hps</i>	<i>t^hɛ:s</i>	<i>elpis</i>	<i>mela:s</i>	<i>sta:s</i>

Table 9.5 Vowel alternations in Old English

	Sg	Pl
Nom	<i>dæg</i>	<i>dagas</i>
Acc	<i>dæg</i>	<i>dagas</i>
Gen	<i>dæges</i>	<i>daga</i>
Dat	<i>dæge</i>	<i>dagum</i>

We have therefore reconstructed an earlier stage of Greek in which all of these words were perfectly regular, and we have identified several phonological changes that applied on the way to ancient Greek: reduction of */ts/ and of */ds/ to /s/, and loss of */n/ before /s/ with compensatory lengthening of a preceding vowel. The history of the nominative singular forms is shown in Table 9.4.

The internal method will not always be capable of producing an unambiguous reconstruction, even when the conditioning factors for an alternation are highly visible. Table 9.5 shows the paradigm of the Old English noun *dæg* ‘day’, in which *æ* is a front vowel and *a* is a back vowel.

It’s not difficult to see what the conditioning factors must be: we find the back vowel *a* in the stem when the following syllable contains a back vowel, but the front vowel *æ* when the following syllable contains a front vowel or when there is no following syllable. But we are still left with two plausible possibilities: 1) the stem was originally **dæg-*, and the vowel was backed (assimilated) before a following back vowel; 2) the stem was originally **dag-*, and the vowel was fronted when there was a following front vowel, or at least when there was no following back vowel. The first hypothesis might look simpler, but of course we have to consider the possibility that the nominative and accusative singular once contained a second syllable with a front vowel, and that this syllable was lost after fronting of an original **dag-*. Here, therefore, we are helpless: we can see that there must have been a single form of the stem before the alternation was introduced, but internal reconstruction cannot help us to decide what that original form was. (As it happens, the comparative evidence from other Germanic languages allows us to conclude that **dag-* was the original form, and that *dæg-* results from a fronting process before a front vowel. The nominative and accusative singular did indeed once contain a second syllable with a front vowel, already lost by the time of Old English.)

9.3 Internal reconstruction of grammar and lexicon

On occasion it is possible to use the internal method to reconstruct significant features of the grammar or the vocabulary of an earlier stage of a language. In fact, we have already seen some examples of this. Recall from Section 6.1 that Pamela Munro has succeeded in

reconstructing the earlier form of copular sentences in Mojave by observing that such sentences in modern Mojave appear to be out of line with ordinary sentence structure.

Such applications of the internal method may be possible when we find that certain forms, functions or senses of linguistic elements are seemingly out of line with more usual behaviour. Consider the case of English past participles. English regular verbs, or ‘weak verbs’, form their past participles with a suffix *-ed*: *love/loved*, *paint/painted* and so on. However, a number of irregular verbs, mostly the ‘strong verbs’, use the suffix *-en* instead: *write/written*, *take/taken* and so on. This second pattern is now unproductive: all new verbs entering the language employ the first pattern: *access/accessed*, *commute/commuted*, *escalate/escalated*. A few older verbs, however, show curious behaviour: they form their participles normally with *-ed*, but these participles have adjectival forms that exhibit *-en* instead. Examples: *He has shaved*, but *He is clean-shaven*; *The lead has melted*, but *This is molten lead*; *I have mowed the lawn*, but *This is new-mown hay*. We may therefore surmise that the forms *shaven*, *molten* and *mown* represent the original forms of the participles, and that these original forms have been displaced in verbal use by new analogical forms in *-ed*, leaving the adjectival forms isolated. As it happens, our historical records confirm that this view is correct. In fact, our records allow us to identify a few more cases of this process that might otherwise have escaped our attention: it has probably never occurred to you that *sodden*, as in *Her clothes are sodden*, has anything to do with *seethe*, as in *This lamb has been seethed in milk*, but in fact *sodden* is the old participle of *seethe*, now virtually unrecognizable as such. Some of you might also have noticed that *sodden* has maintained the Verner’s Law alternations that the new paradigm has lost.

Something similar occurs with certain adjectives and adverbs. The adjective *good* has an irregular adverb *well*, which occurs in a number of adjectives formed with participles: *well-built*, *well-developed*, *well-liked*, *well-thought-out* and so on. Its opposite *bad*, however, forms a regular adverb *badly*. But the related adjectives are not formed with *badly*; instead they are formed with *ill*: *ill-considered*, *ill-disposed*, *ill-favoured*, *ill-mannered*, *ill-timed* and so on. Again, therefore, we may suppose that *bad*, like *good*, formerly had an irregular adverb, in this case *ill*, and that this *ill* has been displaced in ordinary use by an analogical formation *badly*. And again our records confirm this reconstruction: we can no longer say things like **You have done ill* in Standard English, but you may be familiar with such usages from reading older English literature or from some Scots dialects (although not my own).

These English cases, you may already have spotted, are illustrations of Kurylowicz’s fourth law: an analogical formation takes over in the primary function, leaving the older form confined to secondary functions. Instances of this kind are particularly fertile ground for the application of internal reconstruction.

The degree to which internal reconstruction can be reliably applied to syntax is much debated among linguists. Consider the case of French. In modern standard French, the word order in sentences with full NPs is SVO:

9.1 *Jean a vu Pierre.*

John has seen Peter
‘John saw Peter.’

9.2 *Je donnerai le livre à toi.*

I will-give the book to you
‘I’ll give the book to you.’

(although constructions of this type can sound stilted). But when the NP arguments are pronouns, the order is different; it's SOV:

9.3 *Il l'a vu.*

he him has seen

'He saw him.'

9.4 *Je te le donnerai.*

I you it will-give

'I'll give you it.'

Some linguists would argue that the alternation between SVO order with full NPs and SOV order with pronominal NPs represents just another instance of the kind of alternation to which the internal method may reasonably be applied. They further suggest that it is pronouns that tend to be conservative in their behaviour, and hence that in this case we can reconstruct an original SOV word order for French sentences generally, with pronominal NPs retaining the older order but other NPs showing the result of an innovation in French word order, a shift to SVO.

It is not easy to know what to make of such an argument. On the one hand, we have independent evidence that spoken Latin, the ancestor of French, was indeed an SOV language, as internal reconstruction would suggest in this case. On the other hand, it is far from clear that the order used with pronouns directly continues a Latin sentence structure: the French pronouns are *clitics*, unstressed items bound to certain positions in the sentence, and there is a universal tendency for clitics to appear in certain positions, of which one is immediately before the verb, as in French. The placement of pronominal NPs in French may therefore be an accident having nothing to do with the ancestral word order of the language.

The point of such arguments is that there are many other languages for which we have no historical information at all, and we would therefore like to know whether such grammatical alternations can serve as the basis for internal reconstruction or not. Consider Basque, an SOV language: 'John loves Ann' is expressed as *Jonek Ana maite du*, literally 'John Ann loves' (*du* is an auxiliary). But the pattern for agreement in the verb or auxiliary is different: 'I love you' is *maite zaitut*, in which the prefix *z-* on the auxiliary marks the object 'you', while the suffix *-t* marks the subject 'I', and the form is literally 'love you-Aux-I'. May we therefore conclude that some ancestral form of Basque had OVS word order? Nobody knows, but most linguists would probably be very cautious about leaping to such a conclusion, since it is not difficult to envisage other pathways by which the OVS order of agreement might have come about.

Case study: the laryngeal theory of PIE

It is eminently possible (although by no means straightforward) to carry out internal reconstruction with a language that, at the least, has a sizeable textual corpus. It is another matter to reconstruct internally with a language that has no attestations at all, and about whose form there is considerable debate. Nevertheless, this is exactly what we will do in this case study, demonstrating how internal reconstruction can be used to explain one of the apparent problems in our reconstruction of PIE.

Linguists in the nineteenth century were very successful at reconstructing important characteristics of the structure of PIE by the comparative method. Among their successes was the reconstruction of many hundreds of PIE roots. Because of the extensive presence in PIE of **ablaut**, the use of vowel changes in roots for grammatical purposes (as in English *sing/sang/sung*), most of these roots could be reconstructed with the same underlying vowel, usually represented as *e*. Furthermore, the great majority of PIE roots proved to have the structure CVC-, or else this same structure with the addition of a resonant: *i*, *u*, *n*, *r* or *l*, or with a prefixed *s*. Table 9.6 shows a few typical examples.

The pervasiveness of this root pattern is quite striking. Nevertheless, there are a number of exceptions. Quite a few roots fail to show the expected CVC-pattern, and show instead either CV- or VC-. Moreover, a number of such roots apparently cannot

Table 9.6 Some typical PIE roots

*bhel-	'shine'	*nebh-	'cloud'
*bher-	'carry'	*nem-	'allot'
*deik-	'show'	*ped-	'foot'
*deuk-	'lead'	*pel-	'thrust'
*dher-	'dark'	*pet-	'fly'
*dhwer-	'door'	*plek-	'plait'
*gel-	'form into a ball'	*reg-	'go straight'
*ger-	'curve'	*reudh-	'red'
*ghebh-	'give'	*reup-	'snatch'
*ghel-	'shine'	*sed-	'sit'
*gher-	'enclose'	*sek-	'cut'
*gwel-	'throw'	*sem-	'one'
*kel-	'strike'	*spek-	'observe'
*ker-	'horn'	*spen-	'stretch'
*kers-	'run'	*sreu-	'flow'
*kwel-	'revolve'	*stel-	'put'
*leg-	'collect'	*tel-	'lift'
*legwh-	'light (not heavy)'	*ter-	'rub'
*leip-	'stick'	*wed-	'water'
*leuk-	'light, bright'	*wegh-	'go'
*meg-	'great'	*weid-	'see'
*mel-	'soft'	*weik-	'clan'
*melg-	'milk'	*wel-	'turn'
*merg-	'boundary'	*wer-	'speak'
*meug-	'slimy'	*yeug-	'join'

Table 9.7 Some exceptional PIE roots

*ag-	‘lead’	*kē-	‘sharpen’
*ak-	‘sharp’	*mā-	‘good’
*ank-	‘bend’	*mē-	‘measure’
*ar-	‘fit together’	*od-	‘smell’
*aug-	‘increase’	*op-	‘work’
*bhā-	‘speak’	*pā-	‘feed, protect’
*dhē-	‘put, set’	*sā-	‘satisfy’
*dō-	‘give’	*sāg-	‘seek out’
*ed-	‘eat’	*sal-	‘salt’
*em-	‘take’	*sē-	‘sow’
*er-	‘set in motion’	*smē-	‘smear’
*es-	‘be’	*snā-	‘swim’
*ghrē-	‘grow, green’	*stā-	‘stand’
*gnō-	‘know’	*wē-	‘blow’

be reconstructed with the usual vowel **e*; instead, they require **a* or **o*, and further, in the CV- roots, the vowel is usually long. Table 9.7 lists some of these exceptional roots.

The existence of these anomalous roots had long been recognized, but for a long time it seems not to have occurred to anyone that there was a problem worthy of investigation. In 1879, however, an obscure Swiss student, Ferdinand de Saussure, made a striking suggestion. Applying the technique of internal reconstruction, he suggested that these anomalous roots had once been perfectly regular roots of the usual CVC- type, but that certain consonants present in an ancestor of PIE had simply been lost, producing the observed CV- and VC- patterns. Further, he proposed that the loss of a root-final consonant had caused the process of compensatory lengthening (which you’ll recall from Chapter 3), thereby accounting for the long vowels found in most of the CV- roots. Finally, and most strikingly, he proposed that some of the lost consonants had, before disappearing, affected the quality of the root vowel, variously turning the original **e* into *a* or *o*.

Saussure called his hypothetical consonants ‘sonant coefficients’, but this name was later replaced by the term **laryngeals**, still in use today. Saussure’s **laryngeal theory** originally posited only two lost consonants, but other workers later added a third, and it is the three-laryngeal version that is most widely cited today and which I shall therefore present here. (Incidentally, the term ‘laryngeal’ should not be taken too literally: the theory does not require that the lost consonants should have been laryngeal in the strict phonetic sense, but only that they should have existed and then been lost.)

The three-laryngeal version of Saussure’s hypothesis recognizes three lost consonants, often represented rather arbitrarily as **h₁*, **h₂* and **h₃*. Of these, it is assumed that **h₁* had no effect on the quality of a neighbouring vowel, that **h₂* lowered original **e* to *a*, and that **h₃* rounded original **e* to *o*. All three are assumed to have caused compensatory lengthening when lost from root-final position. Here, then, is the explanation of the anomalous roots provided by the laryngeal theory:

$*h_1es-$ > $*es-$ ‘be’	$*dheh_1-$ > $*dhē-$ ‘put’
$*h_2eg-$ > $*ag-$ ‘drive’	$*steh_2-$ > $*stā-$ ‘stand’
$*h_3ed-$ > $*od-$ ‘smell’	$*deh_3-$ > $*dō-$ ‘give’

As you can see, the hypothetical laryngeal consonants, together with the phonological developments proposed by Saussure, perfectly explain the observed forms of the anomalous roots:

$*h_1e$ > $*e$	$*eh_1$ > $*ē$
$*h_2e$ > $*a$	$*eh_2$ > $*ā$
$*h_3e$ > $*o$	$*eh_3$ > $*ō$

In fact, Saussure’s laryngeals do a great deal more than this: they help to explain a number of peculiarities and anomalies in the forms of words in several of the ancient Indo-European languages. Unfortunately, I cannot go into these matters here without delving too deep into the intricacies of PIE morphology; you can find more information in the ‘Further reading’ section.

For some years the laryngeal theory attracted little attention from specialists: it was viewed as little more than a clever paper exercise, lacking any basis in hard evidence. But just such evidence eventually turned up, in a surprising fashion.

Just about the time that Saussure was proposing his hypothesis, a previously unknown language was discovered in a library of inscriptions excavated at Boğazköy in Turkey; for want of a better name, the language of these inscriptions was dubbed ‘Hittite’, after the Old Testament name of an important Anatolian empire. During the First World War, Bedřich Hrozný succeeded in deciphering the Hittite inscriptions and in demonstrating, in the face of considerable resistance, that Hittite was a very ancient and previously unknown IE language, although a rather divergent one.

Then, in 1927, Kuryłowicz pointed out that some of the IE words recorded in the Hittite texts were written with a consonant in exactly the positions posited by Saussure nearly half a century earlier. The consonant symbol used is one regularly used in other languages of the area for representing sounds resembling [h], and it is therefore commonly transcribed as h. For example, the PIE root $*plā-$ ‘flat’, reconstructed by Saussure as $*pleh_2-$, appears in Hittite *pal-h i-i-is* ‘broad’, and PIE $*os-$ ‘bone’, reconstructed as $*h_3es-$, appears in Hittite as *hastai*. In fact, further investigation has revealed that Saussure’s $*h_2$ and $*h_3$ apparently survived regularly in Hittite as *h*, while $*h_1$ had apparently disappeared without trace.

This direct evidence from Hittite persuaded most specialists that Saussure’s reconstruction was indeed correct, and that some ancestral form of PIE must actually have had a set of consonants that disappeared, with the phonological consequences that he envisaged. Today most Indo-Europeanists accept the laryngeal theory as correct, although there is naturally quibbling about the details, and a few specialists still reject the hypothesis entirely.

The laryngeal theory is without doubt the most famous instance of internal reconstruction in the whole linguistic literature. Observe that, unlike most applications of the method, this one was not primarily addressed to alternations. While it has in practice led to some understanding of a few troublesome alternations, it was originally directed at a purely phonotactic anomaly: the observation that a few roots did not exhibit the canonical structure for PIE roots. And none of it would have come about at all if Saussure, alone among generations of specialists, had not noticed that there was an anomaly, a puzzle to be investigated. The first step in solving any problem is always the recognition that there exists a problem to be solved.

Naturally, linguists have been unable to resist the temptation of trying to guess the phonetic nature of the ‘laryngeal’ consonants, even though this problem is probably impossible in principle. At present, the favourite guesses are that $*h_1$ was probably a glottal stop [ʔ], that $*h_2$ was very likely some kind of voiceless fricative like [h] or [x], and that $*h_3$ might have been a voiced fricative like [ɣ], probably with lip-rounding, to account for its rounding effect on neighbouring vowels. Glottal stops and back fricatives are favoured because it is well known that such consonants are easily lost in languages generally, but, barring the discovery of another ancient IE language that preserves the laryngeals in some more explicit form even than Hittite, we will never know.

Further reading

Two classic treatments of internal reconstruction are Hoenigswald (1944) and Marchand (1956). Convenient brief introductions are the article in Miranda (1975) and Asher (1994), which is *very* brief. Two textbooks that devote a good deal of space to discussing the method are Hock (1986: Chapter 17) and Fox (1995: [Chapters 7–8](#)). Some examples of internal reconstruction can be found in Borgström (1954) (pre-PIE), Chafe (1959) (Seneca), and Anttila (1973) (Finnish). A rather critical view of the internal method is taken in Lass (1975).

The laryngeal theory was first presented in Saussure (1879). There are very many surveys, some of them more critical than others. Among these are Lehmann (1952: [Chapter 3](#); 1993), Polomé (1965), Winter (1965), Keiler (1970), Szemerényi (1973), Jonsson (1978), Beekes (1984, 1989), Hock (1986) and Lindeman (1987).

Exercises

Exercise 9.1

In Māori (the indigenous language of New Zealand), the passive form of a verb is constructed by adding a suffix to the active form, but the form of that suffix appears quite variable. Table 9.8 lists some typical Māori verbs. Using the internal method, reconstruct an ancestral version of the Māori verbal system that is perfectly regular. Identify any phonological changes required by your analysis to account for the attested forms; comment on the naturalness of those changes; and explain where you would look in Māori for evidence confirming that your analysis is correct.

Table 9.8 Some typical Māori verbs

	Active	Passive
'call'	<i>karaga</i>	<i>karagatia</i>
'drink'	<i>inu</i>	<i>inumia</i>
'enter'	<i>tomo</i>	<i>tomokia</i>
'seize'	<i>mau</i>	<i>mauria</i>
'sit'	<i>noho</i>	<i>nohoia</i>
'touch'	<i>paa</i>	<i>paangia</i>
'turn'	<i>huri</i>	<i>hurihia</i>

Exercise 9.2

In English, as in many languages, the word *head* is commonly used both literally and metaphorically in word-formation: *headband*, *headache*, *headrest*, *headwaters*, *head teacher* (British English for 'school principal'), *head waiter*, *headquarters*, *headlight*, *headstone* and so on. In German, things are a little more complicated. The ordinary word for 'head' is *Kopf*. In word-formation, however, we usually find, not *Kopf*, but a different item *Haupt*: *Hauptakteur* 'leading light', *Hauptakzent* 'main stress' (in phonetics), *Hauptbahnhof* 'central (rail) station', *Hauptbetrieb* 'headquarters', *Hauptfach* 'major subject' (at university), *Hauptmann* 'captain', *Hauptschalter* 'master switch' (in electricity), *Hauptstraße* 'main street, high street', *Hauptstütze* 'mainstay' and dozens of others. In a few cases, though, we do find *Kopf* used: *Kopffüßer* 'cephalopod', *Kopfhörer* 'headphone', *Kopfseite* 'front page' (of a newspaper), *Kopfsprung* 'header, head-first dive', *Kopfstimme* 'falsetto', *Kopfstütze* 'headrest' (e.g., in a car), *Kopfwäsche* 'shampoo' and some others.

Explain what seems to have happened in German, and reconstruct an earlier stage of the German lexicon.

Exercise 9.3

In word-formation in Basque, a final vowel is regularly lost in the third or later syllable of the first element:

itsaso 'sea' + *gizon* 'man' = *itsasgizon* 'sailor'
burdina 'iron' + *bizi* 'living' = *burdinbizi* 'magnet'
uztarri 'yoke' + *-gile* 'maker' = *uztargile* 'yoke-maker'

Moreover, a final *i* is lost in the second or later syllable of the first element:

harri ‘stone’ + *-gin* ‘who makes’ = *hargin* ‘stonecutter’

ogi ‘bread’ + *-gin* ‘who makes’ = **oggin* = *okin* ‘baker’

herri ‘country’ + *-kide* ‘fellow’ = *herkide* ‘compatriot’

Some words, however, exhibit unexpected behaviour when they occur as the first element:

gaztai ‘cheese’ + *bera* ‘soft’ = *gaztanbera* ‘cottage cheese’

ardao ‘wine’ + *-du* (verb-forming suffix) = *ardandu* ‘ferment’

artzai ‘shepherd’ + *-tza* ‘profession’ = *artzantza* ‘sheepherding’

katea ‘chain’ + *begi* ‘eye’ = *katenbegi* ‘link of chain’

balea ‘whale’ + *bizar* ‘beard’ = *balenbizar* ‘whalebone’

euskara ‘Basque language’ + *-dun* ‘who has’ = *euskaldun* ‘Basque-speaker’

haizkora ‘axe’ + *begi* ‘eye’ = *haizkolbegi* ‘hole in axe-head for shaft’

merkatari ‘merchant’ + *-go* (collective) = *merkatalgo* ‘commerce’

gari ‘wheat’ + *buru* ‘head’ = *galburu* ‘head of wheat’

Propose internal reconstructions for these exceptional words, and identify the phonological developments required. Where would you look for further evidence to support your reconstructions?

Exercise 9.4

The earliest attested Germanic languages are Gothic, Old English, Old Norse and Old High German. All of these languages exhibit *ablaut* – change in vowel quality – in the stems of verbs. By applying comparative reconstruction to these four languages, we can reconstruct with considerable confidence the forms of the ancestral language, Proto-Germanic. Table 9.9 lists some typical verbs from Proto-Germanic. By applying the internal method, reconstruct an earlier set of forms that is perfectly regular, and identify any phonological changes that must have occurred between your reconstruction and the forms cited here. Comment on any difficulties.

Table 9.9 Some typical proto-Germanic verb forms

Present Infinitive	3Sg Preterite	3Pl Preterite	
*bi:tanā	*bait	*bitun	‘bite’
*beudanā	*baud	*budun	‘order’
*bindanā	*band	*bundun	‘tie’
*werpanā	*warp	*wurpun	‘throw’

Exercise 9.5

The definite article in Basque is a suffix, *-a* in the singular and *-ak* in the plural. Thus, for example, the noun *mendi* has the forms *mendia* ‘the mountain’ and *mendiak* ‘the

mountains' in the absolutive case, the case that takes no case-suffix. But Basque also has an extensive case-system, in which every case (except the absolutive) is marked by an invariable case-suffix. Table 9.10 lists some of the case forms for *mendi* 'mountain' and *gizon* 'man'. As you can see, the addition of a case-suffix often induces changes in the form of the noun phrase to which the suffix is added.

Propose a reconstruction in which every morpheme has a single constant form, and identify any phonological changes required to produce the modern forms. It may help you to know that, in Basque, the vowel *e* is regularly inserted to break up a consonant cluster arising in inflection.

Table 9.10 Definite articles and noun forms in Basque

	Sg	Pl
Absolutive	<i>mendia</i>	<i>mendiak</i>
Ergative	<i>mendiak</i>	<i>mendiek</i>
Dative	<i>mendiari</i>	<i>mendiei</i>
Genitive	<i>mendiaren</i>	<i>mendien</i>
Instrumental	<i>mendiaz</i>	<i>mendiez</i>
Absolutive	<i>gizona</i>	<i>gizonak</i>
Ergative	<i>gizonak</i>	<i>gizonek</i>
Dative	<i>gizonari</i>	<i>gizonei</i>
Genitive	<i>gizonaren</i>	<i>gizonen</i>
Instrumental	<i>gizonaz</i>	<i>gizonez</i>

Exercise 9.6

Like other Celtic languages, Welsh exhibits a set of **mutations**, changes in the quality of word-initial consonants in certain grammatical environments. Welsh has three such mutations, the *soft mutation*, the *spirant mutation* and the *nasal mutation*, each of which occurs in different circumstances. Here I cite just three of these: the possessive *də* 'your' causes soft mutation in a following noun, while *i* 'her' causes spirant mutation, and *və* 'my' causes nasal mutation. Table 9.11 shows the effects with three typical nouns; note that the nasal consonants in the last column are voiceless.

Now the data from the modern language are not sufficient to allow us to perform a complete internal reconstruction of these alternations. Nevertheless, you should be able to make some plausible suggestions as to what a good internal reconstruction might look like, one in which the alternations are phonologically regular. Suggest some possible reconstructions for the three possessives, and identify any required phonological changes leading to the modern state of affairs. The spirant mutation is much harder than the other two.

Table 9.11 Welsh initial mutation

	Basic Form	'your N'	'her N'	'my N'
'head'	<i>pɛn</i>	<i>dəben</i>	<i>i fɛn</i>	<i>vəɲɛn</i>
'house'	<i>ti:</i>	<i>dədi:</i>	<i>i θi:</i>	<i>vəɲi:</i>
'cat'	<i>kaθ</i>	<i>də gaθ</i>	<i>i xaθ</i>	<i>vəɲau</i>

The origin and propagation of change

10.1 The Saussurean paradox

During the nineteenth century most linguists were inclined to see a language as a collection of individual elements: speech sounds, words, grammatical endings and so forth. Following this essentially atomistic point of view, language change could be interpreted as the replacement of one element by another: one speech sound replaces another, one word replaces another, one grammatical ending replaces another. Early in the twentieth century, however, Ferdinand de Saussure proposed a radically different way of looking at a language, which has become known as **structuralism**. From the structuralist point of view, a language is best regarded rather as a system of relations, a system consisting of a number of interlocking subsystems, such as the phonological system, the verbal system and the pronoun system. For a structuralist, an individual element is defined chiefly by the role it plays in the system, by the way it is related to other elements in the system.

This structuralist view has been enormously influential, and since the 1930s virtually all linguistic work has been carried out within the structuralist paradigm, with very considerable success. But the structuralist revolution brought with it a new puzzle: if a language is primarily an orderly system of relations, how is it that a language can change without disrupting that system? To put it another way, how can a language continue to be used effectively as a vehicle for expression and communication while it is in the middle of a change, or rather in the middle of a large number of changes? This puzzle is known as the **Saussurean paradox**, and it is not a trivial issue.

Consider some simple analogies. How can anyone play football or chess successfully if the rules of football or chess are constantly being changed during play? How can an orchestra play a symphony if the score of the symphony is changing during the performance? How can a case be tried in court if the law is constantly changing during the trial? Such analogies would appear to suggest that the constant changes in our language must of necessity have an adverse effect on our ability to use it successfully.

And yet this is not so. Apart from the handful of specialists who are deliberately looking for evidence of change in contemporary speech, people hardly ever even notice the existence of changes in their language; when we do notice a change, it is usually no more than a new word or two. When we recall how dramatically English has changed in the last 40 generations or so, since the time of Alfred the Great, this issue becomes altogether mysterious. How on earth can a language be transformed so utterly, in such a seemingly short time as 40 generations, while at the same time its speakers go on speaking it happily without being disturbed by the changes and usually without even noticing them?

Before about 1960, no one had any real idea what the answer might be to this question, and the Saussurean paradox was regarded as a great mystery. A few linguists tried to maintain that language change was typically so slow and gradual as to be imperceptible. Such gradual change may indeed be possible with certain kinds of sound change: for example, we can at least conceive that the English Great Vowel Shift might have proceeded via a steady sequence of tiny changes in the qualities of the participating vowels. But the great majority of changes cannot possibly be gradual and imperceptible in this way. When one word is replaced by another, when one grammatical form or construction is replaced by another, the change simply cannot proceed by small steps: a speaker must use one form or the other, and that is the end of it. Language change cannot, in general, be gradual in the manner suggested. (It can, however, be gradual in at least two other, very different ways, to be considered below. Can you think of two ways in which the native English *anleth* could have been gradually replaced by the French loan *face*?)

The resolution of Saussure's paradox had to wait until the 1960s. In that decade one of the great breakthroughs in our understanding of the nature of language occurred, a breakthrough that has allowed us at last to provide a reasonably satisfying answer to the question of how a language can continue to be used while it is changing. In an outstanding example of the enrichment of one branch of linguistics by another, the breakthrough was achieved not by the historical linguists, but instead by the practitioners of a fledgling branch of the discipline that was then just beginning to establish itself: sociolinguistics. To that story we now turn.

10.2 Variation and social stratification

No language is totally homogeneous. We saw in [Chapter 7](#) that a language normally exhibits a significant degree of regional variation. But this is not the only important kind of variation. Even in a single locality, we generally find a substantial degree of variation. For one thing, there is variation between social groups. Women do not speak like men; middle-class people do not speak like working-class people; television newsreaders do not speak like disc jockeys. For another, even within a single group, there is variation between individuals: there are probably noticeable differences between your speech and the speech of your closest friends, even if you all have very similar backgrounds. For a third, even a single person doesn't always speak in the same way. It's hardly likely that you speak in exactly the same manner when you're relaxing with friends in a pub or a bar and when you're being interviewed for a job. And even in a single conversation you may exhibit a surprising amount of variation. Consider, for example, the sentence *Aren't you going home?* On one occasion, you might pronounce this with a /tj/ sequence in *aren't you*, but the next time you might use the affricate /tʃ/ instead; you might pronounce *you* with a full vowel once but with a schwa the next time; you might pronounce *going* as two syllables once but as one syllable the next time; you might pronounce *going* with a velar nasal /ŋ/ once but with a coronal nasal /n/ the next time; and so on. Similarly, you might say *compact disc* one moment and *CD* the next; you might say *telephone* one moment and *phone* the next; you might say *I got cheated* one moment but *I got ripped off* the next.

For generations, linguists had very little idea what to make of this kind of variation. On the whole, most linguists were inclined to consider the speech of educated people as the primary object of description and investigation, while the vernacular speech of uneducated

people was usually dismissed as being of no consequence – except in dialectology, in which the speech of elderly, uneducated, rural speakers was commonly considered to be the most suitable for investigation. Since earlier linguists were overwhelmingly male, there was perhaps also a comparable tendency to treat men's speech as the norm, while women's speech, where it differed, was often disregarded as inconsequential. Otherwise, however, the very high degree of variation within a single community was, for the most part, simply ignored: at best it was considered to be a peripheral and insignificant aspect of language, no more than erratic and even random departures from the norms, while at worst it was regarded as a considerable nuisance, as a collection of tiresome details getting in the way of good descriptions.

This was more or less the mindset which the sociolinguists encountered in the 1960s, and which they set about confronting in the most direct way possible: by making variation itself the object of their investigations. Sociolinguistics may be usefully defined as the study of variation in language, and, as I observed above, this study has transformed our understanding of how language works.

The earlier linguists had often referred to this exasperating variation as *free variation*, a label implying that such variation was essentially arbitrary and of no significance. One of the central findings of the sociolinguists has been that variation is typically not arbitrary at all, and that it is very far from being insignificant. This was not easy to discover, however, because, if you listen to people speaking, you will find that, just as I have suggested, the same speaker will sometimes use one form and sometimes another, in a seemingly aimless manner. It is simply not possible to conclude, in most cases, that speaker X uses form A while speaker Y uses form B. Mere observation, therefore, leads to no interesting results.

But mathematics has long provided a powerful tool for extracting significant information from what appears to be a noisy jumble of data: statistics. The introduction of statistical approaches into sociolinguistics led to the breakthrough that concerns us here.

In the early 1960s, William Labov set out to explore the speech of Martha's Vineyard, a small, somewhat isolated island lying off the coast of Massachusetts. The speech of the islanders is characterized by the presence of a well-known idiosyncrasy: the centralization of the first element of the diphthongs /ai/ and /au/, as in *light* and *house*. Such centralization is a familiar characteristic of certain other varieties of English, notably of Canadian English, but it is not usual in New England, except in Martha's Vineyard.

Armed with a tape recorder and a knowledge of statistics, Labov therefore set out for the island, where he spent a considerable time making friends with the local people and recording their speech. He then sat down to examine his recordings. First, he collected all the instances of relevant words on his tapes and transcribed them in phonetic notation. Sure enough, he found that each individual speaker used a range of pronunciations for words like *light* and *house*: sometimes the diphthongs were strongly centralized, sometimes they were more weakly centralized and sometimes they weren't centralized at all. This is exactly the kind of observation that had induced earlier linguists to conclude that there was nothing going on worthy of study.

But Labov was convinced his data were more interesting than a hasty dismissal would suggest, and he set out to show this by using a simple statistical technique which has since become known as the **quantitative approach** to language variation. He decided that he could distinguish, by ear, four different degrees of centralization: none, a little, quite a bit and a maximal amount, assigning the numerical values 0, 1, 2 and 3 to each, respectively.

Table 10.1 CIs and age (adapted from Labov 1972)

Age	CI /ai/	CI /au/
75+	0.25	0.23
61–75	0.35	0.37
46–60	0.62	0.44
31–45	0.81	0.88
14–30	0.37	0.46

He patiently tabulated the number of occurrences of each type of pronunciation in the speech of each one of his subjects, and then calculated the *average* degree of centralization of each diphthong in each subject's speech. As a result, each subject wound up being characterized by two numbers between 0.00 (no centralization at all) and 3.00 (maximal centralization in every case), one for /ai/ and one for /au/. Each of these numbers Labov called the *centralization index* (CI) for that diphthong for that subject. So, for example, a subject whose CI for /ai/ is 0.23 hardly ever uses any centralization, while a subject whose CI is 2.44 uses a great deal of centralization most of the time. As it happens, Labov's subjects showed CIs for /ai/ ranging from 0.00 to 2.11, and similar values for /au/.

So far, then, Labov had managed to demonstrate that individuals on Martha's Vineyard differed substantially from one another in the degree of centralization they used. Now this was already progress: while almost every speaker fluctuates between more and less centralized pronunciations, the statistical approach shows that individuals nonetheless perform quite differently in their overall behaviour. But this doesn't yet tell us anything about language change.

Labov therefore took the crucial step of looking for *correlations* between CIs and other factors. Naturally, he looked first at age. Table 10.1 shows his results for five age groups. This table shows a very interesting pattern: centralization increases steadily with decreasing age, except for the youngest group, which exhibits a sharp drop in centralization. These young speakers are a puzzle, but let's ignore them for the moment. If we do, there appear to be two possible explanations.

- *Explanation 1:* There has been a steady increase in the extent of centralization over time, with each new generation centralizing more than the preceding generation. This phenomenon is called **generational change**: a change that continues to go further with each new generation.
- *Explanation 2:* It is characteristic of Martha's Vineyard that speakers steadily decrease the extent of their centralization as they grow older. This phenomenon is called **age-grading**: speakers continuously change their own speech over time.

Which explanation is correct? In most circumstances we could only find out by monitoring the people of the island for another generation or two and watching what happens. In this case, however, Labov was lucky, because Martha's Vineyard was included in the *Linguistic Atlas of New England (LANE)*, a very detailed dialect atlas published in 1941 and based on data collected on the island in 1933. Four subjects from the island were included in the atlas; these were aged between 56 and 82 in 1933. The detail with which their speech was reported in *LANE* was sufficient for Labov to be able to estimate the probable CIs for these

speakers. Before reading further, therefore, ask yourself this question: what would each of our two possible explanations predict for the CIs of these 1933 subjects?

What Labov found was this. The four earlier subjects had a combined average CI for /ai/ of 0.86, but for /au/ their combined CI was only 0.06 – effectively zero. This is enough to disconfirm the age-grading hypothesis. Clearly the centralization of /au/ has been increasing steadily from zero in 1933, while /ai/ has been behaving in a more complex fashion: it used to be moderately centralized, but its degree of centralization first decreased and then increased again. We therefore have a case of generational change, but one that is more complex than we might have anticipated. Something very interesting has been going on with centralization on Martha's Vineyard – but what, and why?

Seeking more information, Labov tried looking for further correlations with non-linguistic factors. The two main occupations on the island were traditionally fishing and farming, and so Labov checked the CIs of these occupational groups. There was also a notable social division on the island between the town-dwellers ('down-islanders') and the inhabitants of the rural areas ('up-islanders'). The results are shown in [Tables 10.2](#) and [10.3](#).

Again we find some striking results. The fishermen centralized far more than anybody else on the island, while the farmers showed less centralization than most people. And the rural up-islanders centralized nearly twice as much as the down-islanders in the towns. This is all extremely interesting, but we still don't know what's going on.

Lest you think that Labov could find correlations between CIs and anything at all, including perhaps the length of speakers' surnames, take a look at [Table 10.4](#). There are three main ethnic groups on the island: those of English descent, those of Portuguese descent and those of Native American descent ('Indians'). This time, as you can see, there are no particular correlations at all. Knowing speakers' ethnic backgrounds tells you nothing about their likely speech patterns. It is noteworthy, in fact, that little tension existed between the different groups.

[Table 10.2](#) CIs and occupation (adapted from Labov 1972)

Occupation	CI /ai/	CI /au/
Fishermen	1.00	0.79
Farmers	0.32	0.22
Others	0.41	0.57

[Table 10.3](#) CIs and geography (adapted from Labov 1972)

	CI /ai/	CI /au/
Towns	0.35	0.33
Rural areas	0.61	0.66

[Table 10.4](#) CIs and ethnic group (adapted from Labov 1972)

	CI /ai/	CI /au/
English	0.67	0.60
Portuguese	0.42	0.54
Indians	0.56	0.90

At this point Labov decided that an explanation of the change in the speech of Martha's Vineyard had to be sought in social factors. After his many conversations with the locals, he began to put together a picture of the social forces that had been shaping life on the island. Here is a brief summary.

For centuries Martha's Vineyard had been isolated and generally self-sufficient. Fishing and whaling were the backbone of the economy, and the islanders grew enough food to support themselves. There was very little contact between the island and the mainland: the islanders only rarely went to the mainland, and few people from the mainland visited the island.

From about 1940 onwards, however, things began to change. Two major wars meant that many young men had to leave the island to join the armed forces or work in the war economy, gaining in the process considerable experience of mainland life. Moreover, many young people began travelling to the mainland to attend university, also giving them a large taste of mainland life for the first time. Meanwhile, the island's economy was declining precipitously. Fish stocks declined, and the fishing industry suffered grievously. New agricultural techniques and regulations meant that more and more material and equipment had to be ferried in from the mainland, very expensively; the same ferry charges made it difficult for islanders to sell their produce on the mainland at a profit.

The slack in the economy was taken up by a new phenomenon: tourism. Martha's Vineyard is a beautiful place, and every summer more and more visitors from the mainland flocked to the island for holidays. By the time of Labov's study, the 6,000 inhabitants of the island were hosting about 42,000 summer visitors a year. Much more prosperous than the islanders, the visitors threw money around lavishly but also exposed the islanders, especially the younger ones, to the more obvious attractions of the mainland lifestyle: plenty of money, flashy cars, the ability to travel and take holidays. Insidiously, the wealthy visitors also bought up the local houses as summer homes: by the time Labov visited, almost every house on the north coast of the island had been sold to a mainlander and their former inhabitants had retreated into cottages in the interior.

The result of all this, concludes Labov, was a set of conflicting social pressures on the islanders. On the one hand, they were drawn to the traditional way of life on the island, where families were close, where people lived in the same house for generations, where everybody knew everybody else. On the other hand, they were drawn to the exciting new way of life on the mainland, where people could choose from a wide range of careers, make lots of money, enjoy a much greater range of creature comforts and see the world.

People reacted differently to these pressures, but sooner or later every islander had to make a choice: to stay on the island and try to eke out a decent living in the difficult economic circumstances (the island is easily the poorest county in Massachusetts), or to leave the island and make a life on the mainland. And the response to these pressures, Labov suggested, was the key to understanding the linguistic facts.

He interviewed his 65 subjects about their plans and their view of the island, and he then divided these people into three groups: *positive* (they were strongly committed to the island, and intended to stay there), *neutral* (they had no strong views either way) and *negative* (they wanted to leave the island, and intended to do so as soon as possible). The CIs of these three groups are shown in Table 10.5; the last group is naturally rather small, since most people who wanted to leave the island had already done so and hence could not be included in Labov's sample. This table shows the greatest degree of stratification of all the factors Labov looked at, and here we find a large part of our explanation. In Labov's

Table 10.5 CIs and attitude to the island (adapted from Labov 1972)

Persons	Attitude	CI /ai/	CI /au/
40	Positive	0.63	0.62
19	Neutral	0.32	0.42
6	Negative	0.09	0.08

interpretation, *centralization has become a linguistic marker of a positive attitude to the island*. That is, people who were committed to the island exhibited a high degree of centralization, while those who wanted to leave hardly centralized at all. On Martha's Vineyard, then, a speaker with a high CI was, in effect, announcing to the world 'I am committed to the island'.

We can now understand the data in the earlier tables. Because of the disastrous decline in the fishing industry, the fishermen are the most beleaguered group on the island, and the handful of men who still cling defiantly to their traditional vocation are of necessity among those most strongly committed to the island – hence their very high CIs. Since the fishing industry is concentrated in the rural up-island, this region has higher CIs than the towns down-island. And we can now understand too why the age correlation goes wrong with the youngest group: this group includes a sizeable number of people who want to leave the island but haven't yet managed to do so, and their very low CIs are bringing the average down. By the age of 30, however, most people who want to leave have gone, and are not there to be counted.

As confirmation, Labov interviewed four 15-year-old high-school students. Two of these had already decided to leave the island after finishing school; these had CIs of 0.00 and 0.40, and of 0.00 and 0.00. The other two had decided to stay on the island; they had CIs of 0.90 and 1.00, and of 1.13 and 1.19.

What we find on Martha's Vineyard, then, is a fine example of the **social stratification** of a linguistic variable. As we will see later, linguistic variables more often correlate with social factors like sex and social class, but on Martha's Vineyard the relevant factor is attitude to the island. Here, the way you speak announces which group you belong to: pro-island or pro-mainland.

But how did all this get started? This is a more difficult question, but Labov has a reasonable suggestion to make. In the 1930s, centralization of /au/ was non-existent, while centralization of /ai/ was significant but declining overall. Labov suggests that a handful of speakers, unquestionably up-island and probably fishermen, just happened to have a higher than average degree of centralization of /ai/, and that these were people who were well known for their unwavering commitment to the island way of life. Other speakers, beginning to feel the pressures from the mainland, and deciding to commit themselves to the island, took these people as models and began to imitate them. In particular, they began to imitate the older speakers' centralization and, perhaps inevitably, they went too far: they began to centralize /ai/ *more* than their models did, and they also began to extend the centralization to /au/. As time passed and the pressures increased, new generations making the same decision continued the process, introducing ever greater levels of centralization.

Interestingly, the islanders did not, on the whole, appear to be consciously aware of what they were doing; however, they were at least dimly aware that some people spoke differently from others. Labov provides an interesting anecdote. One young man had earlier left

the island to attend university and then worked for some time in a city on the mainland. Deciding he didn't like it after all, he returned to the island and started a business. This man had a CI of 2.11, the highest value recorded for any speaker, as though he were trying to compensate for his earlier mistake. One night at dinner, his mother remarked, 'You know, he didn't always speak that way. It's only since he came back from college. I guess he wanted to be more like the men on the docks.'

This anecdote represents a rare instance of a speaker noticing a change in someone's speech. But the young man involved was probably atypical: most speakers on the island probably did not change their speech deliberately and significantly during adulthood. As the age data in Table 10.1 suggest, most speakers probably acquire their speech patterns early in life and then maintain them without further change.

Nevertheless, Labov's data show clearly that a change was in progress on Martha's Vineyard, and had been for some time. But that change only showed up when we examine the data in the right manner: simply by listening to people speak, we can observe no changes happening. All that we observe directly is *variation*. But that very variation conceals a change that is in progress: even if individuals don't change their own speech, the speech of the whole community is, and has been, changing steadily. For our purposes, this last conclusion is the most important of all.

There are thus three lessons to be learned from Martha's Vineyard:

1. The quantitative (statistical) approach to variation can reveal systematic differences between individuals and groups that are not otherwise evident.
2. A linguistic variable may exhibit social stratification, with members of different groups using different values of the variable.
3. A change in progress shows up as variation.

The importance of these conclusions has been reinforced by dozens of more recent studies, some of which we shall be examining below.

10.3 Variation as the vehicle of change

The quantitative method pioneered on Martha's Vineyard has been developed by Labov and others and applied to the study of a large number of linguistic variables in a large number of speech communities. By using this approach sociolinguists have again and again been able to find significant correlations between the variables they are looking at and non-linguistic social factors. The particular social factor identified on Martha's Vineyard, attitude to the island, is a somewhat unusual case. Far more commonly, the relevant social factors turn out to be more obvious and familiar ones.

Naturally, one of the most obvious of these factors is social class. In most speech communities of any size, there is conspicuous social stratification, with some people belonging to more prestigious (and powerful) classes than others. Of course, the criteria for determining class membership are complex and variable, involving such factors as income, family background, vocation or profession, and skin colour, and the same factors are not equally important in every community. The important thing for our purposes here, however, is that, in a number of societies, sociologists have already, for their own purposes, worked out reasonable criteria for assigning individuals to particular social classes. Sociolinguists can therefore take advantage of these independently derived criteria for their own work.

While it is perfectly possible to investigate the potential relation between social classes and linguistic variables while excluding all other factors, it has become commonplace to use a slightly more elaborate approach, also invented by Labov, in which the investigator looks simultaneously at social class and at a second factor which we can call **context** or **degree of formality**. This two-dimensional approach is favoured because we find in practice that it often yields very illuminating results about the nature of variation in a community.

Let's look at a typical example of this approach, carried out by Trudgill in the English city of Norwich, as one part of a wide-ranging investigation of variation in local speech. The variable Trudgill chose to look at is the variation between two types of pronunciation of verb forms ending in *-ing*, such as *going*. In Norwich, as elsewhere, there are two possible pronunciations for such forms: one with a final velar nasal, which corresponds quite well to the conventional spelling, and another with a final coronal nasal, often represented in writing as *goin'*. This variable Trudgill notates as (ng). (It has become conventional to represent a sociolinguistic variable by some appropriate symbol placed in parentheses.)

As always in quantitative work, Trudgill recorded the speech of his subjects and counted the instances of each type of pronunciation for each one of his subjects. But he did something more: he put each of his subjects into four different contexts and recorded their speech separately for all four contexts. The four contexts were *casual speech* (CS), in which the subject is engaging in ordinary, relaxed conversation; *formal speech* (FS), the self-conscious speech of a formal interview; *reading-passage speech* (RPS), in which the subject reads aloud from a written text; and *word-list speech* (WLS), in which the subject reads aloud a list of written words, one at a time. Then, using the independent criteria just referred to, he assigned each of his subjects to one of five social classes: the *middle middle class* (MMC), the *lower middle class* (LMC), the *upper working class* (UWC), the *middle working class* (MWC) and the *lower working class* (LWC). For the subjects in each class and in each context, he then calculated an average value of the variable (ng), expressed as the percentage of *goin'*-style pronunciations used. His results are shown in Table 10.6 and Figure 10.1. Every group of speakers uses both types of pronunciation, and it is generally impossible to predict which form a given speaker will use on the next individual occasion: naïve observation would once again yield nothing but variation. But the quantitative approach at once reveals a very striking pattern. First, in any given context, a member of a lower-ranking class consistently uses a higher proportion of *goin'*-style pronunciations than a member of a higher-ranking class. Second, everybody uses a higher proportion of *goin'*-style pronunciations as the context becomes more informal and a lower proportion of *goin'*-style pronunciations as the context becomes more formal. Figure 10.1 displays this behaviour very vividly.

Table 10.6 The variable (ng) in Norwich (percentages of *-in* forms) (adapted from Trudgill 1974)

	WLS	RPS	FS	CS
MMC	0	0	3	28
LMC	0	10	15	42
UWC	5	15	74	87
MWC	23	44	88	95
LWC	29	66	98	100

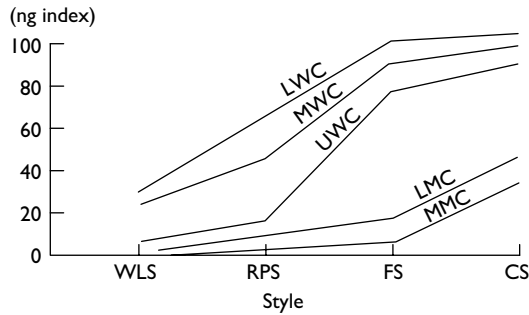


Figure 10.1 The variable (ng) in Norwich (adapted from Trudgill 1974)

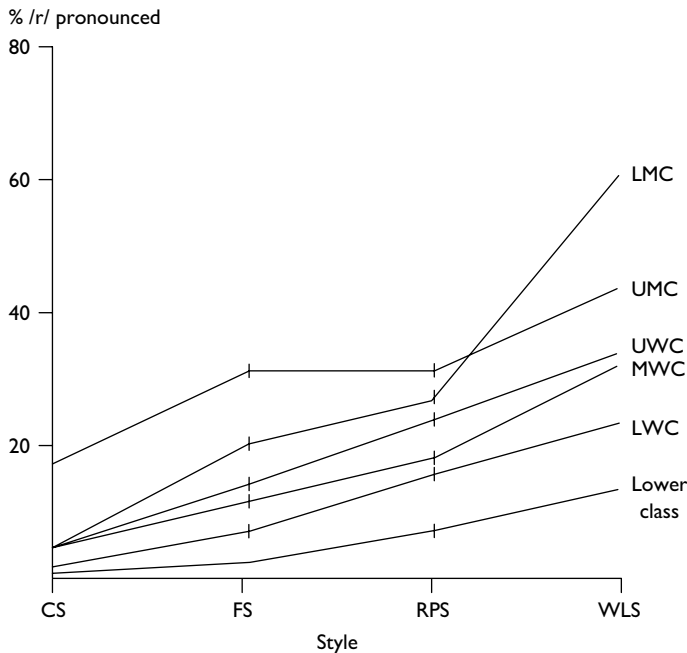


Figure 10.2 The variable (r) in New York City (adapted from Labov 1972)

From these results, we can also conclude that one of the two types of pronunciation has greater overt prestige in Norwich than the other. Which is it, and why?

Let's look at a second example in the same vein. This time it's Labov's work again. Here the setting is New York City and the variable (r) is the two types of pronunciation of words containing non-prevocalic /r/ – that is, words like *car*, *more*, *dark* and *shirt*, in which /r/ is not followed by a vowel. Speakers in New York sometimes pronounce this /r/ (we call this a **rhotic** style) and sometimes not (we call this a **non-rhotic** style); in the non-rhotic style, *guard* may become identical to *god*, *dark* may become identical to *dock*, and so on. Again, all individuals use both types of pronunciation, and again the quantitative approach uncovers a clear pattern, shown in Figure 10.2. The social classes recognized are the upper middle class (UMC), the lower middle class (LMC), the upper working class (UWC), the middle working class (MWC), the lower working class (LWC) and the lower class.

Again, we see the same general pattern we saw in the Norwich case. In a given context, the members of each class use a higher percentage of rhotic (/r/-ful) pronunciations than the members of the next lower class, and everybody shifts towards a higher proportion of rhotic pronunciations as the context becomes more formal. But this time there is one striking difference: two of the lines cross. The second highest group, the lower middle class, actually uses more rhotic pronunciations in the most formal context than do the highest group, the upper middle class. This phenomenon has turned up in a number of other such studies, and always it appears to be the second highest class that jumps above the highest class in the most formal context. Labov calls this phenomenon **hypercorrection**, but the term is unfortunate, since ‘hypercorrection’ has long been used in linguistics in a slightly different sense, and here I will use the label **overadjustment**. Very frequently, it seems, the members of the second highest class overadjust their speech in very formal contexts towards prestige forms, as though they were particularly insecure about their speech and perhaps also about their social position.

These two studies are in no way isolated or exceptional. Very similar patterns have turned up wherever sociolinguists have looked, in Europe, North America, Asia, Africa. Such findings are of critical importance for understanding the processes of language change and for finding a resolution of Saussure’s paradox.

As I remarked above, an earlier generation of linguists was inclined to see variation as peripheral, insignificant, inconvenient, perhaps even as pathological. What the sociolinguists have found is that the truth is precisely the opposite.

First, they have shown that variation is *normal* in language. Linguistic variation is characteristic of all speech communities; it is a central and inescapable feature of the speech of every community and of every individual. Indeed, it is the *absence* of variation that would be pathological: today we would be dumbfounded to stumble across a community of any size in which everyone spoke in an invariant manner in all circumstances, and we would suspect that something fishy was going on.

Observe that these findings do not contradict Saussure’s conclusion that a language is a highly structured system of relations among linguistic elements: they merely demonstrate that the nature of that system is considerably richer and more complex than we had previously suspected. When you learn to speak a language fluently, not only do you master the phonology, the grammar, the vocabulary and so on, but you also master the proper use of the great number of linguistic variables characteristic of your community.

Second, sociolinguists have demonstrated that linguistic variables very often have social significance, in that your use of the variable features carries important information about your place in the community. The striking graphs show that such social significance is well known to speakers, in some fashion at least, since they automatically adjust their speech in response to changing contexts; however, it does not follow that speakers are necessarily highly conscious of the linguistic details.

Third, and most critically, variation has a time dimension. In the case of Norwich, there is no reason to doubt that the situation with respect to the (ng) variable has been stable for generations, perhaps even for centuries. So far as we can tell, the frequency of the two variants is not tending to change over time.

In New York, however, the situation is very different: we have clear evidence that the position *is* changing over time. The data collected from New York in the 1930s and published in a dialect atlas show almost no trace of rhotic speech at the time: non-rhotic pronunciations appear to be nearly universal. There was also practically no social association

for non-rhotic speech. Upper-middle-class (upper class?) New Yorkers like Theodore and Franklin Delano Roosevelt had completely non-rhotic accents. Data collected in the 1950s and the 1960s, however, show noticeably higher frequencies of rhotic speech. Further, it appears that rhotic pronunciations are becoming steadily more frequent in New York today. Unlike Norwich, then, New York is showing a steady change over time in the distribution of the two types of pronunciation. But that change is not proceeding simply: we do not merely find younger speakers using more /r/s than older speakers, as we might have expected. Instead, different social groups are responding differently, and the facts are complex. Lower-middle-class speakers are behaving differently from upper-middle-class speakers; in some classes, older speakers appear to be actually increasing the frequency of their rhotic pronunciations, while younger speakers in the same classes show little tendency to do the same; working-class speakers whose jobs bring them into regular contact with middle-class speakers are behaving differently from working-class speakers whose jobs don't; and so on. Among the many interesting details he came across in his lengthy study, Labov reports that many parents show a marked tendency to use a much higher than normal proportion of rhotic pronunciations when scolding their children, as if unconsciously putting across the message that rhotic pronunciations are desirable (or authoritative).

So, however complex the facts are, we have good evidence that New York City is slowly changing from an earlier state in which non-rhotic pronunciation was the norm, prestigious and practically universal, towards a state in which rhotic pronunciation represents the prestige norm. It is entirely possible that New York will eventually go all the way and shift to totally rhotic speech of the sort found throughout the American Midwest, but we can't be sure of that: only time will tell. In the meantime, however, a linguistic change is clearly applying to New York City English, and *the vehicle of that change is variation*. That is, the change is proceeding through the mechanism of a steady shift in the frequencies of competing forms, what I have been calling variants. And this, we now believe, is exactly the way that most language changes proceed: by a shift in the frequencies of competing variant forms.

And so we have a resolution of the Saussurean paradox. Changes can proceed without disrupting the system of a language because the vehicle of change is variation, and variation is always present – indeed, it is a central characteristic of speech.

We can thus gain an understanding of how the change is proceeding in New York, but that doesn't explain how the change got started in the first place. Very often it is far more difficult to explain how a change gets started than to explain how it propagates itself, but in this case the answer is not hard to find.

Like the south-east of England, the east coast of the USA has for generations been characterized by non-rhotic speech. West of the Appalachian Mountains, however, in the American Midwest, rhotic speech has been universal for at least as long. In the past, eastern Americans tended to look to prestigious east coast cities like Boston and Philadelphia for their linguistic models, or even to England, while Midwestern speech was considered rustic by comparison. In the last few decades, however, things have changed: radio, films and above all television are now dominated by rhotic speakers from the Midwest and the West, and there is a steadily growing perception that such *General American* speech, as it is called, now represents the norm for American speakers, and not the non-rhotic speech of the coast. Like everyone else, New Yorkers have been constantly exposed to the once unfamiliar speech of the Midwest, and so it is hardly surprising that such a prominent Midwestern feature as rhoticity has crept into New York speech, where it is now steadily

extending its presence. Moreover, as Bonfiglio (2002) points out, there is considerable evidence that many typical New York City linguistic features, including non-rhoticity, became associated by the middle classes with the ‘terrible’ accents of recent immigrants – to go along with their ‘frightening’ political and social attitudes – and the speech of African-Americans. The rhotic dialects of the Midwest, on the other hand, were regularly associated with ‘Anglo-Saxon’, or at least ‘Nordic’ virtues and purity.

But it’s not just class and ethnicity that sociolinguists perceive as inducing meaningful variation. In his Norwich study, Trudgill found that what gender you were might also affect your linguistic choices. In order to demonstrate this, he devised an experiment whereby informants were recorded producing something approaching their natural speech style; they were also asked whether they themselves pronounced words in a particularly local way. The two pieces of evidence were then compared to check whether the informants were being accurate in their self-analysis. The results were startling.

Let’s look at the results for two variables. The first of these is something of a *shibboleth* of Norfolk (the county in which Norwich is situated) speech. In most of the British Isles, words like *dune*, *Tuesday* or *beautiful* are pronounced with a variant of /ju:/. In traditional Norfolk speech, however, as with many North American varieties, these words are pronounced with /u:/. In contemporary Norwich speech, however, there is considerable variation between the local and the cosmopolitan form. This variation is not random, however.

If we look at Table 10.7, we can see that 78 per cent of the informants did what they said: they used /ju:/ all the time or /u:/ or varied between them, and said they did. But 7 per cent said that they used only the local pronunciation, when actually they used the cosmopolitan (*under-reporting*), while 15 per cent said they used only the prestigious /ju:/ pronunciation, when they actually also used the local one (*over-reporting*). Of itself, such a result is interesting. But we can go further than this. There is a major discrepancy between apparent male and female linguistic behaviour: women favour over-reporting strongly (which men on this occasion do not do at all), while both women and men under-report at roughly the same level. What are we to make of this variation?

Let’s look at another variable, which Trudgill terms (er). This represents a difference in pronunciation between the prestigious and local pronunciations of words like *ear*, *hear* and *tear* (noun). In RP, a fairly centralized diphthong with a high first element is normal; in local speech, a pronunciation whose primary element is pronounced at a middle front height is often heard. Trudgill carried out the same experiment with this sound (see Table 10.8).

Here the tendencies we saw with (yu) are much more pronounced, probably because (yu) is viewed as a positive marker of local speech, which (er) is not. On this occasion, only 23 per cent of the sample reported their linguistic behaviour in an accurate way, while 33 per cent said they always used the local form, but actually didn’t and 43 per cent said they always used the prestige form, but didn’t.

Table 10.7 Percentage of informants over- and under-reporting (yu) (adapted from Trudgill 1975: 95)

	Total	Male	Female
Over-r	15	0	29
Under-r	7	6	7
Accurate	78	94	64

Table 10.8 Percentage of informants over- and under-reporting (er) (adapted from Trudgill 1975: 96)

	Total	Male	Female
Over-r	43	22	68
Under-r	33	50	14
Accurate	23	28	18

But if we look at these figures from the point of view of gender, we see that while only 22 per cent of the men over-report, over two-thirds of the women say that they only use the prestige pronunciation, but don't. The distinction is almost as striking with under-reporting. Half of the men claimed only to use the local pronunciation, but this turned out to be untrue. Only 14 per cent of the women exhibited the same behaviour.

What are we to make of this? In Trudgill's study at least (and there are a number of studies from around the same time that essentially back up his findings), it suggests that women, no matter their social background, regularly exhibit linguistic behaviour (and views on the 'best' language) that is strikingly at odds with the behaviour of men, no matter their social background. Why should this *sociolinguistic gender pattern* (as Trudgill termed it) have developed?

In the first place, we have to recognize that Trudgill didn't discover this phenomenon; this was something most speakers were aware of. When I read Trudgill's work on this matter I am often reminded of a great-aunt of mine whose accent changed markedly when she answered the telephone. I'm sure I'm not alone in this. What Trudgill did was show that the linguistic distinction between men and women could be proved.

But why should such a distinction exist? The first answer might be *ambition*. There is at least anecdotal evidence that working-class women in particular are more ambitious than men. Certainly, in the industrial society of which Trudgill was inadvertently recording the decline, women were expected to be aspirational for their children, in their role as educator and nourisher. Part of this process was inevitably linguistic since, as we've seen, certain forms of speech are, in all societies, considered more prestigious than others. In such circumstances, it was inevitable that women would wish the next generation to have 'better' speech than their own, the **overtly prestigious** norms. In a real sense, such linguistic behaviour would encourage variation that leaned towards the use of prestige language norms, particularly since it would have been backed up by school, church and other middle-class-dominated organizations.

At the same time, industrial society permitted men – normally the primary breadwinners of the household – to speak in a more local, **covertly prestigious** way. Men, so the underlying mythology had it, proved their worth through their work and did not need to change their speech to suit overt prestige norms. Indeed, there was considerable pressure to adhere to local norms, even for middle-class men, reinforced by the ties created through the sodality of football and other sports, the pub and the social club (never mind the ties formed at work, which women were rarely able to develop). Thus women did not have the same level of local input as men, and therefore were not permitted full entry into the vernacular counter-culture.

In a few paragraphs we'll see that this pattern has probably changed. But what effects might this type of gender-role rigid society create in the development of language? One truth is that all children would have competing parental language models. The maternal

one would encourage, at least in an age of mass literacy and relatively free social mobility, the use of pronunciations, words and structures closer to the prestige variety; this influence would be at its greatest upon girls, since they would be being trained for the maternal role. This would, it could be postulated, be exaggerated in the language of the lower middle classes, where linguistic over-sensitivity would combine with this role. The presence of something like standard speech in almost every home would have inevitable effects on how language use is viewed and, indeed, how it is used. Whether we can extrapolate further back with this will be discussed below.

In their work on the language use of working-class Belfast, Jim and Lesley Milroy discovered that the sociolinguistic gender hypothesis was not as straightforward as might previously have been thought. In order to understand their breakthrough, we need to know a little about its background.

Although its roots are ancient, Belfast is among the newest industrialized cities in the British Isles, with its period of growth being focused on the late nineteenth century, rather than the early to mid-sections of that century, as was the case with most cities in Britain. This meant that, at the time the Milroys were carrying out their research in the 1970s, many of their informants were, at most, three or four generations away from the countryside. Some of their informants – in particular, some Catholics – were much closer to their rural origin, some even maintaining contact with their country cousins. It takes a while – normally two to three generations – before a new variety, whether colonial or urban, is fully formed. It is not surprising, therefore, that the working-class varieties in Belfast differ considerably from place to place (we will return to the creation of new varieties of a language in the next chapter).

To a large extent, where you lived in working-class Belfast depended upon your religious affiliation and what you did for a living. Simplifying somewhat, skilled jobs associated with large business concerns, such as the shipyards for which the city was particularly famous, were largely the province of Protestants, most of whom lived to the south and east of the city, in the vicinity of their yards. From these neighbourhoods the Milroys chose an area known as Ballymacarett. Again, simplifying somewhat, to the west of the city centre, the inhabitants were considerably poorer and the level of occupational skills gained by the majority of the adult population relatively low. Protestants tended to live along the Shankill Road, while Catholics tended to live along the parallel Falls Road. The Milroys chose the Clonard area as representative of the latter, and the Hammer area as representative of the former.

As the Milroys observed, the relatively new urban growth of Belfast, the linguistically disparate origins of its new population, the cultural, social and often workplace division of the Catholic and Protestant inhabitants (whose forebears often came from different regions) meant that local linguistic distinctiveness was more marked than it would be in comparable urban centres. But part of this distinctiveness was common to all working-class communities during the industrial age: close ties within the community.

Perhaps because of their position in a largely adversarial world, perhaps because they were a continuation of the rural settlements from which many of their inhabitants came, working-class communities tended to be extremely tight-knit. People worked together, socialized together and tended to marry within the extended group. Men in particular, as the chief breadwinners, tended to be particularly well embedded in the community. The idea of incorporating this factor in an analysis of variation was not new to the Milroys. It has been regularly observed by sociolinguists; perhaps most notably by Labov in his work

on language use among young African-Americans in New York City. What was new with the Milroys was that they had found a means of measuring it. Following previous sociological work, the Milroys sought to demonstrate the truth behind these observations by calculating the Network Scores of their informants. These were the scores that an informant gained by his or her connection to the community; the higher the score, the more likely you were to be surrounded by close network ties:

1. Membership of a high-density territorially based cluster.
2. Having substantial ties of kinship in the neighbourhood. (More than one household, in addition to his own nuclear family.)
3. Working at the same place as at least *two* others from the same area.
4. The same place of work as at least two others of the same sex from the area.
5. Voluntary association with workmates in leisure hours. This applies in practice only when conditions 3 and 4 are satisfied.

(Milroy 1987: 142)

Now, as we've already discussed, we would expect working-class men to have the higher network scores, since, as we deduced from Trudgill's study, men, being the chief breadwinners, would have the social and economic power to create strong network ties at work and in their various social activities, while women, having less social and economic power, would not be able to develop such broad and deep networks. This could be our research hypothesis for the Belfast survey: logical, and based upon past experience.

Logical, but wrong, in fact. In Ballymacarett, the skilled working-class area, the sociolinguistic gender pattern in its Trudgillian form holds true. Local men achieve much higher network scores than local women. But in the two poorer neighbourhoods of western Belfast, there is actually very little difference between the network scores of men and women. In the Hammer area, men score slightly higher than do the women; in the Clonard, the opposite is the case. Why? Primarily because, in the mid-1970s, when the research was carried out, Belfast had particularly high unemployment, partly due to the world economic crisis triggered by the rising price of oil, partly because of the chronic, often violent, instability that Belfast and the counties around it were suffering at the time. This unemployment hit unskilled or semi-skilled men particularly hard, while men with skills generally managed to keep their jobs. In the poorer districts of Belfast, it was soon women, particularly young women, who were likely to have work and therefore economic power. This, of course, meant that women rather than men were beginning to be able to create stronger and more network ties.

This change had a variety of linguistic effects, as can be seen in [Figure 10.3](#), dealing with variants in pronunciation of words with <th>. In this figure, the further to the right you are placed, the more your speech reproduces local vernacular rather than metropolitan prestige norms; the higher up the graphs you are placed, the higher your network score is.

We can derive a number of conclusions from the diagram. In the first place, there appears to be a correlation between high network scores and vernacular pronunciation. It's not an exact fit, but it's there. Second, there does appear to be some kind of relationship between gender and language. In all three neighbourhoods it is men who are represented as having the highest vernacular scores. But look at the graph for Clonard. There are a number of younger women with high network scores and fairly high vernacular scores. There is also one man of middle years from that area who has relatively low scores on the vernacular

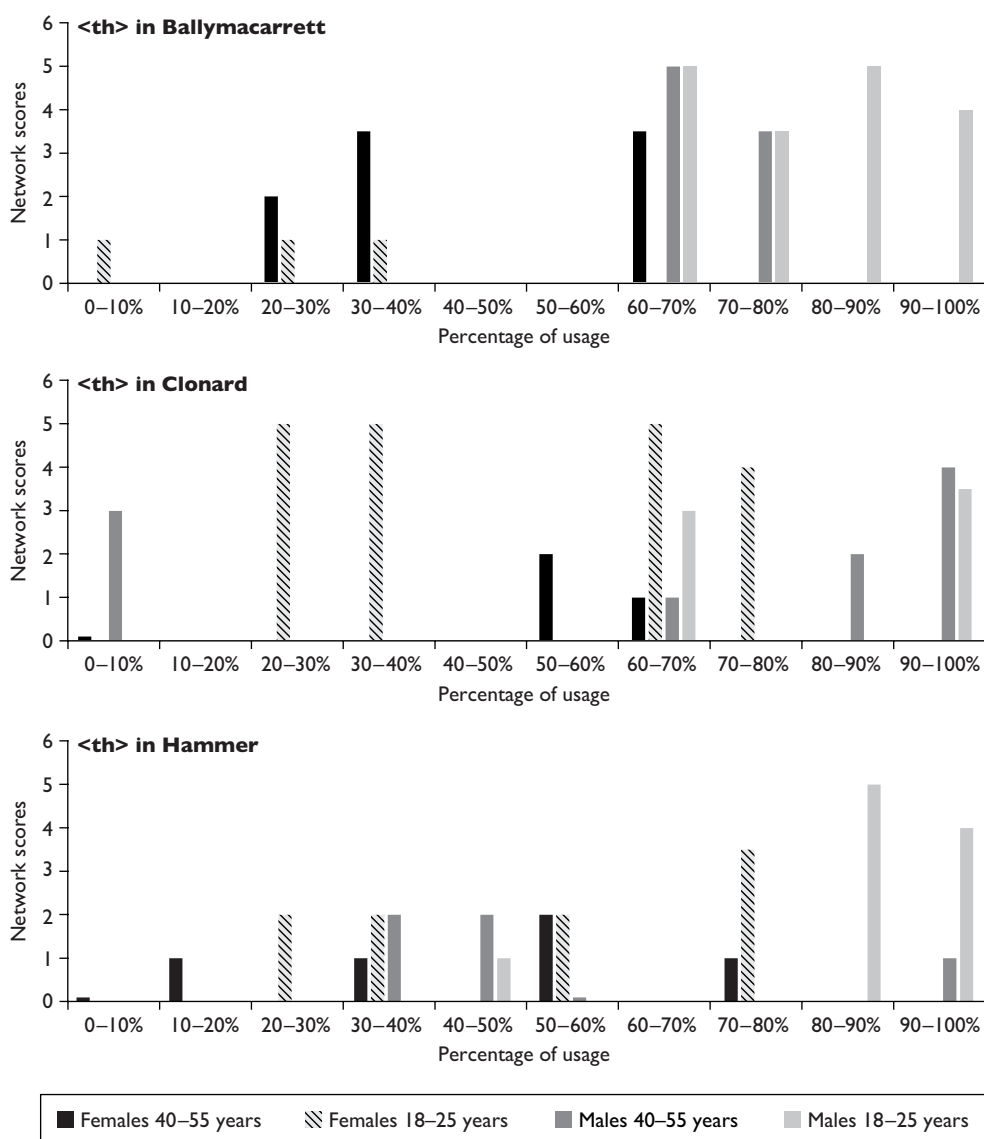


Figure 10.3 (th) in Belfast (adapted from Milroy 1987)

side. It may be the case that men, being unemployed and therefore condemned to having little spare money of their own, while at the same time taking more of a ‘hands-on’ approach to child-rearing, have assumed some of the linguistic role associated with women in industrial society.

This new view on the sociolinguistic gender hypothesis has considerable importance; more importance than it might have been given when the study’s research was first being put forward, perhaps. Although the local circumstances made more obvious the switchover

from primary breadwinner status for men only to a situation where both partners, when possible, worked, similar changes have regularly happened in Western Europe and elsewhere as a move away from heavy industry being a major part of national economies has gained pace. There are many more working-class neighbourhoods like Clonard than there were 30 years ago. This means that we must be careful to recognize that, useful though sociolinguistics is in helping explain language change, the circumstances – historical, economic, social and political – in which language variation takes place have some effect on *how* that language variation takes place. This should not be taken to mean that gender did not have a sociolinguistic role in the past. It did; but it might not be the role we expect. Indeed, the truth of language variation being part of language change is confirmed by this evidence. There are still vernacular and normative forces at work on language use as it varies; but who represents these forces within communities has altered.

The Milroys (in particular in their 1985 paper) have taken their work on social networks much further, however. The corollary of the close network ties of working-class communities is the loose ties which lower middle-class individuals (and communities, if we can use that term) have. Vulnerable to economic downturns and relatively insecure in their white-collar status, many members of the lower middle classes tend to be reactionary in politics and deeply unwilling to encourage more people from the ‘lower orders’ to join them. The communal virtues of the working classes, inherently local and encouraging to the preservation of vernacular features, are at odds with the other, with its individualism and aspiration towards cosmopolitan, upper-middle-class norms, including linguistic norms. This must lie at the heart of such phenomena as over-adjustment. It will certainly encourage the moves in middle-class speech towards the national standard written variety found in almost all countries where mass literacy is the norm, as discussed further in [Chapter 11](#). Moreover, it seems to be the case that while linguistic innovation begins in groups with close network ties, it tends to spread most rapidly through groupings with loose ties. It also has to be recognized that linguistic over-sensitivity can sometimes create the conditions for innovation, even when attempts are being made to use conservative prestige language, a point to which we will return on a number of occasions in this chapter.

Two questions underlie the sociolinguistic interpretation of linguistic change: How does a change start? And how does a change propagate itself? These are often referred to respectively as the problems of **actuation** and **implementation**. As you can see, the work of the sociolinguists has primarily addressed the issue of implementation, and with considerable success. On the whole, our understanding of actuation is still, by comparison, in its infancy, and this is doubtless an area that will be receiving further scrutiny in the future.

A classic instance of a change that can only be understood in terms of variation and social stratification is provided by the history of certain English vowels. Middle English had seven long vowels, three of which are relevant to our story: the vowel of *mate* (Middle English /a:/), the vowel of *meat* (ME /ɛ:/) and the vowel of *meet* (ME /e:/). There is not the slightest doubt that these three vowels were distinct in Middle English and that they had the pronunciations I have just assigned to them; indeed, these Middle English pronunciations are precisely the reason for the spellings we still use today: *mate*, *hate*, *late* versus *meat*, *seat*, *heat* versus *meet*, *see*, *heel*. Like all the Middle English long vowels, these three underwent a change of quality (in all three cases, a raising) during the Great Vowel Shift, which mostly took place during the fifteenth and sixteenth centuries. That vowel shift is of no direct relevance to our story, but another change is.

We have abundant testimony to the prestige pronunciation of English in London in the sixteenth and early seventeenth centuries, in the form of descriptions by the phoneticians of the day and of the rhymes used by poets, and it is clear that, early in that century, a merger had occurred between the vowel of *mate* and the vowel of *meat*. That is, these two words had become homophones, and the same was true for other relevant pairs such as *hate* and *heat* and *mane* and *mean*. This, of course, is not the sort of pronunciation we are familiar with today, not even in London, but in fact it still survives in parts of Ireland and northern Scotland, where the local pronunciations of *meat* and *tea*, for example, sound to the rest of us like *mate* and *tay*. Let's call this pattern *System I*.

However, we have equally abundant testimony to the prestige pronunciation used in London in the later seventeenth century, and this does not conform to System I. Instead, we find a merger between the vowels of *meat* and *meet*, with the vowel of *mate* remaining distinct. In the late seventeenth century, then, *meat* sounded just like *meet*, both of which sounded different from *mate*; *bean* rhymed with *seen* and not with *mane*; *seas* rhymed with *freeze* and not with *maze*; and so on. Let's call this pattern *System II*.

System II is, of course, the type of pronunciation that virtually all English-speakers use today. But the change from System I to System II constitutes a huge puzzle. Why? Because, on the face of it, the change involved a reversal of a merger – and the **reversal of merger** is theoretically impossible.

Of course, the development of System II from Middle English also involved a merger, but *this* merger is of no significance here. The problem is this. In the sixteenth century, speakers had completely merged the vowels of *mate* and *meat*, and no longer made any distinction between them at all. Therefore, it would seem, in order for their descendants to change to System II, in which the *mate/meat* merger had not occurred, those descendants had to reverse the merger. That is, they had to figure out which of the *mate/meat* words had, generations earlier, contained the lower *mate* vowel, so that they could separate those words out, and which had earlier contained the higher *meat* vowel, so that they could separate out those words too (and then merge them with the *meet* words). But how could they do this?

Speakers do not have access to the history of their language. Consider a parallel. Unless you come from certain parts of East Anglia or south Wales, you certainly pronounce *nose* and *knows* identically. But, in Middle English, these words contained different vowels, vowels that, as it happens, have also undergone merger everywhere except in East Anglia and south Wales. Can you tell which words formerly contained the *nose* vowel and which the *knows* vowel? I am quite sure you cannot. I can't do it myself without checking the historical records. Indeed, you were probably not even aware until this moment that there ever were two different vowels in the *nose* and *knows* words.

Those early modern Londoners, with their System I pronunciation, must have been in the same position. How could they possibly know which words had once had the lower vowel and which the higher, since they didn't make any distinction themselves? How could they even know that there had ever been a difference at all?

For many years linguists agonized over this problem, without resolving it. In 1962, Morris Halle, in apparent desperation, put forward an astounding explanation: taking advantage of the abstract underlying forms permitted by Chomskyan linguistics, he suggested that several generations of speakers must have managed to keep the *mate* and *meat* vowels distinct in their heads, even though they always pronounced these vowels identically, and even though they never heard anybody else making the distinction. To most linguists, this

account is nothing less than mysticism; it can't possibly be taken seriously. But that still leaves us with the problem.

In 1968, however, in the very paper that is now considered to have revolutionized the study of language change, Weinreich, Labov and Herzog pointed out that a simple and decidedly non-mystical explanation was available, and that that explanation had moreover been found decades before by specialists in sixteenth- and seventeenth-century English, but that it had been lying unnoticed in the specialist tomes ever since.

If we examine the representations of contemporary speech in the writings of the period, such as the plays of Shakespeare, who wrote in the late sixteenth and early seventeenth centuries, we find that *both* types of pronunciation are present – but with a difference. System I is found in the speech of refined, upper-class characters (who of course constitute the majority of the leading characters in Shakespeare), while System II is typical of lower-class speakers – servants, clowns and the like. Therefore, both types of pronunciation were in use, and both types were undoubtedly well known to most people, but once again there was significant social stratification: upper-class speakers used one set of vowels, while lower-class speakers used the other.

So what happened? Easy: there was a change in the *social significance* of the two types of pronunciation. Earlier, it was System I that was regarded as being the more prestigious, and so educated upper-class speakers used that, while avoiding the much less prestigious, and probably vulgar, System II. At some point, however, perceptions changed: System II came to be regarded as more prestigious, and so later generations of upper-class speakers used that, and System I came in turn to be regarded as non-prestigious and possibly as vulgar – as we'll see, it may even have been perceived as subversive. (Observe that this change in perceived prestige is reminiscent of what is going on in New York, and we might surmise, therefore, that the change was accompanied by a good deal of variation for a while, before System II finally won out.)

Now in those days there were no sound recordings of any kind, and our only records are written ones. People who could write were by definition educated, and therefore they must generally have used the type of pronunciation regarded at the time as most prestigious. Poets based their rhymes on prestige speech; phoneticians described the type of pronunciation they regarded as most prestigious and desirable; distinguished characters in literature had prestige speech put into their mouths. But there were always large numbers of people using the low-prestige variety; it's merely that their speech didn't get recorded very often – practically never, in fact, except in the mouths of lower-class characters in literature, who were given non-prestige speech specifically to show their low social status. And, in all likelihood, there were plenty of people, perhaps almost everybody, who used both types of pronunciation in a variable manner, but we have little data.

What information we do have, as analysed in Dobson (1968) is fascinating, if confusing, however. The early modern period was one of considerable social mobility. It was very much an era of the 'New Man', the man of (relatively) lowly social background who rose to high rank through his own efforts. Famous examples of this process include men such as Thomas Wolsey, Thomas More and Thomas Cromwell, who all rose to high offices under the English King Henry VIII.

As we would expect from our study of sociolinguistics, social climbers of this type are among the most linguistically self-conscious members of a community. In response to their worries, a veritable literature about 'correct' pronunciation developed, written by authors normally termed *orthoepists* by scholars. The orthoepists' writings are useful to historical

sociolinguists because they not only normally try to prescribe the ‘best’ pronunciation; they also often describe and criticize the ‘worst’. Hand in hand with these were spelling reformers – a task so necessary during a period of intense change in pronunciation, even if none of their suggestions were actually taken up. The two tasks often blended into one.

Naturally, the quality of these witnesses’ work is variable. In the worst, the pronunciations they describe appear at best unlikely and at worst impossible. But the best orthoepists, writers like John Hart and Alexander Gil, are excellent witnesses of a change in progress. In his *Logonomia Anglica* (1619 and 1621), Gil describes and criticizes the speech of a group of women he terms the *Mopsae*, who came from the eastern side of London (in other words, Essex). He criticizes their ‘high’ pronunciation of the <ea> words, which suggests an /i/ pronunciation. Who or what the *Mopsae* were has provoked considerable scholarly discussion. My own feeling is that they were socially ambitious women from the same basic background as the ‘New Men’ already mentioned.

We can begin, therefore, to see why System II overcame System I in the mid to late seventeenth century. This period was one of unprecedented social mobility and also political radicalism. Many of the existing English nobility were eliminated by the series of civil wars of the fifteenth century termed the ‘Wars of the Roses’. Many others were crushed in the purges of the reigns of Henry VIII, Edward VI, Mary I and Elizabeth I. Their place in government was taken by the ‘New Men’, rising stars of the lower middle classes. While these pioneers probably conformed as much as possible to the speech of their betters, a more radical generation followed who participated, often for a combination of religious and political reasons, in a civil war that became a revolution with the overthrow in 1649 of the former ruling class.

Most of the leaders of the revolution came from a lower-middle-class or minor gentry background, often of Essex or eastern origin, the best example of which being Oliver Cromwell, the future Lord Protector (i.e., dictator) of England. Although the full programme of the revolution failed, and the monarchy was restored in 1660, many of those who had risen through these events remained in position. Indeed, the ‘Glorious Revolution’ of 1688 established this new order so firmly that its leaders and their descendants remained at the heart of the political establishment until comparatively recently – Sir Winston Churchill, for instance, was a descendant of John Churchill, first Duke of Marlborough, ‘sword’ of the ‘Glorious Revolution’, successful general and rather less successful politician, who was the archetypal ‘New Man’.

Linguistically it could be argued that the absolute replacement as prestige variety of System I by System II stems from the social foment of the time. So many members of a previously less prestigious class, many of the same geographical origin as the *Mopsae*, were now in the heart of the establishment and able to call the shots linguistically, even if they weren’t aware that they did.

It is therefore a grave oversimplification to declare, as we formerly did, that Londoners used System I in the sixteenth century but System II in the seventeenth century. Both types of pronunciation were in use, but only one of them tended to be recorded at any given time.

Indeed, as we saw, this change is probably an example of **change from below**. Most of these changes are not as dramatic as this, however. Often, a stigmatized feature that is not present in prestige speech but is widespread in non-prestige speech begins to creep up the social ladder into the mouths of prestige speakers, gaining ground steadily until it becomes accepted as the prestige norm, with the older prestige form becoming stigmatized in turn.

This sort of thing happens all the time. In England, the loss of /r/ in words like *far* and *dark*, and the loss of /h/ in words like *why* and *whale*, were once stigmatized as ‘vulgar’; nonetheless they have crept into educated speech to the point at which they are now regarded as the norm, and speakers who still pronounce the /r/s in *far* and *dark* are regarded as laughably quaint and rustic, while the pronunciation of the /h/s in *why* and *whale* is now no more than a pedantic affectation in England. Comparable developments are occurring today. For example, the ‘glottalization’ of popular London speech has for generations been regarded by educated speakers as vulgar; it is nevertheless invading middle-class speech at a surprising rate, and it has recently even been heard in the speech of some of the younger members of the royal family. The motivation for changes from below remains somewhat obscure, but there is no doubting their frequency.

There is an important reminder here. Earlier in the book, I pointed out the importance of the historical linguists’ version of the *principle of uniformity*: ancient languages were not different from modern ones. That principle applies equally to social factors. There is no good reason to suppose that, centuries or millennia ago, social factors were less important than now. Like us, our ancestors had their social distinctions, and undoubtedly these distinctions were well represented in speech. In Shakespeare’s London, in King Alfred’s England, in Caesar’s Rome, in ancient Egypt or Babylon, among the builders of Maeshowe Cairn in Orkney, there were doubtless more and less prestigious ways of speaking, and there must have been countless occasions on which some stigmatized feature of vulgar speech eventually passed into the prestige speech of the upper classes. It should be recognized, however, that the precise social relationships in a given historical society will normally be different – sometimes strikingly – from our own. We will consider this in more depth in this chapter’s case study.

I will close this section with an amusing little example of this ceaseless change from below. Old French had a diphthong [ɔj], spelled *oi* in the conventional orthography, as in *moi* ‘me’, *loi* ‘law’, *soil* ‘soil’, *point* ‘dot’, *voix* ‘voice’ and *chois* ‘choice’ (modern *choix*). You can see that some of these were borrowed into English, where nothing much has happened to the diphthong. In medieval French, however, the nucleus of the diphthong was shifted from the first to the second element, producing the pronunciation [wɛ]. This remained the norm in polite speech for centuries; however, in popular speech, it was eventually shifted to [wa]. By the time of the French Revolution, [wa] was virtually universal among the mass of French-speakers, but the French court and the aristocracy continued to use the more prestigious [wɛ]. In 1793, after the Revolution, the court was dispersed, and many aristocrats and members of the royal family fled in fear of their lives. After things had settled down a few years later, these high-ranking refugees returned to Paris with their prestige speech, only to be told that, in their absence, the popular [wa] had become the prestige form, and hence that they were now speaking a non-prestigious form of French. I don’t know how many of them gritted their teeth and deliberately changed to [wa], but certainly the old [wɛ] did not outlive them, and [wa] is universal in France today.

10.4 Lexical diffusion

Because of their refusal to pay any attention to variation, earlier linguists were not generally aware of the existence of changes underway in their own languages or in the languages they were studying. Today’s linguists, in contrast, are keenly aware that changes are everywhere in progress at this very moment, and naturally we are often interested in studying the course of those changes. But how can this be done?

As we saw above, we are occasionally lucky enough to have good descriptions of some speech community compiled a generation or two ago, and hence we can compare those descriptions with our own observations of the same communities today, in order to find out what has changed. Studies of this sort are called **real-time** studies: we simply compare earlier and later stages in the development of the same community.

Most of the time, however, we are not so fortunate as to have good descriptions dating back 30 or 40 years. So what can we do? Obviously, we could in principle simply watch a community for the next 30 or 40 years to see what happens, but most linguists would prefer to get some results they can publish before they reach retirement age, and so we would like to have some other approach at our disposal.

There is such an approach, and it makes use of what we call **apparent time**. The idea is simple: we assume that most people learn their language in childhood, and that, after adolescence, they do not normally introduce any further significant changes into their speech. Thus, we can merely compare the speech of people of different ages within a single community to see what differences exist, and then we conclude that those differences result from changes that have affected the speech of younger speakers only. This approach is not without its pitfalls, but we have nevertheless managed to make some illuminating discoveries by using it.

Here I want to discuss a particularly striking and important discovery that has chiefly resulted from the study of apparent time; however, real-time studies have also occasionally been invoked. This work pertains to phonological change, and in particular it focuses on the way in which a sound change applies to relevant words.

Recall the Neogrammarian Hypothesis, which maintains that a sound change applies without exception to all relevant words. For reasons explained earlier in the book, I am still assuming that this hypothesis is essentially correct, but very shortly now I am going to call this assumption strongly into question. The proponents of the Neogrammarian Hypothesis in the past were mostly inclined to assume that sound changes were in general *phonetically gradual* – that is, that a sound change typically proceeds via tiny changes in the phonetic quality of segments. But is this so?

Certainly phonetic gradualness seems plausible enough for some types of changes, and we sometimes do find examples of phonetically gradual changes. For instance, the centralization of /ai/ and /au/ on Martha's Vineyard is apparently proceeding by small and steady increases in the degree of centralization over time, even though individuals fluctuate very considerably in the pronunciations they use. But many other sound changes cannot possibly be phonetically gradual. Whole-segment processes like insertion, loss and metathesis cannot conceivably be phonetically gradual: no one can insert 5 per cent of a segment, or move 10 per cent of a segment to a different position in the word. Whole-segment processes are of necessity *phonetically abrupt*. But other types of phonological change are usually also phonetically abrupt. To take one example, the devoicing of voiced consonants, a very common type of change in certain environments, is hardly likely to proceed by a gradual reduction in the degree of voicing: 100 per cent, 75 per cent, 40 per cent, 15 per cent, 5 per cent, zero. Instead, voicing is usually lost abruptly: a speaker uses either a voiced segment or an unvoiced one, with nothing in between. To take another example, the curious change of [ʃ] to [x], which occurred in early Modern Spanish, is most unlikely to have involved a gradual movement of the consonant from the prepalatal region to the velum: instead, the pronunciation just 'jumped' from one place to the other.

Even so, it was until recently still widely assumed that changes in vowel quality, at least, were usually phonetically gradual, and of course almost everyone continued to believe that a sound change necessarily affected all relevant words in the language simultaneously. But these beliefs too have now been shattered by the discovery of a phenomenon called **lexical diffusion**.

Although the possibility of lexical diffusion had occasionally been suggested by earlier linguists, its indisputable existence was first demonstrated around 1970 by Chen and Wang and their colleagues in connection with Chinese dialects. Since then, lexical diffusion has been uncovered so frequently that it has begun to be recognized in some quarters as constituting virtually the paradigm mechanism of phonological change.

Rather than consider the Chinese data, I will look here at what is perhaps the most celebrated case of lexical diffusion yet uncovered: the so-called 'short-*a* tensing' in urban American varieties, and especially in Philadelphia.

Many contemporary English varieties share a vowel often transcribed /æ/, found in words like *cat*. Historically, this is a lax vowel: it is phonetically short, it is a pure vowel and not a diphthong, and it cannot end a syllable. This vowel has been undergoing tensing in a number of varieties of English; in Midwestern American accents, the vowel of *bad* is phonetically just as long as the historically tense vowel in *bead*. Tensing is also found in New York City, where its presence is phonologically conditioned: it occurs before a voiceless fricative, before a voiced plosive, and before /m/ or /n/, but not elsewhere. This last case, of course, is precisely the sort of sound change which the Neogrammarian Hypothesis maintains as the normal and only type of sound change. But it is the nature of the tensing process in Philadelphia that has proved to be most illuminating.

In this city, the vowel /æ/ has been undergoing a tensing process that both lengthens and raises it and usually also converts it to a diphthong. Thus, for example, *mad* is commonly pronounced [me:əd] in Philadelphia (and it may go as high as [mi:əd] in New York). So far there is nothing remarkable going on. But detailed studies of Philadelphia speech have revealed something totally unexpected: only *some* words undergo tensing, while others do not.

For a typical Philadelphia speaker, the tense vowel occurs in *mad*, *bad* and *glad*, but not in *sad*, *dad* or *Brad*, and also not in *cab* or *brag*; it occurs in *can't*, *aunt* and *man*, but not in *ran*, *swam* or *began*; it occurs in *last*, *pass*, *half*, *ass* and *ask*, but not in *ash* or *cash* or *after* or *Afghan*; it occurs in *answer*, *ancestor* and *anchovy*, but not in *aspirin* or *astronaut*; it occurs in *ham* but not in *hammock*; and so on. Speakers may vary as to which particular words show tensing; they may vary in their degree of tensing of different words or occasionally even of the same words. But the key point is this: *it is impossible to predict which words will show tensing and which not*. The best we can do is to note that particular phonological environments or membership in particular word-classes either favour or disfavour tensing, but that's all.

What we are looking at, then, is a **lexical split**. Some of the words with lax /æ/ still have a lax vowel, while others have undergone tensing and now have a different, tense, vowel. This split appears to be unconditioned: some words have gone one way, some the other, in an unpredictable manner, and that's all there is to it. This conclusion is surprising, even puzzling, since such unconditioned splits are apparently incompatible with the hypothesis of regular sound change.

How did this happen? The interpretation that has come to be placed on this curious state of affairs is that, at some earlier stage, the words containing /æ/ underwent, in Philadelphia,

the process we now call *lexical diffusion*: that is, some of them moved out of the class of words with lax /æ/ and into the class of words with tense /æ:/, which had originally been empty. But did they all move at once, or did they cross over one or two at a time? Without historical information, we can't tell. But there is one thing we can usefully do: we can look to see if any more words are currently being transferred from one class to the other.

In the centre of Philadelphia, the position at present appears to be remarkably stable: we can see no evidence that more words are diffusing. In the suburbs, however, things are different. For example, the word *planet*, which normally has a lax vowel in Philadelphia, usually has a tense vowel in several of the suburbs, and in South Philadelphia this tense pronunciation is now categorical among young children. This word, at least, is therefore in the process of diffusing from the lax class to the tense class. There is also evidence that several other words are doing the same, including *Sally*, *alligator* and possibly even *sad*, although the evidence is less compelling than for *planet* at present.

It is therefore possible that lexical diffusion is continuing in Philadelphia, and it is conceivable that this diffusion may one day go all the way, that every word with lax /æ/ will be transferred into the tense class, leaving the lax class empty. If that happens, the result of the whole lengthy process will be something indistinguishable from a regular sound change. A historical linguist looking at Philadelphia generations from now might therefore very well conclude that lax /æ/ had undergone a perfectly regular tensing there. But we, with the advantage of catching the change in progress, can see that no such thing is going on: instead, the sound change is applying to a few words at a time, moving them from one class to the other, while temporarily (at least) leaving other relevant words completely unaffected.

Such lexical diffusion provides the most direct refutation possible of the Neogrammarian Hypothesis. That hypothesis requires all relevant words to be affected equally when a change occurs, but lexical diffusion affects only a few words at a time. Since we now have a number of indisputable cases of lexical diffusion on record, the Neogrammarian Hypothesis can be seen to be falsified: even if some sound changes do proceed absolutely regularly, others do not. Hugo Schuchardt, that crusty old opponent of the Neogrammarians, has been proved correct.

Indeed, some linguists have now gone so far as to declare that *all* sound changes proceed by lexical diffusion, and that the frequent cases of apparently regular change that we find in our historical data merely represent those cases in which lexical diffusion finally did succeed in transferring every single word from one class to the other, before running out of steam. This may perhaps be so, but it is too early to be making such rash declarations. We are not yet in a position to conclude that regular change, of the sort envisaged by the Neogrammarians, never occurs at all, and in fact the overwhelming frequency of apparently regular changes must make us suspicious of any claims that such regular changes can result only from lexical diffusion. There is clearly a lot of work to be done here.

Nonetheless, the discovery of lexical diffusion is a significant advance in our understanding of historical change, and it at once offers a solution to a number of long-outstanding puzzles. Consider the *meat/meet* merger discussed above. Most of the words that historically had the vowel of *meat* have indeed merged with the *meet* words, but not quite all of them. The words *steak*, *great* and *break*, as their traditional spelling suggests, originally had the same vowel as *meat*, *read* and *beak* – and yet these words have not undergone the merger with the *meet* words. Previously, linguists were inclined to mutter the words ‘dialect mixing’ upon encountering exceptional cases like these, but this label is not so much an

explanation as an admission of defeat (although, as we saw above, there was dialect competition at work on the systems earlier).

Now, however, we can put forward an interesting explanation. The *meat* words were moved into the *meet* class by lexical diffusion; after this change had transferred most of the relevant words, it ran out of steam, and the last few words in the *meat* class, like *great*, never got transferred. Such words are referred to as the **residue** of the change: in the diffusionist view, they just got left behind. We will return to this when we discuss the *S-curve* in the case study.

As you can see, however, the words in the residue, like *steak*, *great* and *break*, have undergone the other merger, this time with the *mate* words. These words, then, have undergone the merger that led to my System I pronunciation above, while most other words have undergone the different merger leading to System II pronunciation. We can therefore imagine a slightly more complex scenario: *both mergers were operating at the same time and competing for the meat words*. This kind of situation has turned up in other cases, and we call it **competing changes**.

When we think about it, there is no reason at all why the innovations that appear in a language at around the same time should all be mutually compatible: why shouldn't some of them be in conflict with others? If two conflicting changes appear together, it does not seem unreasonable that they should 'compete' for the same words, with some words eventually going one way and some the other, as has perhaps happened with *meat* and *break*. Such a scenario would have been inconceivable to the Neogrammarians, but, if lexical diffusion is as common as we now suspect it is, this scenario is not only conceivable but perhaps even likely. A century ago, historical linguists were convinced that the pathway of phonological change was thoroughly understood; today, we have begun to realize that there is a great deal we have yet to learn.

In the next section, I turn to yet another startling recent discovery about phonological change.

10.5 Near-mergers

As we saw in [Chapter 4](#), a common type of phonological change is merger: two phonemes that formerly contrasted cease to contrast, and the number of phonemes in the system is reduced. Ordinarily, a merger produces a number of new homophones. For example, the *meat/meet* merger discussed above turned into homophones such pairs as *meat* and *meet*, *sea* and *see*, *team* and *teem*, all of which had been completely distinct in pronunciation before.

We have a simple way of testing to see whether particular pairs of words are homophones for a particular speaker or not: the **minimal-pair test**. This test can be carried out in several ways. A simple way is the following: the speaker is asked to pronounce each of the two words several times while being recorded, and her pronunciations are then played back to her in a different order. If she can consistently tell which word is which, the words contrast, and she has not undergone a merger; if she cannot tell them apart, they are homophones for her, and she has undergone the merger.

This beautifully simple technique has been used countless times by linguists constructing descriptions of particular languages or varieties, and on the face of it, the method looks so reliable as to be foolproof.

In one respect it probably is foolproof. If the subject can consistently hear a difference in her own speech, then her pronunciations must be truly different. In the same way, we

might reasonably assume that a speaker who consistently fails to hear any difference in her own speech does not make any difference in speaking. But this second presumption, obvious though it may seem, has recently been shown to be false.

For some years now, Labov and his colleagues have been uncovering a series of cases of what they call **near-mergers**. In a near-merger, a speaker produces a consistent, but rather small, difference between two sets of words, but, at the same time, that speaker simply cannot hear the difference in recordings of his own speech (or in the speech of his neighbours who share the near-merger), and typically insists that there is no difference. All reported cases of near-mergers involve vowels.

Here is a typical example, from Albuquerque, New Mexico. A high-school student called Dan was found to have a near-merger between the vowel of *pool* and the vowel of *pull*, both in his spontaneous speech and in the minimal-pair test. Instrumental analysis showed that he made a small but rather consistent difference between these two vowels, although with a certain degree of overlap. Dan himself, on listening to recordings of his own speech, could not distinguish the two vowels: he could not tell if he was pronouncing *pool* or *pull*, *fool* or *full*, *who'd* or *hood*. His girlfriend Didi and Didi's brother Hal did not have the near-merger and had no trouble in distinguishing such pairs of words in their own speech. When listening to Dan's speech, however, they found it very difficult to decide which word he was pronouncing, yet they were still able to guess correctly in 83 per cent of cases.

Eighty-three per cent success is a very odd result to get in a minimal-pair test. Normally, we would expect to get one of only two results: either the listener cannot tell the words apart at all, and hence gets only the chance score of 50 per cent right, or the listener can tell the words apart easily, and hence scores 100 per cent success. The result obtained here shows that Dan usually distinguishes the words clearly enough for listeners who make a distinction to tell which word he is pronouncing, but not always. Such behaviour was previously entirely uncharted in linguistics, but there is a rapidly growing body of evidence suggesting that near-mergers are very common indeed.

Near-mergers have been reported for classes of words represented by *pool* and *pull* in Albuquerque and also in Salt Lake City and in parts of Texas (this one appears to be widespread in the south-western USA), for *cot* and *caught* in Pennsylvania, for *too* and *toe*, and also for *beer* and *bear*, in Norwich, for *source* and *sauce* in New York City, for *line* and *loin* in Essex, for *furry* and *ferry* in Philadelphia, and quite a few others. Near-mergers were at first regarded as an exotic rarity, and some critics even refused to believe that they existed at all, but now we must begin to suspect that near-mergers are positively commonplace.

The reality of near-mergers can no longer be doubted, but their existence causes problems for historical linguists. Most obviously, when we find the commentators of the past insisting that they make no distinction between two sets of words that had earlier been distinct, we can no longer be sure whether those commentators are reporting a genuine merger or only a near-merger. Indeed, Labov has suggested that a number of historically reported mergers may in fact have been only near-mergers, possibly including the *mate/meat* merger in London discussed earlier in the chapter. The point is important because a true merger, once it has occurred, cannot be reversed, at least not without the influence of speakers who have not undergone it, while a near-merger has no such irreversible consequences.

Moreover, recent work has shown that there may be interesting and complex relationships between mergers and near-mergers. Here we shall look at one of these in connection with the *cot/caught* merger.

Modern English inherited from Middle English two vowels that were rather similar in phonetic quality: the vowel of *cot* and the vowel of *caught*. Both vowels were low, both

were back and both were rounded; the difference between them was chiefly a matter of length, since the *caught* vowel was somewhat longer than the *cot* vowel. But one of the consequences of the GVS and its aftermath was that the very clear length distinctions of the Middle English vowels were generally obliterated in favour of distinctions between pure vowels and diphthongs – and both of the vowels in question entered Modern English as pure vowels, as they still are today. Hence, in terms of the vowel space, as discussed in [Chapter 4](#), it was a rather uncomfortable state of affairs having two contrasting vowels squeezed so closely together in the mouth.

As one might expect, this apparently unstable situation has been resolved in almost all varieties of English in such a way as to relieve the pressure, but not all varieties have adopted the same solution. In England, the pressure was relieved by raising the *caught* vowel away from the *cot* vowel. As a result, an Englishman's pronunciation of *caught* sounds to an American rather like *coat*. (There is no new conflict for the Englishman, because the *coat* vowel has likewise moved to make room, in a classic instance of a chain shift, and the Englishman's *coat* sounds to American ears something like *Kate*.)

Some American varieties, notably that of New York, have undergone a shift similar to that of England, but most American varieties have done something else: they have fronted and unrounded the *cot* vowel, thereby moving it away from *caught* and merging it with the historically distinct vowel of *father*. Consequently, an American's pronunciation of *cot* sounds to an Englishman something like his own pronunciation of *cart*: roughly, *kaht*.

Still other varieties have adopted a very different solution: they have simply merged the vowels of *cot* and *caught*. This has happened in Scotland, and also in Canada: Scottish and Canadian speakers normally do not distinguish *cot* and *caught* at all.

All these solutions have the effect of relieving the pressure in the vowel space, and we might therefore expect all of the resulting vowel systems to be stable. But this is not so: something unexpected is happening in the USA.

In recent years, linguists have noticed that the *cot/caught* merger, typical of Canada but once apparently unknown in American English, has appeared in several widely separated areas of the USA and is moreover spreading out rather rapidly from these **focal areas**, as they are called. This is surprising, because the typical American realizations of the *cot* and *caught* vowels are not very similar at all, and so it is not obvious what factors might have favoured their merger.

We might suspect that the Canadian pattern was simply spreading southwards, but the data do not bear out such a suggestion: the areas where the merger is occurring are not close to Canada, and the areas close to Canada are not undergoing the merger. For example, in western New York State there is as yet no trace of the merger: the vowels of *cot* and *caught* remain distinct for all speakers, even though the area is close to the Canadian border, and the same appears to be true of Detroit, just to the west, or at least this was so a few years ago. In contrast, to the south, in Pittsburgh and in western Pennsylvania generally, an area that is much farther away from Canada, the merger appears to be categorical: no speakers in this area still have the contrast, not even variably. And the merger is clearly spreading out eastwards across Pennsylvania: in central Pennsylvania, younger speakers show the merger, while older speakers do not.

Or do they? While looking at the spread of the merger across Pennsylvania, Labov stumbled across something rather surprising. As I have just said, younger speakers in central Pennsylvania simply show the merger, which has been spreading towards them from Pittsburgh. It is the older speakers who do something unexpected. In their ordinary, informal speech, they show, as expected, no trace of the merger: they distinguish the vowels of

cot and *caught* as clearly as most Americans do. However, when they are asked to perform the minimal-pair test described above, they use a very different type of pronunciation: they exhibit a near-merger between the two vowels. Like other speakers with near-mergers, they make a very small but consistent distinction between the two vowels, but they have difficulty in hearing the difference, and they often claim that there is no difference.

In other words, the incoming change has affected their self-conscious speech very strongly, producing, however, not the full merger typical of younger speakers in the area, but a near-merger; at the same time, their ordinary spontaneous speech, which represents the pronunciation they learned in childhood and have used all their lives, has been completely unaffected. Labov has dubbed this surprising phenomenon the **Bill Peters effect**, after the first individual he encountered who exhibited it.

The existence of the Bill Peters effect shows us some very interesting things. First, contrary to what most linguists had previously believed, it is entirely possible for older speakers to acquire incoming changes. (Some of the examples discussed earlier in this chapter make the same point, but not so vividly as the Bill Peters effect.) Second, it is possible for self-conscious speech to be substantially affected by incoming changes while spontaneous speech remains unaffected. This is probably not so surprising, since we know that lots of people deliberately try to change their speech in adulthood to conform to perceived prestige norms – although note that we have at present no evidence that the Bill Peters effect involves conscious and deliberate modifications. Third, and most surprisingly, the effect of such incoming changes late in life can apparently suppress, very effectively, speakers' knowledge of their own ordinary speech, to the point at which they are quite unaware of the very large distinctions that they ordinarily make and that are blatantly obvious to outsiders.

Results like these are fascinating and worrying. They appear to call into question such fundamental notions as the idea that a speaker 'has' a phoneme system, as well as the idea that speakers can perform such seemingly simple tasks as deciding, with reasonable accuracy, whether they pronounce two words identically or differently. Such results are clearly telling us important things about language change, but at present these phenomena are still so new to us that we have little idea how we should try to take them into account. The deeper we look, the messier the facts of language behaviour appear to be, and the messier the facts of language change appear to be. It seems almost a wonder now that our venerable assumptions of the homogeneity of language and of the regularity of language change have proved to be as long-lived and successful as they have.

Case study: historical sociolinguistics

In our discussion of the <ea> words in sixteenth- and seventeenth-century England above, an ad hoc explanation based on sociolinguistic theory was attempted. In this case study, I want to introduce you to the work of two historical linguists who have employed a much more penetrating set of insights derived from sociolinguistics to the language of the past without sacrificing the intellectual rigour of either subject: Terrtu Nevalainen and Helena Raumolin-Brunberg.

Practically since the inception of variationist sociolinguistics, historical linguists have attempted to apply its theoretical and methodological insights to change in the

past. Perhaps the most effective example of this can be found in Nevalainen and Raumolin-Brunberg (2003). Their success can be explained primarily by their undoubted command of a variety of different paradigms and the intelligent use of a corpus of correspondence covering a spread of some 250 years in Tudor and Stuart England. This broad text type and period spread, necessary for as representative a sample as possible, are combined with a philologist's ability for close work.

Most important to their study is their willingness to reinterpret elements of the parameters of the contemporary sociolinguistic project. In the past 40 to 50 years, a number of sociolinguists, as we have seen, have demonstrated that gender had a significant bearing upon language use. Primarily, modern women appear to conform more to middle-class linguistic norms of prestige than men. Some scholars have suggested that this may be due, at least in the industrial age, to the status of women in working-class and middle-class communities as the nurturers of children, encouraging their offspring to succeed. In early modern England, however, the opposite appears to be the case: women writers of correspondence appear to have had less of a grasp than their male peers of the norms of spelling and grammar that were filtering through society at the time as Standard English began to focus. This can be reasonably explained by the fact that, even in the upper echelons of society (towards which any historical corpus before around 1850 will be biased), women were not generally exposed to the levels of literacy men were. Indeed, this pattern can be extrapolated further back. I have demonstrated (Millar 2002) that, in texts from the late twelfth and thirteenth centuries in England, works whose primary audience seems to have been female used a rather more 'modern' (and probably less prestigious) form of language than do those intended for a literary (or at least consciously cultivated), probably largely male, audience.

Moreover, the structure of English society in the late medieval and early modern periods was inevitably not that found in the late industrial and post-industrial societies that sociolinguists have studied since the 1960s. 'Class' did not exist in the same way as it does now. People were defined by rank (whether they were members of the religious, noble or common estates), whether their wealth came from inherited land, from professional knowledge or from their physical labour, and so on. What is striking, however, is that these apparent differences mask many similarities between then and now. Nevalainen and Raumolin-Brunberg demonstrate that there were groupings of social climbers whose linguistic behaviour – a combination of leading change and also being deeply insecure about language use, sometimes resisting changes 'from below' in the social order that had already been accepted by their 'betters' – can be related to the vital role the contemporary lower middle classes appear to play in the diffusion of language change. Indeed, to return to the Milroys' interpretation of what causes the lower middle classes to act in this way, it is reasonable to assume that the loose social networks associated with them seem also to work for the socially ambitious in Tudor and Stuart England. Given that the idea of inherited rank was so prevalent during this period, it would have been even more imperative than it is now

for social climbers not to provide much information of their ‘lowly’ origins to those to whose ranks they aspired.

How does this all work in practice? Space restrictions mean that we cannot do justice to all the material in Nevalainen and Raumolin-Brunberg’s work. But we can get a sound grasp of what it means by observing the patterns of change of one of the features they discuss: the decline in the use of multiple negation.

In present-day English, multiple negation along the lines of

10.1 I ain’t never done nothing

is both frowned upon by prescriptive grammarians, schoolteachers and other language planners and also very common in everyday colloquial speech. I was taught at school – I’m sure that this is a common experience for many English-speakers – that multiple negation was ‘wrong’ because two negatives make a positive. *I haven’t seen no one* would, according to this logic, be equivalent to *I have seen someone*. This argument is, of course, deeply questionable: no native speaker would ever make this interpretation naturally. It is powerful nonsense, however, since it is associated with figures of prestige whose judgement can affect someone’s prospects in life. The basis of the ‘logical’ interpretation appears to be Classical Latin grammar, where this ‘rule’ appears to be normal (although many of Latin’s daughters demonstrate structures equivalent to English multiple negation).

Up until the early modern period, multiple negation was the default construction, however, as the following line from a late fourteenth-century religious lyric demonstrates:

10.2 Ne never lat me be forlorn ‘do not ever let me be lost’.

It can be assumed, therefore, that the change from multiple to single negation as the prestige norm took place during the early modern period. Nevalainen and Raumolin-Brunberg (2003: 72) illustrate the changeover in [Figure 10.4](#).

This represents a classic S-curve of change. The *S-curve* is perhaps the most common means by which we can interpret change over time and through a society. It is represented in [Figure 10.5](#).

In the first place we can interpret it in terms of changes to features in a language. At first, only a few words or phrases are affected by the change. Then, relatively rapidly, most similar features are also affected. After this has happened, there are normally a few contexts where the change does not take place. On many occasions, such as the survival of /e/ pronunciations for <ea> in words like *break*, irregularities may remain because the change as a whole is no longer active in the language. In other words, the S-curve illustrates lexical diffusion. But we can also interpret the S-curve in relation to the speech community. At first, change is confined to a small group of individuals. Then, relatively quickly, it affects almost everyone in the

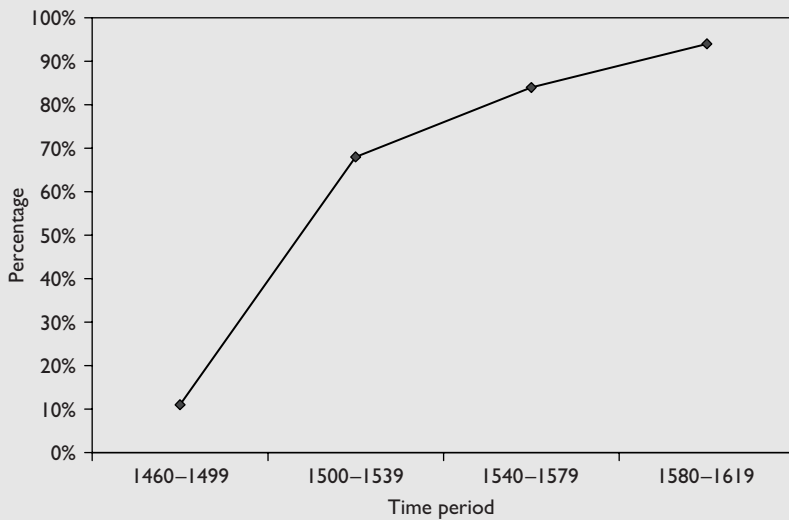


Figure 10.4 Multiple negation in early Modern English I (adapted from Nevalainen and Raumolin-Brunberg 2003: 72)

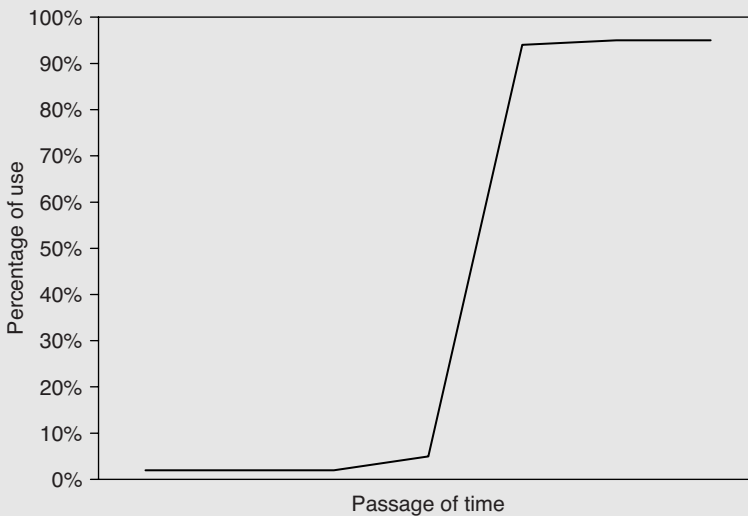


Figure 10.5 The S-curve

speech community until finally there are only a few, or no, people still using the old usage.

Even more interesting is Nevalainen and Raumolin-Brunberg's illustration (2003: 146) of how this change passed through the community (Figure 10.6). In many ways this represents the classic sociolinguistic model for **change from above** in society. To begin with, it is the upper and, to a lesser extent, middle elements within society

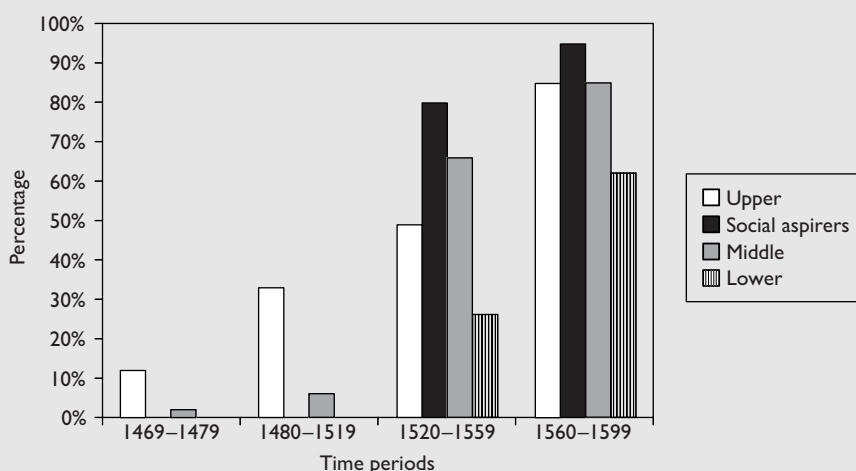


Figure 10.6 Multiple negation in Early Modern English (adapted from Nevalainen and Raumolin-Brunberg 2003: 146)

that pioneer the change. When it is still the minority usage, social aspirers appear to avoid it. As it begins to ‘take off’ in a socially prestigious way, it is the social aspirers before all other social groups that lead the change. Although members of the ‘lower orders’ do begin to employ single negation, they lag far behind all other groups. Indeed, since the evidence for this group represents a certainly unusual, and probably privileged, part of the incipient working class, people who could both read and write and were able to afford writing materials, the difference between this group and all others was probably significantly greater. The association of multiple negation with this lowly social group was probably the major spur to the social aspirers’ employment of the new, prestigious, construction even beyond their social superiors. They had something to hide and something to prove.

10.6 A closing note

A long-running theme in the study of language change has been the issue of gradualness versus abruptness. Are changes typically gradual or typically abrupt? We cannot even begin to answer this question until we phrase it more precisely, for in fact there are several entirely different kinds of gradualness and abruptness that need to be distinguished. The first two apply only to phonological change, while the last two apply to all types of change.

First, we can distinguish *phonetic gradualness* from *phonetic abruptness*. A phonetically gradual change is one in which the pronunciation of a word, or of a class of words, changes by imperceptible small steps from an earlier form to a later form, possibly over many generations. A phonetically abrupt change is one in which the earlier pronunciation is replaced at once by the later one, with no intervening stages.

Second, we can distinguish *lexical gradualness* from *lexical abruptness*. A lexically gradual change is one that applies only to a few words but that, over time, comes to apply

to more and more words, until it has (possibly) applied to all relevant words, again possibly over many generations. A lexically abrupt change is one that applies simultaneously to all relevant words.

Third, we can distinguish *individual gradualness* from *individual abruptness*. In an individually gradual change, an innovating form at first appears only occasionally in the speech of a particular individual; over time, the innovating form becomes steadily more frequent in that person's speech, while the conservative form becomes correspondingly less frequent, until the innovating form is (perhaps) the only one used by that individual.

Finally, we can distinguish *social gradualness* from *social abruptness*. In a socially gradual change, an innovating form is at first used by only a few individuals; over time, the innovating form comes to be used by ever more individuals, while the conservative form is used by correspondingly fewer people, until the innovating form is (perhaps) the only one used in the community, by the processes associated with the S-curve.

(For this last category I could in principle make a further distinction between the propagation of change among speakers in a single community, such as a single city or town, and the propagation of change across a large geographical expanse, such as the USA. But no one has ever proposed that a change instantaneously affects all speakers over a vast area, and everyone accepts that changes typically spread gradually across large areas. I shall therefore confine my attention to single communities.)

For the first type, it makes little sense to speak of a change *going to completion*. Except in the case of total loss of a segment, there is no way of knowing that a phonetic development has gone to completion, except perhaps by observing that nothing more appears to be happening. For the other three types, however, we can readily consider the issue of whether the change has gone to completion. A lexically gradual change has gone to completion when there are no relevant words left for it to apply to; an individually gradual change has gone to completion when the individual no longer uses the conservative form at all; a socially gradual change has gone to completion when there are no people left using the conservative form.

So: how does language change? The Neogrammarians, of course, maintained that sound change was normally phonetically gradual but, crucially, always lexically abrupt. They did not normally consider the third issue, but quite probably they would have expected sound change to be individually abrupt, since they didn't have any time for variation. The social issue, too, they seem rarely to have considered.

Lexical diffusion, of course, is very different. The view of the linguists developing this idea is that sound changes are typically phonetically abrupt but lexically gradual – precisely the opposite of the Neogrammarian view. Lexical diffusion tolerates a degree of individual gradualness, but on the whole it is more consistent with a claim of individual abruptness. It has no particular claims to make on the social issue, but it is very compatible with social gradualness. The theoretical battle lines are well drawn, then, but what do we actually see when we look at a change in progress? What about Martha's Vineyard? The centralization taking place there appears to be phonetically gradual (the degree of centralization has been increasing steadily for decades), lexically abrupt (all relevant words are affected simultaneously; however, there are phonological factors favouring centralization in some particular words), individually abrupt (most people acquire their degree of centralization early in life and then don't change it), and socially abrupt (for the same reason). At first glance, then, centralization on Martha's Vineyard looks rather like the Neogrammarian type of change, although with the big provisos that many people in the community never participate in the change at all, and that individuals do not use the same pronunciation of a given word

every time, things that probably shouldn't happen in the Neogrammarian model. In contrast, lexical diffusion does not appear to be a factor.

How about /æ/-tensing in Philadelphia? Here we suffer from the fact that most of the changes happened before we could watch them, but I can at least comment upon what's visible now. Tensing is phonetically abrupt (no intermediate forms), lexically gradual (of course), individually abrupt (on the whole, people do not change their behaviour much over time) and (probably) socially gradual (we can anticipate that the innovating forms now heard in the suburbs will spread into the city). Here we have a case of lexical diffusion, and the Neogrammarian account gets nothing right.

The clearest lesson we can take away from examining many different cases of change is that there is no single model of language change, no single version of the truth. Some changes proceed in a very different way from others, and thus our various models can never be better than reasonable approximations to reality in some particular cases. And we continue to find startling new phenomena whose existence was previously unsuspected and which cannot easily be handled by any of our theoretical frameworks – recall Bill Peters, who has undergone a change to his self-conscious speech but not to his spontaneous speech, or Dan in Albuquerque, who is convinced he has undergone a merger that hasn't happened. It may well be that the study of how language change proceeds still has quite a few surprises in store for us. Certainly we still have to accept that some linguistic changes cannot be explained sociolinguistically (at least as far as we can perceive them). But variation underlies at least most, if not all, linguistic change. No doubt there were sociolinguistic spurs to, say, Grimm's Law. We just don't know what they were.

Further reading

The classic statement of the sociolinguistic approach to language change is Weinreich, Labov and Herzog (1968); this is essential reading. Most of Labov's classic early papers, including the Martha's Vineyard study, are collected in Labov (1972). Labov's major study of social stratification in New York is Labov (1966). Peter Trudgill's work in Norwich is presented in Trudgill (1974). Chambers (1995) is a useful survey of sociolinguistic factors; [Chapter 4](#) pays particular attention to social factors in language change. Many textbooks of sociolinguistics have useful things to say about variation and social stratification, and often too about variation as the vehicle of change; among these are Hudson (1980), Trudgill (1995), and especially Holmes (1992) and Romaine (1994). I would particularly recommend Milroy and Gordon (2003). References to the work of both Jim and Lesley Milroy (and their collaborators) mentioned in the text can be found in the bibliography. Nevalainen and Raumolin-Brunberg's work (2003) represents a tremendous synthesis of the best features of both sociolinguistics and historical linguistics. A major synthesis of Labov's thinking is to be presented in a series of three volumes: Labov (1994, 2001 and 2008); volume II deals most directly with the issues addressed in this chapter. Millar (2012) discusses change in English in relation to the findings of *macrosociolinguistics*. McMahon (1994) is a major textbook of language change in which [Chapters 3](#) and [9](#) deal specifically with variation and change. A textbook devoted wholly to variation and change is Milroy (1992); [Section 3.7](#) of this work provides a reasoned defence of the quantitative approach in response to several criticisms of it, with references. The classic presentations of lexical diffusion are Wang (1969) and especially Chen and Wang (1975); McMahon (1994) provides a survey with references in [Chapter 3](#).

Exercises

Exercise 10.1

In the vernacular speech of many parts of Ireland, the vowels in words like *mate* and *meat* are commonly described as having undergone merger. In the Irish city of Belfast, vernacular speakers use four distinguishable pronunciations of the vowels in these words: a high mid diphthong [ie], a high mid pure vowel [e(:)], a mid pure vowel [ɛ(:)] and a low mid pure vowel [ɛ]. Table 10.9 shows the number of tokens (individual occurrences) of each of these four pronunciations in more than 150 occurrences of the two words *mate* and *meat*. Do you agree that the vowels of *mate* and *meat* have merged in Belfast? If not, how would you characterize the position in Belfast? Does your conclusion necessarily hold for other parts of Ireland where the merger has been reported? (Data from Harris 1980.)

Table 10.9 <aVe> and <ea> pronunciations in Belfast (adapted from Harris 1980)

	<i>mate</i>	<i>meat</i>
[ie]	33	0
[e(:)]	60	20
[ɛ(:)]	6	38
[ɛ]	0	2

Exercise 10.2

Most varieties of Basque have two contrasting rhotic phonemes, an alveolar tap notated *r* and an alveolar trill notated *rr*. These contrast freely between vowels, and there are many minimal pairs: *hurra* 'the hazelnut' but *hura* 'that one', *gorri* 'red' but *gori* 'fiery', *gorra* 'deaf' (definite) but *gora* 'up', *erre* 'burn' but *ere* 'also', and so on. In about two-thirds of the French Basque Country, however, the former trill *rr* has changed to a voiced uvular fricative, somewhat as in French. The change is categorical: all words like *hurra*, *gorri* and *gorra* are invariably pronounced with uvulars. (In the remaining third of the French Basque Country, however, there is no trace of the uvular, and *rr* remains an alveolar trill.) With the tap *r*, however, things are more complex. Some words with *r* now also have a uvular pronunciation, while others retain the alveolar tap. So, for example, *hura* 'that one' has a uvular, but *ura* 'the water' does not; *gari* 'wheat' has a uvular, but *ari* 'busy' does not; *bero* 'hot' has a uvular, but *bere* 'his/her own' does not. What would you conclude is going on in the French Basque Country?

Visits to the region some years apart have revealed that the situation with respect to these words is not stable, but is changing fairly rapidly over time. What do you suppose is the nature of the change?

Can you make any suggestions about the likely course of the change from an alveolar trill to a uvular fricative for *rr*? Could it have been gradual in any sense?

Exercise 10.3

In Philadelphia, as in most American cities, there are noticeable differences in vernacular (uneducated) speech between blacks and whites. Table 10.10 provides data for four variables of interest: standard *He likes it* vs. non-standard *He like it* (notated 3Sg in Table 10.10), standard *He's a teacher* vs. *He a teacher* (notated *Cop*), standard *John's book* vs. non-standard *John book* (notated *Poss*), and standard *I didn't do it* vs. non-standard *I ain't do it* (notated *Aux*). (Here I use the label 'standard forms' for what might more neutrally be called 'white norms'.) Four groups of speakers are distinguished: blacks who have little contact with whites (notated *B*), blacks who have considerable contact with whites (notated *B(W)*), whites who have considerable contact with blacks (notated *W(B)*) and whites who have little contact with blacks (notated *W*). The table shows the percentage of non-standard forms used by each of the four groups for each of the four variables. Now these data are not adequate for drawing any firm conclusions about language change, since they include no dimension of time or even of age. Still, they are very suggestive. Consider the data, and answer the following questions as best you can (data from Ash and Myhill 1986).

Table 10.10 Use of non-standard variant (%) (adapted from Ash and Myhill 1986)

Group	3Sg	<i>Cop</i>	<i>Poss</i>	<i>Aux</i>
B	73	52	79	43
B(W)	16	04	15	08
W(B)	12	08	02	20
W	00	00	00	00

- Why do three of the four groups show variation in respect of all four variables, and why does the fourth group show no variation at all?
- Among the two groups of people who have considerable contact with people of the other colour, why do blacks assimilate more strongly to white norms than the other way round? (Be careful – this question is not as simple as it looks!)
- Why do whites who have considerable contact with blacks have larger percentages of non-standard forms for two of the four variables than do blacks who have considerable contact with whites?
- Why do blacks who have considerable contact with whites come closer to white norms for some variables than for others?
- The investigators who collected these data also report that the two groups who have little contact with people of the other colour both show no tendency at all to adjust toward the norms of the other group, and that changes observable in the speech of one group are not observed in the speech of the other. If this state of affairs should continue for several generations, what will be the likely linguistic consequences?

Exercise 10.4

Figure 10.7 shows the range of realizations of the nuclei of four vowels in the vowel space for four New Yorkers of varying age. The symbols have the following significance: /o/ is the vowel of *not*, /ah/ is the vowel of *father*, /oh/ is the vowel of *law*, and /uw/ is the vowel of *boot*. Assuming that these sparse data are typical, what appears to be happening to the vowel system of New York City? (Data from Labov 1994: 203.)

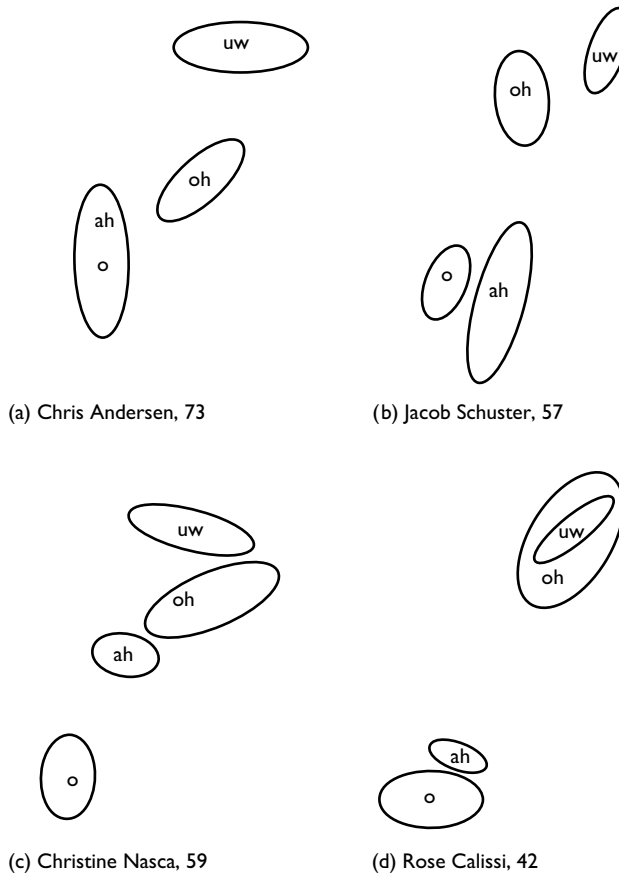


Figure 10.7 Four New York vowel systems (Labov 1994: 203)

Exercise 10.5

In the Spanish of Panama City, the consonant spelled *ch* (as in *muchacho* 'boy') has two realizations: an affricate [tʃ] and a fricative [ʃ]. In 1969, and again in 1983, the usage of a number of speakers was investigated. Figure 10.8 shows the percentage of fricative realizations used by speakers in various age groups in the two investigations; the age groups used in the two studies were not quite identical. Examine the graph, and explain as best you can what appears to be happening in Panama City. Can you see any evidence of generational change, of age grading, or of any other

Table 10.11 (cont'd)

Age										
84, 80	71	65	61	54	50	55	46	36	32	
<i>qmuyup</i>	-p	-p	-p	-p	-p	-k	-k	-p	-k	'fold'
<i>kmuyap</i>	-p	-p	-p	-p	-p	-k	-k	-k	-k	'catch'
<i>mnep</i>	-p	-p	-p	-k	-p	-k	-k	-k	-k	'fish' (v.)
<i>msuyap</i>	-p	-p	-p/-k	-k	-p	-k	-k	-k	-k	'yawn'
<i>qom</i>	-m	-m	-m	-m	-m	-m	-m	-ŋ	-ŋ	'anteater'
<i>syam</i>	-m/-ŋ	-m	-m	-m	-m	-ŋ	-m	-ŋ	-ŋ	'pork'
<i>qmtam</i>	-m	-m	-m/-ŋ	-m	-m/-ŋ	-ŋ	-m	-ŋ	-ŋ	'swallow'
<i>rom</i>	-m	-m	-m	-m	-ŋ	-ŋ	-m	-ŋ	-ŋ	'needle'
<i>qinam</i>	-m	-m	-m	-m	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	'peach'
<i>hmham</i>	-ŋ	-m	-m/-ŋ	-m	-ŋ	-m	-ŋ	-ŋ	-ŋ	'grope'
<i>yuhum</i>	-ŋ	-m	-m	-m	-ŋ	-ŋ	-m	-ŋ	-ŋ	'gall'
<i>prahum</i>	-m	-m	-m/-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	'lips'
<i>tmalam</i>	-m	-ŋ	-m/-ŋ	-m	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	'taste'
<i>mtlom</i>	-m	-m	-m	-m	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	'burn'
<i>lmom</i>	-m	-m	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	'burn'
<i>mktlium</i>	-m	-m	-m	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	'run'
<i>cmom</i>	-m	-m	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	'wipe'
<i>mnkum</i>	-ŋ	-m	-m	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	-ŋ	'dark'

Exercise 10.7

Old English /h/ has been universally lost word-finally and in many varieties before a consonant, and generally also before an unstressed vowel. Before a stressed vowel, however, its history has been more complex. As a general rule, it has been lost from vernacular speech in England in all but three small areas: one in the far north, one in the west and one in East Anglia (including the city of Norwich). Most vernacular speakers in England, then, do not distinguish, for example, *hair* from *air* or *harm* from *arm*. (Some speakers in fact sometimes use a phonetic [h] in such words, but they use this [h] equally in all of them, without regard to the spelling or the history, so they do not have a phoneme /h/.) The British linguist James Milroy has studied the loss of prevocalic /h/ (informally known as 'h-dropping') in various publications, notably Milroy (1983, 1992). Milroy makes the following observations, among others.

- Peter Trudgill's work in Norwich shows variable use of /h/ by all speakers, with the familiar correlations with social class and with degree of formality.
- In the latter half of the nineteenth century, *h*-dropping is strongly stigmatized by writers on language in England, as it still is today.
- There is good evidence that educated speakers in the nineteenth century used /h/-ful and /h/-less pronunciations variably, perhaps as a stylistic device.
- The first hostile comments about *h*-dropping in England are found only in the late eighteenth century.
- Late sixteenth-century writers like Shakespeare and Marlowe frequently make puns involving words such as *air*, *heir* and *hair*, and such puns are put into the mouths of educated characters.

- (f) The mid-sixteenth-century *Diary* of Henry Machyn, a carpenter from London and probably a lower-middle-class speaker, uses the letter *h* in such an erratic way that it is clear his speech must have been /h/-less.
- (g) Although East Anglia is generally /h/-ful today, some of the most abundant evidence for *h*-dropping in earlier periods comes from East Anglia. Important East Anglian documents like the *Paston Letters* (fifteenth century) and the *Norfolk Gilds* (late fourteenth century), which were written by members of the prosperous middle class, exhibit highly variable use of /h/, with spellings like *alpenie* for 'halfpenny' and *hoke lewes* for 'oak leaves'.
- (h) In the late fourteenth century, there is evidence that the Londoner Geoffrey Chaucer, author of *The Canterbury Tales*, had /h/-less speech, and his contemporary, the unknown North-West Midlands poet who wrote *Sir Gawain and the Green Knight*, regularly alliterates initial *h* with vowels.
- (i) Throughout the Middle English period (1066–1500), both literary and non-literary documents show highly variable use of /h/: it is sometimes omitted where we would expect it to be present (thus *ate* for *hate* and *om* for *home*) and sometimes inserted where we would not expect it (thus *halle* for *all* and *his* for *is*). This variation is most prominent in the East Midlands, in East Anglia and in the South; it is much less prominent elsewhere. This was a period when there was no standard English orthography.

Given these observations, suggest a likely sociolinguistic history for *h*-dropping in England. Now consider the following additional observations.

- (j) Today, *h*-dropping is completely unknown in Ireland, which was settled by English-speakers from the sixteenth century onward, in the USA and Canada, which were chiefly settled in the seventeenth and eighteenth centuries, and in Australia, New Zealand and South Africa, which were chiefly settled in the nineteenth century. For the USA, there is contemporary testimony that *h*-dropping was equally unknown in the late nineteenth century, but for Australia there is testimony that *h*-dropping was commonplace.

In the light of your conclusions about what has been happening in England, suggest a likely sociolinguistic history for /h/ in these other countries.

A number of very distinguished historians of English, including, for example, Oliphant and Skeat, who wrote in the late nineteenth century, and Wyld, who wrote in the first half of the twentieth century, noted the historical data summarized above and drew the general conclusion that *h*-dropping first appeared in England only in the late eighteenth century and became commonplace only in the nineteenth; they suggest that the variation observed in the earlier texts results merely from an imperfect command of English, perhaps especially by writers whose first language was Norman French. Do their conclusions agree with yours? If not, why do you suppose they might have drawn such conclusions?

Social and historical pressures upon language

In the last chapter we examined sociolinguistic approaches to language change and found that the processes of change are typically much more complex and variable than we had earlier been inclined to assume. In this chapter we will be looking in more depth at large-scale processes that can have profound consequences for the historical development of languages, and even for their very existence. Unlike many of the features covered by this book, what we will be discussing here concerns human interventions in language use that are at least sometimes conscious.

11.1 Linguistic contact

Only very rarely, if ever, does a language find itself spoken in a completely isolated environment, with no contact at all between its speakers and the speakers of other languages. Most speakers of any given language have day-to-day dealings with the speakers of at least one or two other languages, and possibly with a larger number than this. Indeed, for the larger part of human existence, the normal situation was probably for everybody routinely to learn and use two, three, even four different languages. This is still what we find today over most of the planet: it is thought that between 70 per cent and 80 per cent of the earth's population are bilingual or multilingual. In the Amazon rainforest, in New Guinea, in much of Africa, in large parts of the South Asian subcontinent, multilingualism is still the norm, and the same was true of Australia and of much of North America before the European settlements largely destroyed the indigenous cultures and languages. The state of affairs that we may now think of as typical, with a single language being spoken with some uniformity over hundreds of miles, is a relatively recent development in human history, and it is not at all representative of what has been going on during the past few millennia.

This ceaseless contact between speakers of different languages has often had substantial consequences for the historical development of those languages, and historical linguists have perhaps not been as quick as we might have been to appreciate the importance of those consequences.

In [Chapter 2](#), we examined the single most obvious consequence of contact: the borrowing of words. Such borrowing is always with us and, given sufficient time, its scale can be enormous. Since the Norman Conquest, English has lost at least 60 per cent of the Old English vocabulary in favour of loans from French and Latin, and most of that loss took place in the several centuries after the Conquest. In less than 2,000 years Basque has borrowed so many words from the neighbouring Latin and Romance that these loan words now outnumber the indigenous words in the language, and hundreds or thousands of

indigenous words have undoubtedly been lost in the process. The Romance language Romanian has borrowed so many Slavonic words that scholars for a while believed it *was* a Slavonic language. Albanian seems to have lost more than 90 per cent of its original vocabulary in favour of loans from Latin, Greek, Hungarian, Slavonic, Italian and Turkish. The Arabic spoken in Malta has borrowed so many words from Italian, French, English and other languages that Maltese is no longer considered by anyone to be a variety of Arabic. Such examples could be multiplied at length.

Language contact is such a common phenomenon that it would be tempting merely to illustrate its diversity in relation to lexis, phonology and syntax. It is more informative, however, to look at the phenomenon from a range of viewpoints. It is important, for instance, to note the social relationship between the two languages in contact. Generally we distinguish between *superstratum*, *substratum* and *adstratum* contact situations.

In superstratal contexts, the language of a socially powerful element in a society influences the language of less powerful groupings. This is a commonplace post-colonial experience, with words from the colonizers' language finding their way into the language of the colonized. A particularly striking example of this process is one that we have encountered regularly in this book: Norman French upon English.

Adstratal influence is where two (or more) languages come into contact, but there is no dominant community. Good examples of these would include the contact between Scandinavian dialects and English in northern England during the Viking Period, or the contact between Frankish and Romance speakers in northern post-Roman Gaul. On neither occasion was there absolute equality between the different groups; the differences tended to cancel each other out, however: the Vikings and the Franks tended to hold political power; but the English and particularly the Gallo-Romans were more culturally and technologically sophisticated.

Substratal influence involves influence upon a dominant language by a less dominant one (often one that is losing native speakers). Influences of this type are very common, and include the influence of Irish upon the English of Ireland and the influence of Yiddish (and other IE languages) upon Israeli Hebrew.

But useful though these distinctions are, they do not explain why some contacts have a more profound effect than others. Thomason (2001) begins such a process by analysing contact phenomena in terms of level of impact in a four-part scale:

1. Casual contact (borrowers need not be fluent in the source language, and/or few bilinguals among borrowing-language speakers): only non-basic vocabulary borrowed.

Lexicon: Only content words – most often nouns, but also verbs, adjectives and adverbs.

Structure: none.

2. Slightly more intense contact (borrowers must be reasonably fluent bilinguals, but they are probably a minority among borrowing-language speakers): function words and slight structural borrowing.

Lexicon: Function words (e.g., conjunctions and adverbial particles like 'then') as well as content words; still non-basic vocabulary.

Structure: Only minor structural borrowings at this stage, with no introduction of features that would alter the types of structures found in the borrowing language.

Phonological features such as new phonemes realized by new phones, but in loan words only; syntactic features such as new functions or functional restrictions for previously existing syntactic structures, or increased usage of previously rare word orders.

3. More intense contact (more bilinguals, attitudes and other social factors favouring borrowing): basic as well as non-basic vocabulary borrowed; moderate structural borrowing.

Lexicon: More function words borrowed; basic vocabulary – the kinds of words that tend to be present in all languages – may also be borrowed at this stage, including such closed-class items as pronouns and low numerals as well as nouns and verbs and adjectives; derivational affixes may be borrowed too (e.g., *-able/-ible*, which originally entered English on French loan words and then spread from there to native English vocabulary).

Structure: More significant structural features are borrowed, although usually without resulting major typological change in the borrowing language. In phonology, the phonetic realizations of native phonemes, the loss of some native phonemes not present in the source language, addition of new phonemes even in native vocabulary, prosodic features such as stress placement, loss or addition of syllable structure constraints (e.g., a bar against closed syllables) and morphophonemic rules (e.g., devoicing of word-final obstruents). In syntax, such features as word order (e.g., SVO beginning to replace SOV or vice versa) and the syntax of coordination and subordination (e.g., increasing or decreasing use of participial constructions instead of constructions that employ conjunctions). In morphology, borrowed inflectional affixes and categories may be added to native words, especially if they fit well typologically with previously existing patterns.

4. Intensive contact (very extensive bilingualism among borrowing-language speakers, social factors strongly favouring borrowing): continuing heavy lexical borrowing in all sections of the lexicon, heavy structural borrowing.

Lexicon: Heavy borrowing.

Structure: Anything goes, including structural borrowing that results in major typological changes in the borrowing language. In phonology, loss or addition of entire phonetic and/or phonological categories in native words and of all kinds of morphophonemic rules. In syntax, sweeping changes in such features as word order, relative clauses, negation, coordination, subordination, comparison and quantification. In morphology, typologically disruptive changes such as the replacement of flexional by agglutinative morphology or vice versa, the addition or loss of morphological categories that do not match in source and borrowing languages, and the wholesale loss or addition of agreement patterns.

A good example of the least potent form of contact (Type 1) is the influence Italian has had on English (and on other languages, most notably German). Although a number of native English-speakers also speak Italian, generally due to ancestral background or a particular interest in some aspect of Italian culture, such knowledge is significantly rarer than, for instance, the level of knowledge of French in the English-speaking world. Because of the prestige that speakers of Italian have gained in a variety of fields – most notably art, food and music – there are a considerable number of Italian words (mostly nouns, as Thomason suggests) that have been borrowed into English in relation to these topics.

Many English-speakers who have little or no active ability in Italian take considerable pains to achieve something approaching a native pronunciation in the words we know, possibly because of the pleasant associations that the language and culture of Italy have for us. Nevertheless, the contact is at a very basic, almost banal, level.

The presence of ‘click’ consonants in the Bantu languages spoken in southern Africa presents an example of an altogether more thoroughgoing form of contact (Type 2). Most scholars would agree that these consonants, unknown in most other Bantu languages, are the product of borrowing from the Khoisan languages, native to the region, and previously supporting a considerable population across a wide area, whose lifestyles ranged from hunter-gatherer to largely sedentary herder of ruminant mammals, before the advent of the Bantu from the north and the Dutch (along with other Europeans and slaves from the Dutch empire) at the Cape. Given that there is a strong suspicion that the incoming Bantu assumed a cultural superiority over the Khoisan, why would these ‘clicks’ be borrowed? Basing his findings on a synthesis of others’ research, Childs (2003) suggests that three main stimuli brought about this borrowing. In the first place, as with many traditional societies, many of the Bantu-speaking cultures of southern Africa exhibit taboo-avoidance strategies; in other words, one word is used in place of another, since the original word has associated meanings (or even sound symbolism) which may not be acceptable. Childs (2003: 179) presents a schema of what features of a word may render it taboo:

- Name taboo: The name or the word itself is taboo.
- Word taboo: The name and any word employing the same root are taboo.
- Phonological word avoidance (syllable avoidance): The actual name, words employing the same root, and any similar phonological strings are taboo.

Given that Bantu traditional societies were paternalistic in their social structure (a trait not, of course, peculiar to them), it comes as no surprise to find that taboo-avoidance was considerably more common (and expected) for women in the grouping. In IsiZulu, this linguistic strategy is termed *hlonipha*.

One of the drawbacks of taboo-avoidance strategies of this type is that, in relatively small-scale social groups, the excision of words – and even syllables – that have become taboo for at least a couple of generations can seriously hamper communication. Given this, it then becomes possible that the ‘click’ consonants were borrowed from Khoisan languages into Bantu primarily to give a greater range of syllable structures and to ‘hide’ marked words in an unmarked way. Bearing this in mind, it is noteworthy that most of the Bantu languages that have consonants of this type do not have the same inventory of them as do the surviving Khoisan languages.

More support for this supposition can perhaps be found in the fact that, when Bantu men took Khoisan wives, these wives were never as closely embedded in their husband’s clan structure as they would have been if they had been ethnic Bantu. It is quite likely that this separateness meant that more of the ‘peculiarities’ of their Bantu – specifically, the use of phonemes not found in the mainstream – would have been passed on to their children. Finally, it is quite likely that the very ‘exoticness’ of the sounds may have made them interesting and attractive, particularly as *ideophones*, sounds used to express emotion and context. Over time, as they became less exotic, these sounds began to be incorporated into words, rather than commenting upon a clause. From this point of view, after a few generations, no one would be aware, particularly in a non-literate environment, that these sounds had not always been in the language.

The language contacts through which the Romani dialects of Europe have passed are of a much higher order (Type 3, if not Type 4). As Matras (2002) demonstrates, the nature of these dialects, being largely unwritten, with no concept of standardization or focusing, often intended to build a barrier between speakers and non-speakers in an inimical world, and in the position of their native speakers, generally as a small-scale and peripheral element in a society, has encouraged large-scale borrowing wherever Romani people have lived.

This borrowing is present at all levels of the language. For instance, in the Vlax (Balkan) Romani spoken by post-war immigrants from Poland to Germany, there are at least three relatively recent influences upon the language: Romanian (or, perhaps, one of the Arumanian dialects of what is now northern Greece), Polish and German. The influence of the last language is particularly prevalent with discourse markers, as in

Laki familija sas *also* kesave sar te phanav sar te phenav, artisturi, *n?*

Her family were *like* such how shall I say, showpeople, *right?*

(Matras 2002: 200, emphasis in original)

where the italicized words are borrowed from colloquial German. Indeed, the influence of (south-east) European languages upon the structure of this originally Indic language can be seen in the ongoing change from an SOV structure to an SVO.

Nevertheless, it would be wrong to think of the process of borrowing as being inherently random. In fact, as Matras points out (2002: [section 3.3](#)), all Romani dialects that have been retained as the mother tongue of Romani people (in comparison with, for instance, the Anglo-Romani dialects of English) share a common core of vocabulary items that demonstrate an origin for the people in central India, as seen in words such as *romni* ‘wife’, *gadžo* ‘non-Romani’ and *džaon* ‘to know’. A particularly interesting point made in Matras’s discussion is that, given the length of time and the considerable distances covered before the Romani people even entered Europe and spread across the continent, it is reasonable to look not only for the ‘native’ vocabulary (and also, to a considerable extent, structural features) of the language, but also for the *inherited* features, those that have been borrowed during the pre-European migration and are represented, to a lesser or greater extent, in all modern dialects. These include lexical items borrowed from Iranian languages, such as *pošom* ‘wool’ (Persian *pašm*), Armenian, such as *bov* ‘oven’ (Armenian *bov*) and from a number of Caucasian languages, including Ossetian (an Iranian language spoken in the north-west Caucasus), as with *vurdon* ‘wagon’ (Ossetian *wædon*), and Georgian, such as *khilav* ‘plum’ (Georgian *khliavi*). Borrowings of this type, particularly since they represent only a fraction of the words and structures, especially in the case of the Iranian languages, which have actually been borrowed, imply language contacts of a considerable duration and intensity. They can also be taken to represent the route(s) that Romani people took to come into the Mediterranean world (possibly through northern Iran, the Caucasus and the northern coast of what is now Turkey).

They also give us some information on when this migration took place, since there is little evidence for early Turkish influence, suggesting that the largely Greek-speaking Byzantine Empire still held large parts of Anatolia and the Black Sea area when Romani speakers passed through, before the irruption of Turkic speakers into the area in the eleventh century. The comparative lack of Arabic lexis (and the lack of early conversion to Islam) also supports this early date supposition.

Perhaps most strikingly, all Romani dialects display a pervasive influence from Greek, both in terms of lexis, in items such as *kurko* ‘week’ (from Greek *kyriaki* ‘Sunday’), *foro(s)*

‘town’ (from Greek *fóros* ‘market place’) and *pale* ‘again’ (Greek *pále*), as well as in grammatical and morphological features, such as the fact that ‘Greek derived adjectival (neuter) inflectional endings in singular *-o*, plural *-a* are used with European loan adjectives as well as with new adjectival derivations’ (Matras 2002: 30), suggesting that the borrowing has become productive in the borrowing language. Matras comments (2002: 30) that what is clearly reflected in the Romani lexicon is a centuries-old multilingual reality: borrowings generally reflect the domains of activities that typically involve contact with the surrounding majority-language community. Lexical retention, on the other hand, is more typical of the intimate spheres of interaction that remain the domain of the family.

Further introductions into the language that have followed the fanning out of Romani people across Europe, have maintained the borrowing pattern, although it has to be recognized that these do not appear to be as permanent, nor as central, as do the features derived from the ‘inherited’ lexical and structural element, whether original or anciently borrowed. Thus elements of the language which stress the connection between Romani groups are likely to survive longer than those features that declare a specific grouping’s relationship with their ‘host’ culture as perpetual outsiders and immigrants.

A powerful example of powerful contact can be found by analysing the profound changes in syntax and morphology brought about by intense contact. Consider Armenian. This Indo-European language has a long literary tradition, and we can see interesting changes in its morphology over the centuries. The Old Armenian of the fifth century CE had a typical IE pattern of case-inflection for nouns, illustrated in Table 11.1. As is usual in the older IE languages, there is no consistent marker of plurality and no consistent marker for any case: instead each ending is an unanalysable combination of case and number information. But modern Armenian is very different. Look at Table 11.2. This time the position is very different. There is an invariant plural marker *-er*, and every case is marked by a single invariant suffix in both singular and plural. Now this new pattern is a very unusual one for an IE language. So how does Armenian come to have it? A plausible explanation is contact. Look at the Turkish nominal inflection illustrated in Table 11.3. You can see that the Turkish pattern, which is typical of all the Turkic languages, looks very similar to the Armenian one, except that the actual morphs are all different. Armenian has been in

Table 11.1 Old Armenian case-inflection

cer ‘old man’	Singular	Plural
Nom	<i>cer</i>	<i>cerk’</i>
Acc, Loc	<i>cer</i>	<i>cers</i>
Gen, Dat, Abl	<i>ceroy</i>	<i>ceroc</i>
Instr	<i>cerov</i>	<i>cerovk’</i>

Table 11.2 Modern Armenian case-inflection

cer ‘old man’	Singular	Plural
Nom, Acc	<i>cer</i>	<i>cerer</i>
Gen, Dat	<i>ceri</i>	<i>cereri</i>
Abl	<i>ceric</i>	<i>cereric</i>
Instr	<i>cerov</i>	<i>cererov</i>
Loc	<i>cerum</i>	<i>cererum</i>

Table 11.3 Turkish case-inflection

ev 'house'	Singular	Plural
Nom	ev	evler
Acc	evi	evleri
Gen	evin	evlerin
Dat	eve	evlere
Abl	evden	evlerden
Loc	evde	evlerde

contact with Turkish for centuries; many scholars have drawn the obvious conclusion that Armenian has remodelled its nominal morphology along Turkish lines. This conclusion is not certain, but it is very plausible. In this case, although an entire morphological pattern seems to have been acquired by contact, no morphemes were borrowed. But grammatical morphemes can, of course, be borrowed.

A particularly illustrative case of this is the Persian complementizer *ki*, which has been borrowed into Turkish. While Persian is an IE language, Turkish is a Turkic language with a very un-IE sentence structure. The borrowed *ki* has introduced IE constructions into Turkish, where they compete with the native constructions. Here are some examples; in each case, the first pattern is the native Turkish one, while the second is the innovating structure.

- *Yarın gel-eceğ-in-e emin-im.*
tomorrow come-Fut-3Sg-Dat sure-1Sg
'I'm sure he'll come tomorrow.'
- *Emin-im ki yarın gel-ecek-Ø.*
sure-1Sg that tomorrow come-Fut-3Sg
'I'm sure he'll come tomorrow.'
- *Bekle-me-si-ni isti-yor-um.*
wait-Ger-his-Acc want-Pres-1Sg
'I want him to wait.'
- *İ sti-yor-um ki bekle-sin.*
want-Pres-1Sg that wait-Juss
'I want him to wait.'
- *Kapı -yı kapa-mı -yan bir çocuk*
door-Acc shut-Neg-Rel a child
'a child who does not shut the door'
- *Bir çocuk ki kapı -yı kapa-maz-Ø*
a child that door-Acc shut-Neg-3Sg
'a child who does not shut the door'

As pointed out at some length by Lewis (1967: 211–14), the morpheme *ki* has acquired a wide range of idiomatic uses in Turkish, and the existence of the two alternative constructions allows some useful and elegant stylistic variation. The Persian morpheme has not displaced the native constructions; it has instead enriched the language by making possible

Table 11.4 Word order in Ethiopian Semitic languages

VSO	Prep	NG	NA	Ge'ez
SOV	Prep	NG	AN	Tigre
SOV	Prep	GN	AN	Amharic
SOV	Postp	GN	AN	Harari, Gafat

a wider range of constructions and styles. Here we have a fine example of the positive value of borrowing, and even the Turkish Language Society, an official body that has otherwise displayed notable puristic tendencies, has not attempted to dislodge the 'alien' constructions with *ki*, which in any case are now too firmly embedded in Turkish for anyone to think about removing them.

A particularly striking kind of grammatical borrowing is the borrowing of word-order patterns. The Ethiopian languages provide some especially good examples of this. The majority of these languages are Semitic, but they have long been in contact with the neighbouring Cushitic languages. Semitic languages normally have VSO order, with prepositions and postposed genitives and adjectives, while their distant relatives the Cushitic languages have just the opposite characteristics: SOV order, with postpositions and preposed genitives and adjectives. The classical Semitic language of Ethiopia, Ge'ez, had typical Semitic characteristics, but the modern Semitic languages show various stages of adjustment towards the Cushitic type, as shown in Table 11.4.

All the modern Semitic languages of Ethiopia have moved significantly towards the Cushitic type, although only some of them have gone all the way. It seems clear that these changes in word order result from contact, especially since the particular constellation of properties exhibited by Amharic seems to be extremely rare among the languages of the world and possibly only ever results from contact.

Another example of the pervasive nature of this type of borrowing, as suggested by Heine and Kuteva (2006), can be found in the Spanish of the Basque Country, inevitably heavily influenced by Basque:

Basque: *Jon parkean ikusten dut*

Basque-influenced Spanish: *Le veo a Juan en el parque*

Standard Spanish: *Veo a Juan en el parque.*

'I see John at the park'

(Heine and Kuteva 2006: 267, emphasis in original)

Here the Basque use of an essentially OSV structure is partially mimicked in the local Spanish (although there is also evidence for Spanish word order affecting Basque word order).

One of the most famous examples of pervasive grammatical borrowing is found in the Indian village of Kupwar. Kupwar is located on the boundary between the Indo-Aryan languages of northern India and the unrelated Dravidian languages of the south. Three languages are spoken in Kupwar: Urdu and Marathi (both Indo-Aryan) and Kannada (Dravidian). Everyone speaks all three languages and switches among them constantly depending on the context. As a rule, Indo-Aryan languages and Dravidian languages have very different sentence structures, and elsewhere in the Indian subcontinent this is true of these three languages: a sentence in Kannada looks nothing like a sentence in Urdu or Marathi. In Kupwar, however, things are different. Here are three equivalent sentences in the three languages as spoken in Kupwar:

Urdu	pala	jəra	kat	ke	le	ke	a	–	yə
Marathi	pala	jəra	kap	un	ghe	un	a	l	o
Kannada	tapala	jəra	khod	i	təgond	i	bə	–	yn
	greens a.little cut having taken having come Past I								
	‘I cut some greens and brought them’								

As you can see, the three sentences are word-for-word equivalents – and this is typical of many sentences in Kupwar. At first glance, you might think you were looking at three dialects of a single language, but this is not so. The three languages have influenced one another so strongly that they have come to have identical sentence structures, structures that are different from what is found in the Urdu, Marathi and Kannada spoken elsewhere. Indeed, one might almost suggest that the people of Kupwar speak only a single language, but that they speak it with three different vocabularies – and that is exactly what some linguists have suggested.

When we take all of the examples given above into consideration, we can see that Thomason’s scale of contact is profoundly useful for an analysis of degrees and types of language contact. But it doesn’t represent the full story. Indeed, Thomason herself observes that

the TYPOLOGICAL DISTANCE between two languages in contact is an important factor in any prediction of types of borrowing: languages that are typologically very different are likely to follow the borrowing scale closely, while languages that are typologically very similar are likely not to do so in all respects.

(Thomason 2001: 71)

This is an important point to make since, as we might expect, a great many language contacts are between varieties that are close relatives of each other. What happens when people who speak varieties different enough from each other for there to be serious comprehension problems, but close enough for the kinship between the two to be palpable, come into contact with each other? In modern Europe the solution to such a situation would involve one or both of the people involved using a standardized language that was known by both. This need not be the standard which acts as an ‘umbrella’ for his or her own dialect; an international lingua franca such as English may often be chosen because of its ‘neutrality’.

In the past, however, this option was not open to many people because of either low or non-existent levels of literacy. What would have happened then? Essentially, we would have seen a process linguists call *koinéization*. Koinéization involves the development of a dialect, generally descended from one source along a dialect continuum, but with added features that make it more readily comprehensible for native speakers of other varieties along this continuum, while deleting features from the primary source that would impede understanding.

A process of this type happened in the late Middle Ages to the North Germanic languages of Scandinavia – Danish, Swedish and Norwegian – in relation to the West Germanic language Low German. Old Norse, spoken across Scandinavia, the Norse colonies in the North Atlantic, and (for a time) in northern Russia, was, like all early Germanic varieties, a rather *synthetic* language typologically, in the sense that the relationships between the words in a clause were expressed by the form of the word rather more than by the position

in the clause in which the word was found, as shown in this passage from the *Flateyjarbók*, written in Iceland towards the end of the fourteenth century:

Herjólfur var Bárðarson Herjólfssonar; hann var frændi Ingólfs landnámamanns. þeim Herjólfu gaf Ingólfr land á milli Vágs . . .

Herjólf-Nom was the-son-of-Barðar-Nom of-the-sons-of-Herjólf-GenPl; he-Nom was a friend-Nom of-Ingólf-Gen the-settler-Gen. To-that-Dat Herjólf-Dat gave Ingólf-Nom land-Acc in-the-middle-Dat of-Vág-Gen . . .

‘Herjólf was the son of Barðar of the sons of Herjólf; he was a friend of Ingólf the settler. Ingólf gave Herjólf land in the middle of Vág . . .’

The North Germanic dialects of Scandinavia have inherited very little of this inflectional material. Grammatical gender distinctions are still normal, although Danish, Swedish and some eastern dialects of Norwegian only distinguish between common gender (an amalgam of masculine and feminine genders) and neuter gender; most varieties of Norwegian still distinguish three genders. Adjectives are still marked for gender, number and definiteness. Noun classes are still expressed inflectionally, although there is a much greater levelling of this morphology in Danish and some south-eastern Norwegian dialects than there is in Swedish and most other varieties of Norwegian. Distinctions between subject, object and possessive contexts are still expressed with most personal pronouns (although there is variation with this also).

On the other hand, all traces of the case-system have gone (except in some small-scale relatively isolated Norwegian communities) with the exception of possessive expression (which no longer distinguishes between genders and is often avoided in speech and writing through the use of periphrastic phrases) and a few ‘fossilized’ expressions. Most striking, however, of the distinctions between Old Norse and the contemporary dialects of Scandinavia is in the verb system. Old Norse verbs generally had distinctive forms for all (or almost all) persons and numbers in present and past tenses (with indicative, subjunctive and imperative forms often distinct). Modern Norwegian, Danish and Swedish use invariant forms for both tenses (Table 11.5).

Table 11.5 Comparison between Old Norse and modern Norwegian

	Old Norse	Modern Norwegian	
First singular indicative present	(ek) gef	jeg gir	‘I give’
Second singular indicative present	(þu) gefr	du gir	‘you (sg.) give’
Third singular indicative present	(hon) gefr	hun gir	‘she gives’
First plural indicative present	(vēr) gefum	vi gir	‘we give’
Second plural indicative present	(ēr) gefið	dere gir	‘you (pl.) give’
Third plural indicative present	(þeir, þær, þau) gefa	de gir	‘they give’
First singular indicative past	(ek) gaf	jeg ga	‘I gave’
Second singular indicative present	(þu) gaft	du ga	‘you (sg.) gave’
Third singular indicative present	(hon) gaf	hun ga	‘she gave’
First plural indicative present	(vēr) gáfum	vi ga	‘we gave’
Second plural indicative present	(ēr) gáfuð	dere ga	‘you (pl.) gave’
Third plural indicative present	(þeir, þær, þau) gáfu	de ga	‘they gave’

These changes did not happen with the inflectional systems of the surviving North Atlantic North Germanic languages – Icelandic and Faeroese. Although certain features of the Old Norse inflectional system have been lost in both varieties, the present grammatical systems of this part of the family are not *so* different from the inherited Old Norse system. Indeed, modern Icelanders can apparently read the Old Norse sagas without tremendous difficulty (although it has to be noted that this morphological conservatism is matched by considerable phonological innovation).

The changes that affected the Scandinavian languages took place largely during the late medieval and early modern periods, sometimes at considerable speed (although it's often difficult to gauge this when you only have written evidence: we can never be entirely sure how close to someone's spoken language their written form is). The changes seem to have happened first in centres of population. Why did the insular North Germanic dialects not change also?

In the first place we must recognize that language-internal explanations seem to be favoured by many commentators on these phenomena. Edward Sapir (1921) suggested that closely related languages tended to change in roughly the same direction, a phenomenon he termed *drift*. There is a longstanding and ongoing scholarly debate about how separate languages can 'know' to go in the same way, a view some linguists would consider unfortunately mystical. Nevertheless, it is certainly the case that all of the Germanic languages – including the most conservative varieties, German and Icelandic – are moving towards greater inflectional 'simplification' in comparison with the ancestral varieties. It is the speed with which the continental North Germanic languages changed that is striking. It is almost as if *drift* had been speeded up.

Although other contributory factors (such as the 'Mini Ice Age' and the Black Death – both particularly devastating in the Norse world) could be considered, the primary feature that marks off the continental from the North Atlantic North Germanic languages is strongly demonstrated in Danish, Swedish and Norwegian lexis: Low German.

It might seem strange that what is now a largely dialectalized language spoken mainly in rural districts in north Germany should have had such an effect on the languages of its neighbours to the north, but that indeed is the case. In the late medieval and early modern periods, Low German was the *lingua franca* of the Hanseatic League, a federation of north German cities and other cities of the Baltic that had large Low German-speaking populations (such as present-day Gdansk and Riga, among others). Although at heart a trading organization, the League was a trading organization of such power and resources that it had embassies, permanent extraterritorial concessions policed by Hanseatic law in some settlements and, for a time at least, could materially affect the politics and governance of the Scandinavian countries. Many Low German-speakers settled in the larger settlements of these countries: Bergen, Gothenburg, Malmö, Copenhagen, Stockholm and Visby (the capital of the Swedish island of Gotland in the middle of the eastern Baltic). Many Scandinavian inhabitants of these towns (and later their hinterlands) attempted to learn the economically dominant language, or at least incorporated elements of Low German into their speech.

The lexical effect of this contact was and is massive. All three Scandinavian languages have a considerable Low German element in their vocabulary, despite nineteenth-century purist campaigns against the 'foreign' elements in their languages. For instance, in Norwegian, the word for an 'office', *kontor*, for 'to talk', *snakke*, and even the word for 'language', *språk*, are all originally Low German. Indeed, so pervasive was the influence from Low German that even native word-formation was affected. For instance, Old Norse did not allow prefixation on a root morpheme (something that is commonplace in the West Germanic

languages at all stages in their histories); Scandinavian languages can now do this naturally and productively. At the same time, many suffixes in regular use in Low German were also introduced into the language. Therefore, a word such as *begynnelse* ‘beginning’ emphasizes its ‘unnative’ nature twice: in its prefix and its suffix *-else*.

Phenomena of this type are reminiscent of a superstratal influence. It is very easy to imagine that the language of these fashionably prosperous newcomers, often dominant in towns (where the majority may sometimes have had Low German as their first language) and pervasive among the ruling classes, would have had a considerable attraction to those who had ambitions of taking part in the new world ushered in by them. All of us – no matter how hard we might deny it – at least partly want to be where the ‘beautiful people’ are or where there is plenty of money to be made. Most of us are perfectly willing to change the way we speak to accomplish these and similar goals. In a situation where manifest inequalities of power and money between speakers of different languages exist, there will inevitably be bitterness, but also considerable willingness to alter linguistic behaviour in order to live better.

Of course, something similar to this happened for English in relation to French. Indeed, if anything, the influence of French upon English lexis is greater than that of Low German upon the Scandinavian languages: its superstratal influence is even more pronounced, so that words dealing with basic and everyday actions, relationships, persons and concepts are unlikely to be of French origin, while those connected to the courtly life, government and the law, and so on, are almost guaranteed to be of this origin. The same cannot be said for the Low German element in Scandinavian.

But what is striking about French influence upon English is that it is largely confined to the lexical sphere (with the exception of a few phonological and prosodic features). There is practically no evidence for direct grammatical or morphological borrowing from French. But the Scandinavian languages and Low German were close relatives. It is impossible to tell to what extent Low German would have been intelligible to speakers of the Scandinavian dialects (and vice versa). Certainly there would have been a common core vocabulary that was shared (as there still is, albeit to a lesser extent, for all the Germanic languages today). It would have been relatively straightforward to build up a considerable shared vocabulary for communication between the two languages, with a morphological and syntactic structure that was straightforward enough that it did not interfere with the transfer of relatively simple meanings. We have evidence of just such a Low German-based use-language in the early modern North Sea timber trade, as discussed by Lorvik (2003). (We will discuss use-languages formed from languages that are not close relatives below.) Imagine what this kind of use-language would be like if people continued to speak it over a few centuries, so that it became the native language of some citizens, almost all of whom probably came from mixed backgrounds. Inevitably, country people would also have begun to move towards what was, to them, a prestige variety, particularly when many of its syntactic or morphological usages represented the end point of where *drift* was leading Scandinavian. Developments of this type must have been particularly common when literacy in any language was low, and the native language was in a subordinate position to another language.

I am not, of course, suggesting that Swedish, Danish and Norwegian became *like* Low German. This is self-evidently not the case. Constructions such as the medio-passive in expressions like *vi ses* ‘we will be being seen by each other’ demonstrate their continuing North Germanic ‘heart’. But it is fair to say that the path that these languages all followed was affected to a considerable degree by this particular contact with a close relative.

When we analyse these and many similar contacts between languages that are closely related to each other, it is apparent that Thomason's typology of language contact is not as useful to our analysis as is the case with contact between languages that are distant relatives, if they are related at all. Something like koinéization is likely to take place in contact with a close relative; particularly, probably, when the people who speak the two or more languages are intermingled, where there is little difference in status between the majority of speakers of the different languages and, perhaps, where literacy is low or non-existent. In these cases, a state similar, if not identical, to convergence is the norm.

11.2 Linguistic areas

But language contact is not merely a matter of contact between two languages. In some cases, centuries of contact between languages can lead to a particularly striking result: several neighbouring but unrelated languages can come to share a number of structural properties with one another, properties that they do not share with their closest relatives elsewhere. A group of languages in which this situation obtains is called a **linguistic area**, or, using the German term, a ***Sprachbund***. Several such linguistic areas have been identified: the Balkans, South Asia, southern Africa, the northwest coast of North America, South-East Asia, among others.

South-East Asia is a case in point. Languages such as Chinese, Vietnamese, Thai, Burmese and the Miao-Yao languages all have tones, and they all have monosyllabic morphemes (and often monosyllabic words). Their closest relatives elsewhere, such as Tibetan, a fairly close relative of Burmese, generally lack these characteristics (although some dialects of Tibetan have acquired tones very recently). Indeed, so distinctive are these languages that it was formerly thought they must all be related, a view now known to be false. Identifying the true relatives of these languages has proved to be an exceedingly difficult problem, since all these languages look far more like one another than they do like their relatives, the more so since Chinese loan words have penetrated deeply into most of the neighbouring languages. In this particular case, it is often thought that the **convergence** among these unrelated languages is chiefly the result of heavy influence from the prestigious Chinese, but no one really knows.

One of the most famous linguistic areas is the Balkans, where the languages participating most strongly in the *Sprachbund* are Bulgarian (Slavonic) and the very closely related Macedonian, Romanian (Romance), Greek and Albanian (the last two both belonging to independent branches of Indo-European); the Slavonic language Serbian and the non-IE Turkish are marginal members of the group. Some scholars would also include Romani in the *Sprachbund*. Among the distinctive characteristics of the Balkan *Sprachbund* are the following features (as laid out in Thomason 2001):

1. The genitive and dative cases are identical (Albanian, Greek, Bulgarian/Macedonian, Romanian). Other Slavonic languages keep them distinct, while other Romance languages have lost their cases altogether.
2. There is a future tense derived from the use of the verb 'want' as an auxiliary (Bulgarian/Macedonian, Greek, Romanian, southern Albanian, Serbian). Examples: Greek *tha γραφο*, Romanian *o să scriu*, Albanian *do të shkruaj*, all 'I will write', and all derived historically from 'I want to write'. Neighbouring and related languages have a future derived from 'have' instead, or else they have no future.

3. There is a postposed definite article (Albanian, Rumanian, Bulgarian/Macedonian). Examples: Bulgarian *voda-ta* 'water-the', Macedonian *mexanicar-ot* 'mechanic-the', Romanian *lupu-l* 'wolf-the', Albanian *shok-u* 'comrade-the'. Note that the morphemes used for the article are different in all the languages. This occurs nowhere else in Europe except in Basque and in the Scandinavian languages.
4. The infinitive has been lost or greatly reduced in function, and 'I want to go' is expressed literally as 'I want that I go' (Greek, Bulgarian/Macedonian, Serbian, and to some extent Albanian and Romanian). Examples: Greek *θelo na γrafo*, Serbian *hoću da pisam*, both 'I want to write' and both literally 'I want that I write'. This development is virtually unknown elsewhere in Europe.
5. The comparative of adjectives is formed analytically ('more short') rather than synthetically ('shorter') (Albanian, Bulgarian/Macedonian, Greek, Romanian, Turkish). This pattern is also found in the other Romance languages.
6. An NP used as a direct or indirect object can or must be preceded by a particle marking it as an object (Albanian, Greek, Bulgarian/Macedonian, Romanian). This property is rare elsewhere in Europe.
7. There are distinct verbal forms for reporting events witnessed by the speaker and those being related at second hand (Albanian, Bulgarian/Macedonian, Turkish, to some extent Romanian). This is unknown elsewhere in Europe.
8. The numerals from 11 to 19 are formed by means of constructions like 'one upon ten' (Albanian, Bulgarian/Macedonian, Romanian). Examples: Albanian *një-m-bë-dhjetë*, Bulgarian *edin-na-deset*, Romanian *unsprezece*, all 'eleven' and all literally 'one upon ten'. This feature also occurs in some other Slavonic languages and in Hungarian. There is a great deal of common vocabulary. Turkish and Greek loans are numerous in the other languages, and Slavonic loans are very numerous in Romanian.

The existence of linguistic areas provides interesting support for the *wave model* of language change discussed in [Chapter 7](#). Just as has occurred with the uvular /r/ of Western Europe, various innovations appear to have diffused across language boundaries, into several quite distinct languages that can in no way be regarded as forming a dialect continuum. Some of these features can be attributed to the influence of single languages. For example, feature 7 is almost certainly the result of Turkish influence, while feature 4 is often attributed to Greek influence. For other features, however, it is at present impossible to single out any one language as the source of the innovation. Hock (1988) suggests, in fact, that many of the Balkan features represent where a number of isoglosses in the languages of Europe and Asia overlap. Thus most of the features of the *Sprachbund* are found in contiguous languages; what marks off the Balkans is that they combine all of these neighbouring features. Nevertheless, as he points out, the fact that isoglosses of this type can cross language (sub-)family boundaries is of itself highly significant.

Linguistic areas perhaps represent a greater than average degree of contact between languages. However, as we will see in the next section, contact can be more intense still, and it can produce decidedly more dramatic consequences than we have so far seen.

11.3 Language birth: pidgins and creoles

We have already seen that new languages commonly arise when a single widespread language splits up into regional dialects that continue to diverge from one another, producing

as a result several distinct daughter languages. But this is not the only source of new languages. There is another, very different, way for a new language to come into existence, one that linguists have been very slow to appreciate.

Very many times in human history and prehistory, people speaking different languages, sometimes a number of different languages, have found themselves brought together and obliged to deal with one another. Often the cause has been trade: Europeans trading all around the Mediterranean, West Africans trading along the coast of the continent with one another (and later with Europeans), East Africans doing the same with other Africans (and also with Arabs) – all these and countless other groups have at times been obliged to conduct business without the aid of a common language. Sometimes the causes are more sinister, as with the Africans brought as slaves to North American and Caribbean plantations, who often had no language they could speak with one another or with their European masters (the situation was, Mufwene 2001 suggests, rather different for slaves on smaller family-based homesteads). But the possible circumstances are endlessly varied. The thousands of workers, drawn from a dozen Asian and Pacific countries, who went to Hawaii to work in the sugar plantations in the late nineteenth and early twentieth centuries were in the same boat, as, more recently, are the people of Papua New Guinea, now united in a nation speaking hundreds of indigenous languages, each generally confined to a tiny area.

In such circumstances, people almost invariably respond in the same way: they create a pidgin. A **pidgin** is a ‘rough and ready’ form of language, where elements of mother tongues and dominant languages are employed to facilitate basic communication. Generally it has a limited lexicon and phonological, morphological and syntactic systems much reduced in complexity from any of the source languages. Some people would interpret the ease with which it is created and learned as due to the *bioprogram hypothesis*, the suggestion, as originally developed by Bickerton (1984), that there is a ‘blueprint’ for how to construct a new language ‘hard-wired’ in all human brains, thus explaining the structural similarities between pidgins born under completely different dominant languages.

Most of the pidgins we know something about were created during and after the European expansion of the modern era; with these, it seems usually to be the case that a single language, usually the locally important European language, makes the single largest contribution to the vocabulary of the pidgin, although not necessarily to the grammar. But this need not always be the case: in Russenorsk, a pidgin used until recently between Norwegian fishermen and Russian merchants, Russian and Norwegian seem to have made about equal contributions to the lexicon, due to the largely egalitarian nature of the contacts.

A pidgin, being no one’s mother tongue, is not a natural language. Nonetheless, it is much better than nothing and, if circumstances are favourable, it may persist for generations or even for centuries – some pidgins used as trade languages have done precisely that. In other circumstances, however, something very different may happen.

If the pidgin is not primarily being used only for trade, but is instead the sole means of communication between the people in a settled community, then something momentous may occur. People in the community may have children and, whatever they may speak at home, the children have only the pidgin to speak with other children. In such a case, the children do what children always do: they take what they hear and turn it into a ‘proper’ language. They quickly settle on a fixed word order, which pidgins don’t have; they begin introducing all sorts of new grammatical elaborations, including verbal inflection and subordinate clauses; and they greatly expand the vocabulary, until they can talk easily about

anything they like. And, sooner or later, some children in the community will begin acquiring this expanded pidgin as their first language, as their mother tongue. When this occurs, a new natural language has come into existence.

A language derived from a pidgin in this way is called a **creole**. By convention, we usually consider that a creole comes into existence when its first native speakers appear, although naturally the facts, as always, are complex, and some linguists would prefer to distinguish pidgins and creoles in terms of their degree of stabilization. But we can leave this debate to the specialists: the crucial point is that a new natural language can be born out of the intense degree of contact that necessitates the use of a pidgin. This, at least, is the majority view.

Creoles may be transient creations – for example, the Hawaiian Creole of the sugar plantations is now nearly extinct, its speakers having steadily abandoned it in favour of English, the prestige language of Hawaii. But they can equally endure, perhaps indefinitely. For example, the mother tongue of the entire population of Haiti is the creole created by their mostly African ancestors generations ago, and there is no sign that the creole is likely to be displaced by any other language, not even by French, the official language of the government. Numerous other creoles created in the modern era endure today, and many of them show few signs of being abandoned in the near future. Indeed, new creoles are still being created: the English-based pidgin of eastern New Guinea is steadily gaining ground in the new nation of Papua New Guinea, and it has now become the mother tongue of a sizeable number of speakers; the resulting creole, now called Tok Pisin, is one of the country's official languages.

And this fact raises some fascinating questions for historical linguists to ponder. Until not so long ago, most linguists were inclined to dismiss creole formation as a rare and unusual event, perhaps even an aberration; creoles were often thought to be a peculiarity of the modern European expansion, a short-lived idiosyncrasy that could be safely ignored in the study of the history and prehistory of 'real' languages, which arose directly from earlier languages in the familiar way.

But why should we assume this so glibly? We know that countless pidgins have arisen just in the last few centuries, in almost every corner of the globe, and we know that many of these pidgins have undergone creolization and turned into new natural languages. Why could the same thing not have happened any number of times in the more remote past? Why shouldn't any number of the 'real' languages whose histories we are exploring be themselves the offspring of ancient creoles? How can we tell?

In fact, we probably can't tell. Once it exists, a creole is a natural language like any other, and it is subject to the same processes of historical change as any other language. There is absolutely no way of demonstrating that some language or language family is not the direct descendant of some prehistoric creole, created in circumstances of intense contact between speakers of different languages. Indeed, suggestions along these lines are now beginning to be made. Several linguists have put forward the idea that the genetically isolated Japanese might be the descendant of an ancient creole, perhaps one created by mingling waves of settlers from the Asian mainland to the west and from the Indonesian and Philippine islands to the south. This might even be true, although we have no way of finding out, since the Old Japanese of our earliest records looks no more like a creole than does modern Japanese. For all we know, our beloved Proto-Indo-European itself might have started life as a creole constructed by a mixture of anonymous speakers of several different languages, many thousands of years ago, in circumstances we can only guess at.

Indeed, the contact between Low German and the Scandinavian languages in the late Middle Ages discussed above shows some similarities with *creolization*, although not on as extreme a level.

If a creole remains in contact with a prestige language from which it is partly derived, it may undergo some degree of **decreolization** – that is, features of the prestige language may be imported into the creole, which therefore comes to resemble the prestige language more closely. This process may go further for some speakers than for others, and the result may be a **post-creole continuum**: a range of related varieties extending from a very conservative version of the creole at one extreme to something more or less identical to the prestige language at the other. Individual speakers may even modify their own speech along the continuum depending on circumstances. In most senses this is no different from the continuum between ‘dense’ dialect and standard which most literate speakers move along in their daily communication. Indeed, some creolists, most notably Mufwene (2001), would suggest that this continuum always existed and that some creoles (and creole-like varieties) – most notably (and workably) African-American Vernacular English – do not derive from pidgins at all, but rather should be interpreted as another new colonial variety of a metropolitan variety with inputs not shared with the dialects of the local white population. We will discuss his views further in the case study. But while his views are certainly attractive, they do seem to work better for creoles born out of slavery rather than those (such as Tok Pisin) created by the need for communication between equals or non-equals.

Here are some examples of English-based creoles. The first is Sranan, spoken in Surinam, where it is the mother tongue of about one-third of the population. Sranan is a very conservative creole, spoken in a territory where Standard English has not exerted much influence since the originally English colony was ceded to The Netherlands in the seventeenth century. It is probably typical of what all Caribbean creoles were like before decreolization.

Ala den bigibigi man de na balkon e wakti en. A kon nanga en buku na ondro en anu.
A puru en ati na en ede, en a meki kosi gi den. Dan a waka go na a djari, pe den gansi de.

All the important men were on the balcony waiting for him. He came with his book under his arm. He took off his hat and bowed before them. Then he went to the garden where the geese were.

As you can see, this variety is quite incomprehensible to speakers of Standard English: it contains a large non-English element in its vocabulary and in its grammar, such as *gansi*, from the Dutch word for ‘geese’. Slightly more accessible is Miskito Coast Creole, spoken in eastern Nicaragua (where, again, English is not the language of authority); the items *did* and *mi* are past-tense markers:

Wen i pik it op naw, i no kom we a de. I tel mi lay wen i kom naw. Da iyynin i sey, ‘mama’, i sey, ‘a did tayad an neva kom.’ A say ‘yu dam lay. Siy yu ay? Yu mi dring-kin; das wai yu no mi wahn kom ya.’

When he starts up [drinking] now, he doesn’t come where I am. He tells me lies when he comes now. In the evening he says ‘Ma’am’, he says, ‘I was tired and didn’t come.’ I say ‘You damn liar. See your eyes? You’ve been drinking; that’s why you didn’t want to come here.’

The creole of Trinidad has undergone more substantial decreolization, and is noticeably easier for us to understand, although it still contains a number of words not found in standard English:

Le mi gi yu a reek. Di oda nait a waz laimin bai Paak Striit Kyafe an a si yu bongsin dong di rood wid yu piki ed in a lat a k33laz, hoolin haan wid yu maan lov kyaan don.

Let me give you some gossip. The other night I was standing around by Park Street Café and I saw you bouncing down the road with your nappy [tightly curled] hair in a lot of curlers, holding hands with your boyfriend [as though] love couldn't end.

But decreolization is, of course, not the only type of change that can affect a creole. Some of the most interesting work on creoles in recent years has focused on very young creoles that are in the process of acquiring new grammatical features. Here are some examples from Tok Pisin, the English-based creole of Papua New Guinea. In these examples, *bilong* (from English *belong*) is a preposition corresponding roughly to English *of*; *pinis* (from *finish*) and *nau* (from *now*) are grammatical markers of aspect; *i* (from *he*) is a grammatical marker that introduces a predicate. (You can already see here some grammatical formatives derived from lexical items.)

Formerly, Tok Pisin permitted no overt compounds, and circumlocutions were necessary to achieve the same effect:

- *man bilong les* 'lazy fellow'
- man bilong save* 'expert'
- meri bilong hambak* 'promiscuous woman'

More recently, however, compounds have come into use and are now favoured:

- *lesman* 'lazy fellow'
- saveman* 'expert'
- hambakmeri* 'promiscuous woman'

Earlier, the language permitted only complex predications like the following:

- *Ai bilong mi laik slip.*
'I'm sleepy.'
- Yau bilong em i pas.*
'He's deaf.'
- Gras bilong mi i wait pinis.*
'I've got grey hair.'

Now, compounds can function as predicates:

- *Mi aislip nau.*
'I'm sleepy.'
- Em I yaupas.*
'He's deaf.'

Mi waitgras pinis.
 ‘I’ve got grey hair.’

Formerly, causatives could only be formed periphrastically, using the auxiliary verb *mekim*, from English *make* plus the suffix *-im* (from *him*), which marks a transitive verb in Tok Pisin:

- *Yu mekim sam wara i boil.*
 ‘You boil water.’
- Mi mekim kabora i drai.*
 ‘I dried the copra.’

Now, synthetic causatives are in use; these are formed with the transitivity suffix *-im*:

- *Yu boylim wara.*
 ‘You boil water.’
- Mi bagarapim haus.*
 ‘I ruined the house.’

(The delightful verb *bagarapim* derives from English *bugger up*.)

Earlier, habitual action was indicated by placing the verb *save* ‘know’ before the main verb:

- *Mipela save wokim haus olsem.*
 ‘We usually build houses like this.’

For modern speakers, however, *save* is reduced to an unstressed particle *se*:

- *Mipela se wokim haus olsem.*
 ‘We usually build houses like this.’

Earlier, Tok Pisin permitted no complement clauses, and only juxtaposed statements were available:

- *Mi no save. Ol i wokim dispela haus.*
 ‘I didn’t know. They had built this house.’

But modern Tok Pisin allows the adverb *olsem* ‘like this, this way’ (from *all same*) to be used as a complementizer introducing a complement clause:

- *Mi no save olsem ol i wokim dispela haus.*
 ‘I didn’t know they had built this house.’

(A question to ponder: why should the word *olsem* come to be used in this way? What could have been the intermediate stage leading to its modern use as a complementizer?)

Particularly interesting is the introduction of relative clauses into Tok Pisin, which formerly lacked them. Several different strategies have been devised for making relative

clauses. One strategy uses the question word *husat* ‘who?’ (from *who’s that?*) as a relative pronoun; relative clauses are enclosed in brackets:

- *Em man [husat i drawim] em i go lapun tru na em i dai pinis.*
‘The man [who drew (it)] got very old and died.’
- Em kilim man [husat stilim samting].*
‘He killed the man [who stole something].’

Another strategy uses the question word *we* ‘where?’ (from *where*) in a similar way:

- *Dispela man i kolim stret man [we em i poisonim long en].*
‘This man named precisely the man [who performed magic on him].’

These two strategies are possibly calques (loan translations) on English. Very different is another strategy, which makes use of the deictic item *ia* ‘here’ (formerly also *hia*, from *here*). This item can be used like its English counterpart:

- *Yu stap hia.*
‘You stay here.’

But it is very commonly used in Tok Pisin as a generalized deictic item in discourse:

- *dispela haus ia*
‘this house here’

(Compare non-standard English *this here house*.) The frequent use of this item has led to its introduction as yet another marker of relative clauses, but this one behaves differently: it occurs *twice*, once at each end of the relative clause, in what we might call a ‘bracketing’ strategy:

- *Dispela liklik anis ia [em i ben dens waintaim em festaim ia] em go nau.*
‘The little ant [that he danced with the first time] left.’

With a little thought, you can see how this might have come about. Sometimes two strategies are used together:

- *Man ia [we i maritim wanem meri ia] em . . .*
‘The man who married this girl, he . . .’

Such variation in usage shows that relative-clause formation in Tok Pisin has not yet settled down, and only time will tell whether speakers will finally settle on one particular strategy or whether the language will continue to permit several different constructions. But don’t lose sight of the central point: a pidgin that lacked relative clauses entirely has developed into a creole that has acquired them. Just such grammatical elaboration is entirely typical of the development of a creole – and already, perhaps, a hypothetical linguist who was unaware of the existence of English and who encountered Tok Pisin for the first time might conclude that Tok Pisin was just one more indigenous language of New Guinea, descended

from a long line of ancestors stretching back into the remote past. New languages can be born; they need not be descended fully from earlier varieties.

By the same token, languages can cease to be collectives of dialects and instead become *reified* as a single variety which has a number of divergent (abnormal?) dialects. This change in status will have inevitable consequences in terms of linguistic change. It is to this that we will now turn.

11.4 Language planning

In this book we have concentrated upon the historical development of language as a spoken medium, even if, where this is possible, what evidence we have until the end of the nineteenth century is primarily written. In this section we will change tack somewhat, concentrating instead upon the effects that written language can have on spoken language, in particular during the past 250 years. The fundamental point which I wish to get across is that any written language which acts as the primary means of communication in a particular region will have to have gone through *standardization*. In other words, the written form will have developed prescriptive norms of spelling, lexis and grammar. Those who write it will also have been taught from a very early age that this written norm is the sole 'correct' form of the language; often they will have been taught, whether overtly or covertly, to view other dialects of the language as lesser and corrupt varieties; at the very least, most speakers of these other dialects will perceive their own variety as being in some way less 'fit' for certain contexts. Such views will inevitably have effects upon the way people speak as well as the way they write. In itself, decisions – made individually or collectively, under duress or voluntarily – about written appropriateness will inevitably affect both written and spoken varieties. The promotion of the empowered variety will also, equally inevitably, have an effect upon the other varieties spoken – whether relatives or not – in a particular territory. Language planning implies language change.

How, then, does a particular dialect of a language become the standard variety? Joseph (1987) puts forward a schematization of how this process works. He posits a situation where what literacy there is in a speech community is normally only in a language that is not native to most people within that group; most of the people who are literate do not seem to have a problem with this situation. They may even enjoy the sense of separation and special status which being interpreters for the masses gives them. Examples of such a state of affairs can be found in the use of Sanskrit by the priestly/scholarly caste in India, a similar use of Latin by the Church in Western Europe in the Middle Ages and, more recently, the use of written and spoken French by the upper classes of pre-revolutionary Russia.

Over time, a group within this *avant-garde* becomes disenchanted with this elitism, instead focusing on developing the mother tongue so that it can achieve the same level of 'completeness' that the former high variety possesses. In order to do this, new registers need to be developed for particularly formal situations where previously the native language would not have been acceptable. Joseph terms this set of developments *acculturation* and *elaboration*. Inherent in their development is the idea that a certain set of spellings, lexical choices and structural 'rules' will become the norm to be developed. For this to happen, a particular variety of a language will usually be chosen (although not necessarily consciously) as the 'first among equals' – what Joseph terms the *synecdochic* dialect. As it passes through elaboration and acculturation, the synecdochic dialect matures into a full standard. Instead

of being first among equals, the standard is now the *language*, in a strongly prescriptive sense. It is (normally) the sole variety taught in schools; it is the language employed in the civil service and generally in high literature.

Joseph in general concentrates on this last feature, while Kloss (1967, 1978) is more interested in the development of a language variety through its use as a language of non-literary prose. This is because a number of languages or language varieties have had a considerable literary presence in modern times – Occitan, a language spoken in southern France, and my own mother tongue, Scots, spring to mind – but are not used in official, unmarked, writing where a default language (in the examples just cited, Standard French and Standard English) is employed. In a very real sense, tax returns and census forms *are* more important than poetry. Kloss would claim that all languages that are employed as an official variety in a region have gone through *Ausbau*: ‘development’. This development should not be confused with the natural evolution through which all languages pass. Instead it represents the active, conscious development of a language variety so that it can be elaborated and acculturated and therefore is fit for use in an increasing and more serious range of contexts.

But how does *Ausbau* happen? Joseph suggests that standardization can be produced by two strikingly different means. The first of these is *circumstantial*: the society, culture and history of a particular time and place produce language attitudes that encourage – perhaps even demand – the development of a particular variety as the language of the ‘best people’. No one sits down to plan the standardization process; indeed, it is very likely that few people will even be aware that it is happening.

A good example of circumstantial standardization can be found in the history of English. After the Norman conquest of 1066, English’s position within the (doubtlessly small) literate community dropped significantly. It is not that English ceased to be written at all, but rather that it was used largely for literary or domestic matters. While it would be wrong to say, as the great philologist Luick did, that *man schrieb wie man sprach* ‘you wrote as you spoke’, considerable variation did exist in the written form between place and place, suggesting a local set of scribal practices. Although the position of the English language in England improved considerably in the thirteenth and fourteenth centuries, its emerging usage was dictated by regional scribal usage. There was, however, some understanding of regional difference, suggesting that moves towards greater regularity – something of an *idée fixe* for the learned in the Middle Ages – would have been welcomed.

Standard English as we now know it derives from a range of sociolinguistic developments at essentially the same time. One was *official*. It was only in the second quarter of the fifteenth century that a generation who had first become literate not in French or Latin but rather English found themselves in positions of power within the Royal Chancery, and began to use a rather uniform written language in their correspondence, based upon the educated London usage of the time. At the same time London’s growing importance as a *commercial* centre, along with the need for uniformity in practice, led to the formation of a not dissimilar written code. The combined prestige of these codes could be seen as the starting point for the creation of a synecdochic dialect. Its primacy was furthered by the introduction of printing in the later years of the fifteenth century. Indeed William Caxton, the introducer of this new technology, was himself, as we have seen, concerned with the introduction and prescription of norms. Primarily a businessman, Caxton’s desire was informed and stimulated by a wish to make his job both easier – in the sense that he would be able to put together movable type words without necessarily having to think about them

for long – and more profitable. Although there wasn't a fully *focused* prescriptive set of rules on these matters until the eighteenth century, this incipient standard, broadcast through the medium of printing, was capable through mass production of capsizing the previous local norm order in a way that manuscript usage would never have been able to do.

Elaboration and acculturation still needed to take place, however. In the course of the sixteenth and seventeenth centuries, however, its use became associated with the language of government, the achievements of the literary world – Shakespeare and Milton are merely the most famous of a range of literary 'giants' active during this period – and the Protestant Reformation; in particular, the production of a series of translations of the Bible culminating in the publication of the 1611 *Authorized Version*, which remained the norm in Protestant churches for centuries afterwards. Although mainstream English would never again pass through such a period of intense experimentation – probably because it had become fully standardized – the work of these centuries would have a near permanent effect on the language.

In the course of the sixteenth century, the developing standard gradually became the received norm among the literate throughout England. The same process was somewhat slower in Scotland, where Scots was itself developing – in its Edinburgh form – in the direction of standardization. By the beginning of the eighteenth century, however, Standard English was the norm in all forms of writing in both kingdoms and beyond, with local usages becoming marked and often consigned only to literary usage about certain, often sentimental, topics, a fate for which Scots is a particularly apposite example.

In the final stages of codification, associated in the main with the work of scholars such as Samuel Johnson, whose 1755 dictionary was part of a move to 'preserve' the language, and Noah Webster, who attempted both to crystallize the language and also create a semi-otically separate standard form for the young American republic, what had previously been tendencies now became hard and fast rules. Given that Johnson and his contemporaries were products of the Augustan sentiments of the early and mid-eighteenth century, it is not surprising, therefore, that many of the prescriptive rules under which written English still labours – the avoidance of 'split infinitives', as in *to boldly go*, and the use of object pronouns in subject complement contexts, for instance, *this is me* rather than the preferred *this is I* – should be based upon a less than flattering comparison of English grammar with that of Latin. (Remember Swift's comments on the 'decline' of the English language we looked at in the [first chapter](#)?) My own experience is that these rules are more regularly present in the speech of people from North America than in English-speakers from the British Isles and elsewhere. I have suggested reasons for this in Millar (2005).

What is striking about this process is that, from a relatively early period, the new written norm appears to have affected both the way people spoke and the ways they judged the speech of others (not necessarily in a negative light, but certainly in a way that treated the standard as default). For instance, the Elizabethan courtier, statesman and explorer Sir Walter Raleigh spoke, it was noted by a number of his contemporaries, with a marked Devonshire accent and dialect. It may even have been the case that Raleigh played up his 'provincial' origins to separate himself from the crowd at court as something of a 'rough diamond'. If that is the case, then it is a technique that has been employed by a considerable number of people since. It should be noted, nonetheless, that this is the exception rather than the rule: most people have quite happily adopted the norm in speech and writing, even if they have continued to use their native accent and, often, their native dialect in certain spoken circumstances.

As literacy, in particular the ability to write as well as to read, spread among the populations of the English-speaking world, it was, inevitably, the standard form that was taught as the sole representative of the language. It became, in effect, the default version of the language, with other dialects being seen as marked forms. In literature, dialecticisms were still possible; indeed, in Scotland, there remained a considerable tradition of writing poetry in the vernacular. But the dialect that was used in these endeavours (particularly, perhaps, with dialects that were relatively close to the standard) no longer represented the unconscious usage of a particular place, but rather the conscious employment of non-standard features within the mainstream standard discourse of which it forms a part. Let's look at a poem from the early nineteenth century, 'Emmonsails Heath in winter', written by the English East Midlands poet John Clare (1793–1864):

I love to see the old heath's withered brake
 Mingle its crimped leaves with furze and ling
 While the old heron from the lonely lake
 Starts slow and flaps his melancholy wing,
 And oddling crow in idle motion swing
 On the half-rotten ash tree's topmost twig,
 Besides whose trunk the gipsy makes his bed.
 Up flies the bouncing woodcock from the brig
 Where a black quagmire quakes beneath the tread,
 The fieldfare chatter in the whistling thorn
 And for the haw round fields and closen rove,
 And coy bumbarrels twenty in a drove
 Flit down the hedge rows in the frozen plain
 And hang on little twigs and start again.

This is an effective piece of writing, situating dialectal lexis – *oddlings*, for instance, means, according to the *OED*, 'a person or thing considered odd, especially because they are different from others in the same group or category' – within an essentially standard structure, thereby producing a strong sense of place and belonging. The point is, however, that this usage is self-conscious. Although Clare probably did use local dialect as his main spoken medium, the standard written form would have been his primary written medium; he is using dialect in these contexts essentially as a literary effect, perhaps also with an eye on his 'image' as a 'natural genius', a Romantic stereotype that Robert Burns had also tapped into with more permanent effect a few generations before (more discussion of this phenomenon can be found in Millar 2012).

The markedness of dialect and normality of the standard – first in writing, but inevitably for many in speech – is commonplace for most literate speakers of other dialects of English. As a young child I would mainly have spoken my native West Central dialect of Scots, although I was certainly able to code-switch to something approaching Scottish Standard English. Because I lived outside Scotland for most of my twenties – for considerable periods outside the English-speaking world – and due to the job I do, which involves both writing and speaking Standard English for a large part of my waking hours, I am not sure to what extent Scots still comes to me as the default code. I am aware at times that I am thinking in Scots, but this awareness is of itself not natural. I am not alone in this. In the two centuries in which mass literacy has spread in the English-speaking world, the presence

of the standard (in its slightly different national forms) has created sociolinguistic continua in speech between the local standard pronunciation of Standard English and the local dialect that would not have been as widespread before. These inevitably affect the ways in which a language changes.

Joseph's second category is *engineered* standardization. Engineered standardization occurs when a person or, often, a group of people design a standard variety of a language according to a set of criteria based upon their view of levels of 'correctness' or 'appropriateness'. These groupings can be official, as in the various language organizations which are in place to develop and promote the standard varieties of Norwegian, semi-official, as in the *Académie française*, or even private, as with the language policy developed by the Singapore Chamber of Commerce for that country. Most sociologists of language would refer to these processes as language planning and policy. I will concentrate on the planning side, since this has the most profound effects, in the short term at least, upon the ways that people speak and write.

The first question we need to address is: who does the planning? Cooper (1989) suggests that language planners (who generally, although not necessarily always, set out to plan the language) are *actors* of three basic types: *elites*, *counter-elites* and *non-elites*. Elites are those groupings in society that have assured and immediate access to the centres and sources of power. In early modern France, for instance, the writers and researchers who formed the original *Académie française* were at the centre of the power structure of the country and obviously believed that they had both the power and the right to insist that the 'French' that they represented and promulgated was the 'best' (if not the 'only') form of French. In more general terms, governmental ministries, such as the Ministry of Education, can often wield considerable amounts of power in relation to the form in which a language will be represented (or, indeed, whether it will be represented at all).

Counter-elites are generally close to the centre of power but, either through choice or circumstance, have not joined the elite, instead seeing themselves as an 'elite in waiting'. Common in colonial environments, the counter-elites' language planning is often connected to the support of a particular local language at the expense of the language of the present (or, eventually, former) imperial power. They are not confined to these contexts, however. After Norway regained internal autonomy in 1814, many of the squabbles between political right and left were fought out in language policy. Because the right looked kindly upon a standard based on a slightly Norwegianized version of the Danish of the former rulers, the left took up the cause of the development of a standard that better represented the folk speech of the countryside. It is unlikely that many of the liberal politicians themselves spoke these varieties: being a counter-elite, their social backgrounds were probably not that different from most of their opponents. It was a useful symbol of democratic intent, however, and made the left look as if they were acting from a sense of principle rather than ambition.

The activities of non-elite actors are rather more difficult to analyse, primarily because these tend to be small-scale and limited to a relatively circumscribed environment (although that doesn't mean that their effects are limited: the action taken by individual teachers in post-colonial environments to use, or not to use, a local language rather than the former colonial language in their teaching had and has considerable repercussions). Sometimes, however, their activities can have considerable after-effects. For instance, as bar-Adon (1975) points out, for a considerable period, the pronunciation of Hebrew (of which, it should be remembered, almost all speakers were learners at the time) taught in the Galilee

region by a group of teachers at the beginning of the twentieth century, was strikingly at odds with the standard pronunciation being spread in other major centres of Jewish settlement in Ottoman Palestine – in particular Tel Aviv. Galilean speakers were immediately recognizable to other Hebrew speakers. The fact that this particular act of non-elite language planning was not eventually successful may tell us something about the differentials of power and influence between elite and non-elite language planning actors.

Up to this point I have been using *language planning* in a relatively loose way. Many scholars split these activities into three interlocking activities: *corpus planning*, which is interested in the form of the language – how it is spelled, what is grammatically ‘correct’, what lexis should be used and so on; *status planning*, which is interested in the ways in which a particular language variety’s status in a society can be improved in relation to other language varieties; and *acquisition planning*, how a language variety – sometimes even a language – can be acquired by a population. While the last two of these features have considerable importance in how language is used in a particular place, corpus planning, at least in the short term, is the form of language planning that has the most effect upon written and spoken varieties.

Corpus planning is also the variety of language planning that features in news reports, primarily because the English-speaking world is not used to this taking place through the actions of official (or semi-official) agencies. Hardly a month goes by where there is not a report in newspapers or on websites – often humorous in intent – describing what decisions have been made about lexical use by the authorities acting for another language. Particular interest appears to be taken in the activities of the *Académie française* in criticizing – or even acting against – the use of English words and phrases in French; often, probably unfairly, these are at least covertly portrayed as chauvinism or even paranoia. All of these activities are intended to halt or channel linguistic change, however.

What, then, constitutes language planning? Let’s take a look at what happened for Basque. Although regularly written since the sixteenth century, there was no standard form of Basque before the 1960s, and there was, of course, a great dearth of technical terms. Only in 1964 did the Basque Language Academy promulgate a standard orthography, followed a few years later by a standard morphology, standard forms of place names and standard forms of some hundreds of common words. (Neither the pronunciation nor the syntax has yet received any significant degree of standardization: remember the level of linguistic diversity normally present in mountainous areas?) But even these basic decisions proved to be difficult and controversial.

The standard orthography included half a dozen digraphs, such as *tx*, *tt* and *ll*, all of which represent single consonants in Basque. But were these digraphs meant to be single letters, following the example of Spanish, in which digraphs like *ch* and *ll* are distinct letters with their own place in the alphabet, or were they meant to be only sequences of letters, like the French digraphs *ch* and *gn*? The Academy neglected to say, and so there ensued a period of confusion, with some dictionaries adopting the first policy and others the second, before the Academy belatedly settled on the second.

The Basque town called *Rentería* in Spanish is variously known in Basque as *Errenteria*, *Errenteri* or *Errenderi*, and moreover a medieval document reveals that the town was formerly known in Basque as *Orereta*, a name that has dropped out of use. The Academy’s choice of *Errenteria* upset many of the town’s inhabitants, who campaigned for reviving the lost medieval name, and for some years visitors to the town were greeted with banners, posters and graffiti demanding the old name.

Loan words presented a particular problem, because of the political frontier running through the country. For 'judge', French Basques used *juje*, a loan from French *juge*, while Spanish Basques used *juez*, a loan from Spanish. In this case, the neologism *epailari* was coined, from *epai* 'judgement, sentence' and the suffix *-lari* 'one who performs'. But 'crocodile' was more difficult, since French Basque *krokodila* and Spanish Basque *kokodrilo*, both loans, were substantially different; the Academy's curious choice was the compromise *krokodilo*, a form used by no one. For 'car', no solution has yet been found: French Basque *boitura* (from French *voiture*) and Spanish Basque *kotxe* (from Spanish *coche*) both remain in use.

Neologisms, of course, were coined in their thousands, taking advantage of the language's abundant supply of word-forming suffixes: *hozkaile* 'refrigerator' (from *hotz* 'cold' and *-gailu* 'apparatus'), *adabegi* 'node' (in a syntactic tree) (an extension of *adabegi* 'node, knot' (in a botanical tree), itself a compound of *adar* 'branch' and *begi* 'eye'), *aurrerakuntza* 'progress' (from *aurrera* 'forward' and *-kuntza* 'abstract action'), *ikerketa* 'research' (from *iker-* 'investigate' plus *-keta* 'activity'), *iragankor* 'transitive' (from *iragan* 'put through' plus *-kor* 'tending to'), *kutsadura* 'pollution' (from *kutsa-* 'contaminate' plus *-dura* 'effect of an action'), *iraultza* '(political) revolution' (from *irauli* 'turn over' plus *-tza* 'action'), *ortzone* 'cosmos' (from *ortzi* 'sky' plus *-une* 'place'), and so on.

A particular problem has been to find a way of rendering the numerous prefixes found in other European languages, since Basque has no prefixes of its own. Latin and Greek prefixes like *con-*, *pre-*, *anti-*, *post-*, *syn-*, *dis-*, *dia-*, *trans-*, *meta-*, *contra-* and *in-* have no straightforward counterparts in Basque, and international words like *transcontinental*, *antisocial*, *hyperventilation*, *subsection*, *supersonic* and *synchronic* therefore present considerable difficulties. Various devices have been pressed into service to obtain Basque equivalents for such words. In some cases, traditional means of word-formation can be employed. Thus, 'posthumous' is rendered as *hilondoko*, from *hil* 'die' plus *ondo* 'after' plus the adjective-forming suffix *-ko*; the resulting formation is entirely parallel to long-established words like *afalondoko* 'after-dinner'. Other cases are more difficult. For 'prehistory', the closest Basque equivalent to the prefix is the noun *aurre* 'front'. Some writers have attempted to use this noun as a prefix, producing *aurrehistoria*, a word whose formation is decidedly un-Basque. Others have preferred *historiaurre*, which at least conforms to the normal rules of word-formation.

At present there is something of a tendency to use the first pattern, producing words like *kontraeraso* 'counter-offensive' (*eraso* 'attack'; the postposition *kontra* 'against' has been in the language for centuries) and *gainjarri* 'superimpose' (*gain* 'top' plus *jarri* 'put'). In this way, as a result of the extensive and self-conscious creation of neologisms, Basque is apparently acquiring a new set of word-forming prefixes derived from native materials that historically never functioned as prefixes. If this pattern proves to be an enduring one, the new prefixes will represent a paradigm case of the way in which a language can be deliberately engineered by its speakers to meet their needs.

Of course, the business of language planning involves a good deal more than official decisions and lists of new words: the decisions have to be accepted by the community, and the official forms and the new words have to be used by speakers and writers. In the Basque case, this has now, after some initial resistance, largely happened, and the new forms are widely used. Naturally, not every proposal has been accepted. The suggested neologisms *beroneurkin* 'thermometer' (from *bero* 'heat' plus *neur-* 'measure' plus *-kin* 'instrument') and *suomitar* 'Finn' (from Finnish *Suomi* 'Finland' plus Basque *-tar* 'who is from') have

Table 11.6 The names of four chemical elements

Greek	Italian	English	German	Japanese	Chinese
<i>málama</i>	<i>oro</i>	<i>gold</i>	<i>Gold</i>	<i>kin</i>	<i>jin</i>
<i>oxygónon</i>	<i>ossigeno</i>	<i>oxygen</i>	<i>Sauerstoff</i>	<i>sanso</i>	<i>yǎng</i>
<i>ouránion</i>	<i>uranio</i>	<i>uranium</i>	<i>Uran</i>	<i>uran</i>	<i>yóu</i>
<i>samárion</i>	<i>samario</i>	<i>samarium</i>	<i>Samarium</i>	<i>samarium</i>	<i>shān</i>

never left the pages of the dictionaries in which they were proposed, and all Basques continue to use the established forms *termometro* and *finlandes*.

This example brings me to my final point. Regardless of the planning policies (if any) adopted by the nations that speak them, the languages of the world, particularly those that are important enough to be used for a wide range of purposes, are seeing their vocabularies increasingly subject to what we might call **internationalization**: the spread into all of them of a body of common words. This is most obvious with technical terms: for centuries, words like *thermometer*, *gas*, *radio*, *telephone*, *jet*, *plutonium* and *gene*, of whatever origin, have been accepted into countless languages with no more than minimal phonological adaptation. But technical terms are not the only international words: *coffee*, *tomato*, *ski*, *yogurt*, *pizza*, *jazz*, *rock* (music), *hobby*, *striptease* and *football* have spread just as widely.

Such international spread of words has been going on for a very long time, but it has been steadily gaining momentum in the last several centuries and especially in the last few decades. Consider Table 11.6, which lists the names of four chemical elements in six languages.

Gold occurs freely in nature and has been known for thousands of years, and so each of our languages has its own native name for the metal. Oxygen was discovered only in 1774 and baptized with a Greek-derived name meaning ‘acid-former’ (it was wrongly believed at the time that oxygen was the essential component of acids). This name has been widely borrowed, but German chose to form a calque instead: *Sauerstoff* means ‘acid-stuff’. The German name was in turn calqued into Japanese, using the elements *san* ‘acid’ and *so* ‘simple’. Chinese preferred to coin its own name for the element. Uranium was discovered in 1789, although it became important only in the twentieth century; its newly bestowed name, also derived ultimately from Greek, has been accepted into all six languages, but not without modification: German has shortened the name, Japanese has borrowed the German form, and Chinese has taken only the first syllable and dropped the rest. Finally, samarium was isolated only in 1879, and its new name has passed into all six languages with a bare minimum of modification, except that Chinese has once again contracted it.

This sharing of technical terms has obvious advantages. A physicist doesn’t have to know much Basque to realize that Basque *erresonantzia* means ‘resonance’, that *bapore-presio* means ‘vapour pressure’, or that *momentu dipolar magnetiko* means ‘magnetic dipole moment’; he might even spot that *ultramore* is ‘ultraviolet’, or that *higidura brownlar* is ‘Brownian movement’. In the same way, a Scot, a Norwegian or a Pole reading an Italian popular magazine is unlikely to be troubled by Italian words like *sex-symbol*, *happy-end*, *massage parlour*, *T-shirt*, *jogging*, *gay* or *look* (in a fashion article), since these English words have become part of the common currency of most European languages.

Thus we can see that in literate language communities language change is not at a fully unconscious level. Language planning and, in particular, the interplay between political, economic and cultural forces and between the local, national and global are often fully

conscious and inevitably affect the nature of change in a particular variety. They may also cause the most brutal form of language change: language death.

11.5 Language death

We have already seen that a language that establishes itself over a wide area may, with the passage of time, break up into a number of distinct daughter languages. We have now also seen that entirely new languages can arise and become established as a result of the kind of intense contact that leads to the formation of pidgins and creoles. Both of these processes, of course, tend to increase the number of different languages spoken on the planet. If there were nothing else going on, then, the number of languages would go on increasing forever. Of course this doesn't happen, because there *is* something else going on: languages are disappearing. In this section we shall be examining the phenomenon of **language death**.

Why should a language disappear? One possibility, of course, is that all its speakers might simply die. And some languages certainly have disappeared in such a way, although rarely if ever from natural causes like plagues or tidal waves. In all known cases, the last speakers of a language were simply killed by more powerful neighbours. This happened to the Yahi people of California in the nineteenth century, who were massacred by white settlers who coveted their land. The last surviving 16 Yahis fled into the desert, where all but one of them died from cold, hunger and disease, still knowing not a word of any language but Yahi. On a larger scale, it happened to the entire indigenous population of Tasmania. After the British arrived on the island in 1803, they found the Tasmanians to be an inconvenient obstacle to their plans for settlement, and so they took vigorous steps. The Tasmanians were ordered out of most of their own territory, and British soldiers were authorized to shoot Tasmanians on sight. By 1830 only 200 Tasmanians remained alive; these were rounded up and placed in a kind of concentration camp, where, denied medical care or adequate food, they eventually died. The last to die was an old woman who reportedly spoke not one word of English.

In the vast majority of cases, however, the death of a language is rather less ghastly. Most often, the speakers of a language simply abandon it in favour of some other language that is seen as more prestigious or more useful, in the process known as **language shift**. Such shifts of language have undoubtedly happened countless times during human history. For example, the first language ever written down, Sumerian, in what is now Iraq, endured for perhaps 2,000 years or more before the Sumerians, long since conquered by more powerful neighbours, finally abandoned their ancestral tongue and thereafter spoke only Akkadian, the language of the Assyrian and Babylonian conquerors. Akkadian in turn then disappeared in favour of other languages, chiefly Aramaic, which eventually became the first language of most of South-West Asia (it was the mother tongue of Jesus and his disciples). More recently still, Aramaic itself has given way to Arabic, the language of the Arab conquerors of the seventh century CE; Arabic is still today the first language of most of South-West Asia. Aramaic survives today in corners of Lebanon, Israel, Syria and Iraq, but Akkadian and Sumerian are long dead.

We find the same phenomenon almost everywhere where we have records. Several thousand years ago, the chief language of central Asia Minor seems to have been a little-known tongue that we call Hattic. But the rise of a new empire caused Hattic to disappear in favour of the language we call Hittite; Hittite in turn gave way to Greek and, at first, other languages; many centuries later Greek disappeared in favour of Turkish, the language

of the conquering Turks, which is now the first language of almost everybody in central Asia Minor (Greek survives elsewhere, of course). These successive conquests did not result in massacres or expulsions of the earlier population; instead, the local people simply abandoned their traditional language in favour of the new prestige language. The Turks of Asia Minor today look very little like the Turks of central Asia, the ancestral home of the Turkish people, but they look very much like their Greek, Armenian and Lebanese neighbours, and probably not so different from the Hittites.

During the initial peopling of the planet, when our remote ancestors were moving into previously uninhabited stretches of Europe, Australia and the Americas, it is likely that the number of languages on earth tended to increase over time, as the combination of language change and geographical separation had its usual effect. (Compare the islands of Polynesia, all settled for the first time within the last 2,000 years or so, where we now find a different language on every individual island or archipelago.) Once all the habitable areas were occupied, however, there was probably a very rough equilibrium, with the disappearance of languages more or less balancing the appearance of new ones, so that the total number of languages on the planet remained roughly constant, perhaps between 5,000 and 10,000. Such an equilibrium probably endured for millennia, but things have changed.

Around 5,000 years ago some societies began acquiring enough wealth and technology to raise armies and conquer their neighbours, thus establishing the world's first empires. At least some of these empires succeeded in imposing their chief language upon subjects who had formerly spoken something else (recall the Sumerians). Over time, this imperial tendency to cause language shift became steadily more effective. The Romans managed to establish Latin in most of the western part of their empire, in the process extinguishing any number of earlier languages. Later conquerors like the Arabs and the Turks were even more successful at obliterating a range of earlier languages. But even their efforts were eclipsed by the success of the Europeans.

Beginning in the fifteenth century, a number of European nations began to explore the whole world, to establish vast colonial empires and to introduce their European languages into every corner of the globe. Not all of them were equally successful. The Dutch that was introduced into North and South America, the Caribbean and the East Indies has survived in only a few locales, and German and Italian have had for the most part only a transient effect upon Africa and New Guinea. In great contrast, French, Spanish, Portuguese, Russian and, above all, English have been successfully transplanted into vast swathes of the globe, where they have become the first languages of hundreds of millions of people on every continent and the everyday second languages of hundreds of millions more. In the process, they have already exterminated many hundreds of indigenous languages, and this process is accelerating all the time. Hundreds of other surviving languages have been reduced to insignificance and are struggling for survival, often vainly. We could see much of the activity involved in these processes as representing the most bitter fruit of standardization and language planning.

Some years ago Mrs Laura Fish Somersal was found to be the last surviving speaker of the Californian language Wappo; when she died, Wappo died with her. Around the same time, Bob Dixon tracked down Mr Albert Bennett, the last surviving speaker of the Australian language Mbabaram; six months later, Mr Bennett died, and one more language passed into history. This is going on all the time, and only rarely is there a linguist nearby to record the death of another language.

The number of languages currently spoken on earth is usually thought to be between 5,000 and 6,000, but the majority of these are already in danger of being entirely displaced by more prestigious languages, thanks to our modern development of centralized nation-states with their educational and administrative systems and more especially of rapid long-distance transport and the ever-present mass media. Everywhere we look, we see languages in danger of disappearing: Breton in France, Sami ('Lappish') in northern Scandinavia, Irish in Ireland, Māori in New Zealand, Judaeo-Spanish in Turkey, Manchu in China, Ainu in Japan and, of course, the whole constellation of surviving indigenous languages in Australia, Canada, the USA and Brazil.

But what actually happens, socially and linguistically, when a language dies? Sasse (1992) has proposed the following model as a means of demonstrating what processes were at work in any language during such an event (Figure 11.1).

As we would expect, the contact phenomena involved in a language shift situation are complex. Essentially, Sasse proposes the view that language shift within a population begins with the differentiation in prestige of language varieties, itself the result of differences in prestige, or power (however that is analysed), between different groups living in the same region. A complementary distribution of domains results in the region, a situation similar, if not identical, to *diglossia*. This means that the dominant ('High') variety will be developed to make it a 'fit language' for prestigious topics and, if literacy exists within the community, of high literature and the government. Any Low varieties will inevitably be down-played during this process; moreover, the lack of development in certain domains means that it may be rather difficult to speak or write about certain topics in your native language; it may even become taboo.

The prestige of the favoured variety will put pressure on the speakers of the less favoured language. In the first place, there will be an increase in a bilingualism that isn't reciprocal. Speakers of L will be able to speak H; H speakers will rarely be able to speak L. They don't need to: everyone knows that their language is better than the jargon of the peasants/serfs/slaves/'primitives'. If that sounds far-fetched, it should be noted that this is still the case in parts of Europe today. When a monolingual English-speaker marries a bilingual Gaelic-speaker and settles down in the *Gaidhealteachd* (the historically Gaelic-speaking part of Scotland), the norm, with a few admirable exceptions, is that the use language of the marriage will be English; almost inevitably, any children of the marriage will be at best English-dominant bilinguals, if they have any Gaelic at all. I am not giving this example to suggest in some way that this happens due to malice on the part of individual English-speakers. Many Gaelic speakers now (and many more in the recent past) hold conflicting views about their native language: it is both the language of home and their dreams and also – in their opinion – not useful in the modern world. Sasse's model demonstrates this, in fact, in the suggestion that 'Negative attitudes towards A' will develop both in the dominant community and among the native speakers themselves.

One of the sources of these negative attitudes results from the contact itself. Under these unequal circumstances, borrowing of lexis – and often structures – from the prestige language will be inevitable. These features make the disparaged variety sound even more like a jargon to outsiders. Older speakers of A may also find the 'mixing' that takes place unpleasant or even offensive. Such attitudes are felt around the world. Older speakers of Spanish in the United States find the 'mixed' dialect of the younger generations, where English and Spanish lexis, phonology and structures are often mixed, repulsive.

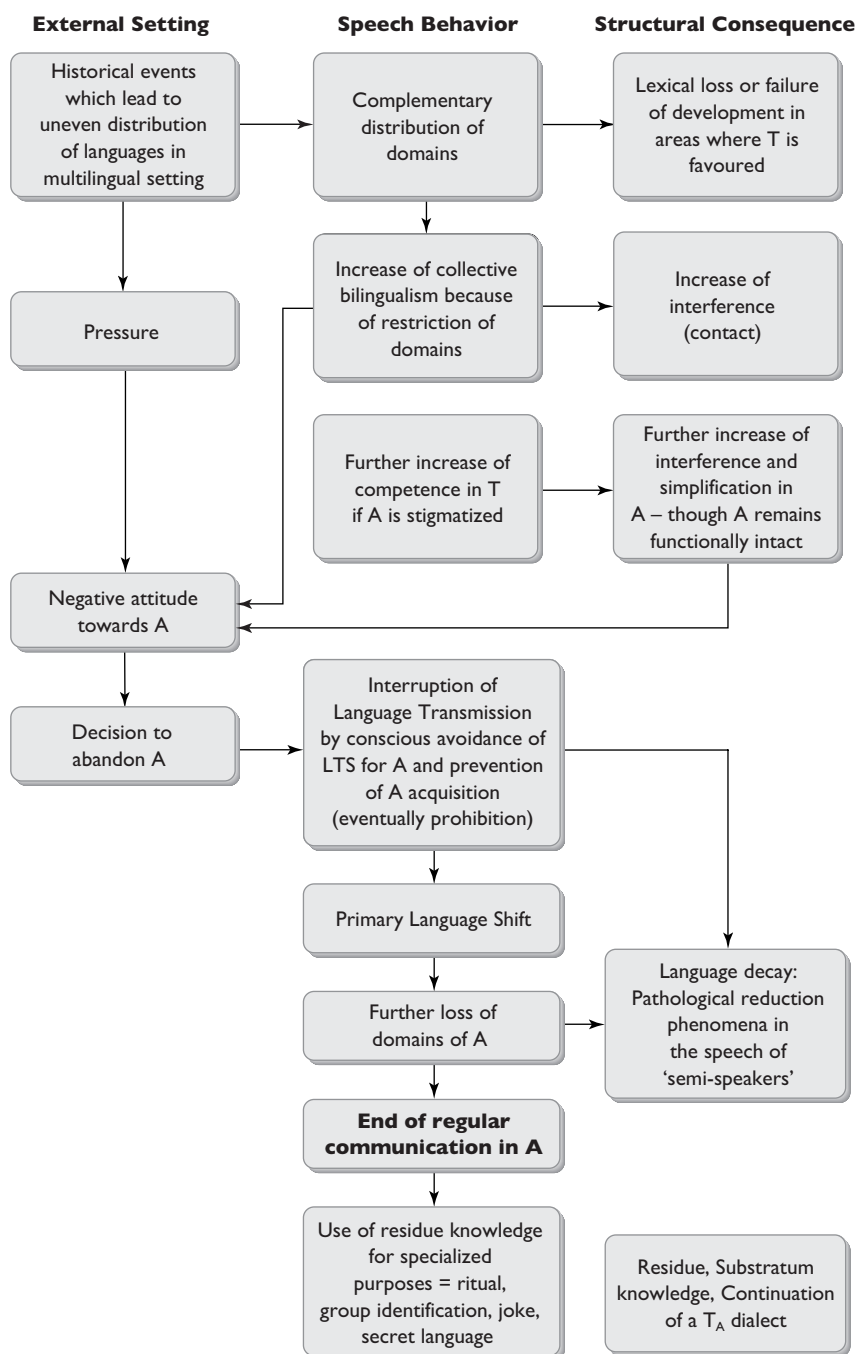


Figure 11.1 Sasse's model of language shift (Sasse 1992: 19)

Terms and Definitions: A = Abandoned Language (Language which is dying out); T = Target Language (Dominant language which is continued); Primary Language = L with higher degree of lexical, grammatical and pragmatic competence; Secondary Language = L with lower degree of lexical, grammatical and pragmatic competence; Language Replacement (= Complete Shift) = Total replacement of A by T (possibly T_A, i.e., an A-influenced variety (dialect) of T); Language Transmission = Purposive, directed passing-on of a language from one generation to the next; Language Transmission Strategies (LTS) = The whole array of techniques, used by adults to assist their children in first language acquisition, e.g., 'motherese', repetitions, exercise games, corrections, metacommunication, etc.; Language Decay = Pathological language disintegration; Semi-Speaker = Member of the post-Language-Transmission break generation with imperfect knowledge of A; Terminal Speaker (Sometimes confused with imperfect speaker) = Last generation speaker; Simplification = Removal of linguistic complexities; Reduction = Removal of significant/essential/functionally necessary parts of the language.

The unequal contact situation will intensify, often, as Sasse suggests, with native speakers of A simplifying or analogizing the structure of their language, perhaps through lack of confidence that they speak the disparaged language 'properly'. This last point has resonances with what was suggested for the influence of Low German over the Scandinavian languages earlier on in this chapter, with the proviso that it was the native dialects that survived, rather than the incoming one. Nevertheless, it is still worth noting that one of the languages involved did die in the process of influencing the other.

When a language variety becomes disparaged by large parts of its native community, it is likely that a significant part of that community will decide to abandon it. We see this regularly with the languages of recent immigrants to affluent and technologically rich societies. The developing middle class in the immigrant communities will soon choose not to pass on their native variety to their children, consciously deciding not to use it in front of them. This is done, at least overtly, to help their children 'get on' in their new home. Covertly, it may be because members of the middle class have begun to see their language as a marker of a lack of education. Such a view will, of course, be exacerbated by the concentration of continuing speakers among the poorer elements of the immigrant community. Even within this section, there will be many people who wish to improve their own or their children's position in society.

Because of negative attitudes towards A, part of this process will involve encouraging children not to use the language of the past and of poverty. And so the process of language loss intensifies and accelerates. These processes would be particularly common in places where immigrant communities are not officially or unofficially ghettoized and there is the possibility that members of the immigrant community can integrate into the wider society.

This process can be illustrated with evidence from studies carried out in many parts of Western Europe and North America. It is not confined to these contexts, however. Indeed, a particularly illuminating example can be found in the language behaviour of immigrant Yiddish speakers to what is now the State of Israel. Until the Holocaust, speakers of this Jewish vernacular, a close relative of German, comprised the global majority of Jewish people. They were even more dominant among the Zionist settlers who started to come to Palestine in considerable numbers from the last decades of the nineteenth century on, probably because they were the most literate (at least in non-Jewish languages) and often secular in outlook, having imbibed the prevailing political and social attitudes of nineteenth-century Europe. The Ashkenazim (the Yiddish-speaking Jews of Central and Eastern Europe) were also increasingly becoming victims of state-sponsored persecution. We would expect that Yiddish would have become dominant in the Zionist communities, therefore. But this was not the case.

This is not the place to discuss the revival of Hebrew in these circles as a 'national language' for Jewish people. There were very sound ideological reasons for this choice, largely due to the wish to have a lingua franca that everyone would have to learn (and, in the process, it was hoped, slough off their original ethnic and national ties) and that would encourage speakers of a range of Jewish vernaculars other than Yiddish, including a variety of Spanish and varieties of Arabic, to feel that the new, evolving polity promised linguistic and cultural equality for all. Yet, impressive though this rebirth undoubtedly is, there is evidence that there were darker views of the vernaculars, particularly Yiddish, underlying these positive pro-Hebrew views.

The corollary to the state-building use of Hebrew was the view that Yiddish was *zhargon*, a non-language associated with oppression and, given that most early Zionists were

secularist Jews from non-religiously educated backgrounds in central Europe, with the piety of groups like the Hassidim whom they found embarrassing. Moreover, the ultra-Orthodox disapproved of Zionism, because, in their view, the rebirth of Israel should come through an act of God rather than by human hands. These views included a dislike of the 'profane' use of Hebrew, the language that, in their view, God used to create the world. Strangely enough, many Zionists, both in Palestine and in Central and Eastern Europe, also associated Yiddish with the non-Zionist secularist Jewish left in these regions (and also, later, in North America), who hoped to reach Jewish workers through the use of their language. So Yiddish became doubly questionable ideologically.

As Katz (2004) points out, the debate over language became so heated in 1930s Palestine that Yiddish newspaper offices were vandalized and death threats were made to Yiddish language activists and, occasionally, writers. It became the semi-official strategy of the State of Israel to work towards a Hebrew-only Jewish population; practically no money was available for any other language; in schools, speakers of Yiddish whose Hebrew was poor were often made the butt of jokes. It is understandable why, under these circumstances, many Yiddish-speaking parents would have chosen not to encourage the use of Yiddish by their children.

The decision to abandon A, Sasse suggests, is strongly associated with the interruption of normal language transmission by at least some parents to their children. By 'normal' I mean the way in which most, probably all, of us learned our native language: from our parents or guardians, our siblings and other relatives and, increasingly as we get older, our peers; when one element of this transfer gets knocked out – perhaps particularly when that is the early parental and close family input – there is a good chance that someone will never speak her ancestral language in a completely 'native' way. She will probably have a good passive knowledge of the language, particularly if many people in her everyday environment regularly use the language.

In her work on the death of Gaelic in east Sutherland, no more than a few hours' drive from where I am writing this, Dorian (1981) demonstrated that a continuum existed between full mother-tongue speakers of the threatened language and non-speakers, made up of *semi-speakers*. These people had good comprehension skills in Gaelic but, when prompted to speak the language (which, many confessed, they hadn't done for years), demonstrated vividly the influence that English had on their competence. For instance, they had lost the complex synthetic conjugated prepositions of Gaelic like *riu-m* 'to-me' and *bhu-atha* 'from-them', and replaced them with analytic combinations of free-standing forms, like *ri mis* 'to me' and *bho aid* 'from them'.

Elsewhere in the world, speakers of the Salishan language Flathead under 60 years old no longer know the verb forms with first-plural subject and second-plural object, which are irregular and unusually complex. Semi-speakers of Channel Islands French have lost the contrast between long and short consonants found in that language but absent in English. Semi-speakers of the Mayan language Tuxtla Chico Mam have merged uvular /q/ with velar /k/. American semi-speakers of Finnish have replaced Finnish *takka* 'fireplace' with the compound *tuli-pakka*, literally 'fire-place', a calque on English. Semi-speakers of the Mexican language Pipil retain the Pipil word for 'foot' but use the Spanish words for 'ankle' and 'toe'. Semi-speakers of the SOV language Basque in areas where the language is being lost speak Basque with the SVO order of Spanish. Young semi-speakers of Dyirbal have entirely lost the ergative morphology of that language. Semi-speakers of Breton replace the penultimate stress of Breton with the final stress of French, they use a French-style

uvular for /r/ in place of the Breton apical, and they pronounce the Breton phoneme /h/ (absent from French) unsystematically or not at all. Naturally, this even more mixed language will be frowned upon by the native speaker communities associated with both A and T, as well as among the semi-speakers themselves. Immigrants often demonstrate the same patterns of loss of native speakers when speaking their mother tongues, as pointed out by Schmid (2011).

At the same time, the increasing levels of semi-speakers will encourage further loss of domains for the dying language, since, to many people, it is now corrupt and best avoided. Eventually, no one will use the language for everyday communication.

What is interesting about Sasse's model, however, is that he doesn't assume that this is the end for the language. He suggests that elements of the language may continue in use by the former native-speaker community, particularly 'for specialized purposes = ritual, group identification, joke, secret language'. At one end of what might be described as a 'continuum of seriousness', Egyptian Christians, whose ancestors abandoned their native Coptic language for Arabic by the sixteenth century, still use a Coptic liturgy in their churches, probably as an identity marker in a majority Muslim environment. At the other end, many communities that have abandoned a language have retained turns of phrase and words that come in handy as a partly joking identity marker. In Scotland, for instance, many people, no matter if their ancestors were Gaelic-speaking or not, will use *slainte mhath!* 'long life!' as their toast, particularly when drinking whisky. In between are the many Yiddish phrases used by otherwise wholly English-speaking Jewish people in North America (and, to some extent at least, in the British Isles) for culture-specific foods and customs. Often these words and phrases are known by the wider, largely non-Jewish, population. Many vocabulary items of the dead Norn language of Shetland are continued in the present Scots dialect of the island. A particularly interesting set are those that were used in the fishing trade to avoid using unlucky words. For instance, *upstaar* 'upstander' was the preferred word for a religious minister when at sea.

Equally useful in Sasse's model is his discussion of the residue and substratum features of a T_A dialect. Again, many Jewish speakers of English in North America show features of this type, particularly in certain otherwise non-English features such as object-fronting, as in *His mother he never comes to see*. These cultural markers (whether conscious or not) can continue for generations after the language contact which caused the T_A dialect has ceased to be active. I am aware, for instance, that I, along with many other people from the Glasgow area, exhibit pronunciation features that can be traced back to Gaelic, a major immigrant language in the area in the nineteenth and early twentieth centuries. This is most noticeable in my initial consonants, which are regularly *lenited* in the Gaelic manner. For instance, my initial /g/ in a word like *Glasgow* is certainly lenis, in the sense that less breath is exhaled than would be the case with /k/. Unlike for most Scots (or, for that matter, English) speakers, it is not at least fully voiced and may, in fact, be voiceless. Consonants of this type are not phonemic in English; they are in Gaelic, however. Although my ancestral connection to Gaelic as a living language is one, at most two, generations back (I can, for instance, remember elderly relatives speaking it around me when I was a child), I am sure that most people who exhibit the phenomenon have rather older and more tenuous connections with the language than have I.

Such examples could be multiplied almost without limit. Languages have been dying for as long as they have existed, but the rate of language death is today greater than ever before. The twentieth century has already seen the deaths of more languages than any

preceding century, but that dubious distinction will assuredly pass to the twenty-first century in its turn. Indeed, Krauss has estimated that perhaps half of the world's languages will disappear in the next century or so, and that in the not too distant future there may be no more than 150 languages still spoken on the planet. The resulting linguistic homogeneity will doubtless carry with it any number of practical advantages, but there will also be a heavy price to pay in terms of loss of individual and group identity – not to mention the catastrophic loss to linguistics.

Similar issues are also to be found in the dialect features reported in the last few decades for the fishing communities of the Scottish east coast, which were historically highly distinct from the dialects of their landward neighbours (discussion can be found in Millar *et al.* 2014). It is unsurprising, for instance, that words connected to the fishing trade should have been lost for younger members of these communities, given the extent to which fishing has shrunk or even disappeared in most places. The extent to which the same generational divides exist for the names for local flora and fauna is very striking, however, displaced by Scottish Standard English usage. Previous linguistic islands have been resituated within a largely homogeneous mainland.

Case study: the genesis and development of American and New Zealand English

All living languages have dialects. This truth is so obvious that it hardly needs stating. As varieties diffuse across space (and, of course, across time), as we have seen, differences between dialects become greater until we cannot really speak of there being *one* language; instead, we need to speak of two close relatives living side by side with each other (a good example being present-day German and Dutch), with a dialect continuum running between them. The situation gets more problematical when, in the spread of a language, settlers move into a physically discrete region – often, an island – where regular communication between speakers in the new territory of the language and the old is much more problematical than would be the case with physically continuous groups. Thus English is part of the West Germanic sub-family, but has gone its own way linguistically across all parts of the language's structures in comparison with its continental sisters. Similar points could be made about Icelandic, Sardinian, Malagasy, all of the Polynesian languages and many other languages around the world.

A further point could be made about the creation of new varieties of a language, a point that is much more readily applicable to those situations where new settlements are made in island-like communities: not everyone who comes to the new settlement necessarily comes from the same point on the dialect continuum. They may even come from a different dialect continuum altogether.

From the sixteenth century on, the English language (and with it, English – later British – power) spread beyond the British Isles (there had been an earlier colonial expansion into Ireland during the Middle Ages). So successful was this expansion that the great majority of native speakers now live outside the source territory; the

economic and political power of first Britain and then the United States of America has also caused there to be an even larger group of people who would be considered functional second language users of the language. For the time being at least there can be no question but that English – in particular, Standard English – has become the dominant world language.

Inevitably, these new varieties of native (and to a degree non-native) English are different from each other (although practically all of them are considerably closer to written Standard English than are any of the dialects spoken in the British Isles). Native English-speakers can normally tell an American from a New Zealander or a South African from a Canadian; many can also tell an Australian from a New Zealander or a Canadian from an American, although these distinctions are often more difficult and may take experience and concentration. What is striking, however, is that ‘colonial’ varieties of the language appear to be capable of breaking down into two main units: those spoken in the Northern Hemisphere – American, Canadian and Newfoundland English (along with the various dialects of the Caribbean and the area surrounding, which often have a creole-based origin) and those spoken in the Southern Hemisphere – Australian, New Zealand, Zimbabwean and South African English, along with the English of the Falkland Islands, Tristan da Cunha, St Helena and a range of varieties spoken on Pacific and Indian Ocean islands, often with input from creole varieties (the same point might be made of St Helenian English). A number of largely second language varieties spoken in Africa and Asia (many of the latter spoken in the Northern Hemisphere, but having more in common with Southern Hemisphere varieties) could also be added. This last observation contains an important point: these geographical designations mask temporal distinctions. With the exception of St Helenian English, from a colony founded in the seventeenth century (see Schreier 2008), all of the Southern Hemisphere varieties developed in colonies that – at the very earliest – have origins in the late eighteenth century. The Northern Hemisphere varieties, on the other hand, started to come into being in the late sixteenth century (probably earlier in the case of Newfoundland). These time differences have had an effect on the level of development and change through which the various varieties have passed.

It would, of course, be very pleasant to have the space and time to discuss all or many of the varieties mentioned above. All I can do here is to point out some resources which attempt – generally successfully – to carry out such a mammoth task (see, for instance, Wells 1982 and Schneider 2007 as initial resources). In the following, however, I can only really give room to discussion of two varieties – New Zealand and American English – which provide a number of helpful contrasts.

As Trudgill (2004) and Gordon, Campbell *et al.* (2004), among others, demonstrate, English-speakers began to infiltrate into what is now New Zealand from the first decades of the nineteenth century, movements that did not have at least official support from the British authorities ‘at home’ or in New South Wales. From an early period this involved both negotiation and conflict with the local Māori groups. The

British government eventually stepped in, inaugurating treaty-based settlement and supporting settlers when both large-scale and low-level conflict continued to break out. Settlers came in large numbers to a range of colonies within the larger unit, often with rather different intents – the area around Christchurch, for instance, being intended primarily for conservative Anglicans to create a ‘little England’ in the South Seas, while, almost inevitably in the damp and often dour south of the South Island, the area around Dunedin was intended for Presbyterian Scots. While these settlement intentions were, as normally happens with colonies, never accomplished, there is no doubt that something of the early settlement habits of the Pakeha, those of European origin, intended for particular places have continued as the colony matured and, in the interwar years, became a fully independent state. Can the same be said for the New Zealand variety of English produced in these years?

The first thing that needs to be recognized for New Zealand English is that, from the point of view of the linguistic situation in the British Isles, the variety is incredibly homogeneous linguistically. There is social variation but very little geographical variation, with the exception of the variety spoken by some people in the Southland that demonstrates a number of apparently Scottish features – such as rhoticity – not found in other New Zealand varieties.

Elsewhere, however, homogeneity reigns. It is very difficult – perhaps even impossible – to tell where someone comes from in New Zealand, no matter where a person’s ancestors came from or, perhaps more to the point, where the majority of the European migrants who came to a particular place came from (there is a specifically Māori variety of New Zealand English, although it should be noted that not all people of Māori extraction use it). Moreover, when we are exposed to native New Zealand English, it is striking that it sounds very like Australian (and to a lesser extent South African) English, as well as Cockney and other non-standard forms of southern English English, but only up to a certain point. Why should this be the case? What would cause there to be such a mixture of similarities and dissimilarities? We will turn to this issue once we have discussed the history of American English.

What is now the United States of America provides a rather deeper and more varied portrait of the development of an external variant of English. In a sense the English still spoken in that country is a descendant of the various varieties of that language brought there in the course of the seventeenth and early eighteenth centuries (in other words, as English – eventually British – sovereignty spread across what became the 13 colonies). But this is only true to some extent: later immigrant speakers of English from a diverse range of backgrounds must also be borne in mind, as should the great number of speakers of other language who have come to the United States and whose descendants have largely switched over to English as their first language.

A number of points need to be made before we develop our full analysis. Most importantly, perhaps, most Americans do not look – indeed have not looked for nearly 200 years – towards Britain as a linguistic model in the way that many New Zealanders did until at least very recently. Partly this is due to the relative size in population and

often geographical terms of the United States to any other English-speaking country; partly its violent secession (in marked contrast to the peaceful and constitutional achievement of independence from Britain for almost all other English-speaking countries); largely, however, it is time depth that produces difference.

Another important point is that while some forms of American English illustrate a dialectal distribution not dissimilar to that found in the British Isles, other parts show a lack of geographical variation not unlike that described for New Zealand above.

The history of American English is a complex and much debated subject (see Millar 2005 for further discussion); obviously we cannot do it justice in the small space we have here. Nevertheless, an attempt at synthesis will be made.

Essentially, the central debate over the origin and development of the dialects spoken, in particular, east of the Mississippi is whether they are different from each other because of the origins of the first English-speaking settlers or because of system internal developments *after* first settlement, having little or nothing to do with this first settlement.

If we follow the homeland origin theory, the connection is quickly made that the /j/-dropping associated with New England speech in words like *dune* can be attributed to the East Anglian and southern Lincolnshire origin of the 'pilgrim fathers', a region where the phenomenon is dominant in local speech. The archetypal /ɔj/ in words like *ride* on the Outer Banks of the Carolinas is due, so the argument goes, to direct influence from London. Features of Appalachian speech, such as calling a *chimney* a /ʃimli/ are due to the language brought by the Ulster Scots (in America, Scotch-Irish) first settlers to that region, and so on. These are very attractive explanations, describing a simple and straightforward linguistic trajectory from the past, through the present, to the future. The problem appears to be that we cannot accept any of the explanations at face value.

For instance, while the leaders of the Plymouth and Massachusetts plantations were indeed from eastern England (a heartland of religious and political radicalism at the time), many who came early to the colony were not 'pilgrims', but hired hands who did not necessarily come from those parts of England. Moreover, while it is certainly interesting that eastern England and New England share /j/-dropping does not mean that there is necessarily a causal connection between the two. We do not know whether the phenomenon was a feature of East Anglian speech in the seventeenth century. The same may well be true of the supposed London origins of features of the speech of the Outer Banks.

A slightly different issue haunts the supposed Ulster Scots features of the Appalachian dialects: cherry-picking. While it is certainly interesting to find Scots lexical features in Appalachian speech, the phonologies of the two varieties are not very similar. On most occasions where Scots and English forms differ from each other, such as *hame* versus *home*, only the latter is found in Appalachia (or, indeed, has ever been found, at least since the second generation of European settlement).

We can say, therefore, that there appears to be a credibility gap between the claim that modern eastern United States dialects derive from the settlement varieties and the actual evidence we have before us, historical and contemporary. This does not mean, however, that all of the ideas and examples employed to support this argument are necessarily incorrect.

A number of further issues also need to be fed into our debate. One is the fact that a number of eighteenth-century British visitors to what became the United States commented not on the level of linguistic diversity from place to place (and, indeed, colony to colony) but rather how similar – and often how English – local people sounded. The other is a most striking one: scholarly consensus appears to be moving round to the idea that what we now think of as an archetypal Southern dialect may not actually pre-date the population movements associated with the American Civil War and its aftermath (instead, dialects now peripheral to the South may actually represent more accurately aspects of antebellum speech than does the mainstream – Bailey 1997 – although this view is controversial).

It is still difficult to know what to say about the first of these issues. Given how difficult contact was between the colonies (it was often easier and quicker to get to South Carolina from Massachusetts via London than by attempting direct sea or land travel, for instance), it would seem unlikely that complete homogeneity of speech would be possible (or even imaginable); we cannot rule out direct hegemonic influence. Given that the overwhelming number of those commenting on American speech at this time were at the very least middle class might have meant that, in the first instance, most of the people with whom they interacted were also middle class and, often, particularly in the smaller settlements that were then the norm in the colonies, the sole authority figure of religious minister or schoolteacher (or both). These had particular influence on the imposition and maintenance of middle-class norms, meaning that the visitors may not have interacted with the most typical of local speakers. Adding to this observer's paradox is the fact that, given that there was something of a 'cultural cringe' inherent in the views of the 'mother country' by many colonials, local people may have moved closer to their visitors in speech than would have been the case when political separation, economic growth and developing self-confidence had become dominant in the nineteenth century. The high levels of literacy that were commonplace in many parts of the colonies at the time would have also enabled a move towards highly standardized speech when dealing with outsiders.

We can therefore see a pattern in the development of American English speech. On the east coast – those areas closest to England where settlement has been longest – duration of settlement has meant that both geographical and social differentiation has taken place, differentiation that very nearly equates with that found in the British Isles. Diversity is maintained – although over a rather larger space – into the middle parts of the 48 states. But in the western states – particularly those which border on the Pacific Ocean – geographical linguistic diversity is significantly circumscribed (although social and ethnic diversity are highly evident). Without developing a

theoretical model for what these differences fully imply, we can say that a primary reason for the lack of dialectal diversity on America's west coast is that there just has not been enough time since the first major English language settlements there for this type of diversity to become commonplace. This can be compared with the lack of geographical variation present in contemporary Australian or New Zealand English, where large-scale settlement is, at most, little more than 200 years old. We might postulate that something like a horizon for internal variation exists at around 200 years after initial settlement. It will be interesting to see how matters develop over the next 50 years in Australia and New Zealand. (There is, in fact, at least one 'colonial' English – that of the Falkland Islands – which hasn't reached this level of homogeneity. The nature of this colony – small, isolated settlements, with the exception of the capital, Port Stanley – means that at least until very recently there was little contact between these settlements and their very nearest neighbours – Sudbury 2001.)

But how do these new varieties come into being? Since none of them is an exact replication (clone?) of any 'mother country' variety (even if the resemblances are almost palpable at times), we need to consider what influences were brought to bear upon a new variety in these formative stages that helped create the new variety.

Let's take New Zealand English as an initial example. Although not a *tabula rasa*, an entirely empty territory upon which only 'homeland' varieties interact with little or no input from indigenous languages, as was the case in practical terms for some of the South Atlantic Englishes, such as that of Tristan da Cunha, or most of the Polynesian languages, New Zealand English has only been influenced in the most superficial way – largely in lexical terms related to cultural contexts – by Māori; everything related to the origins of the local varieties of Europe needed to be carried in from a range of closely related linguistic sources.

It has been commonplace since scholars first started to consider the origin and development of these varieties to see them either as essentially the product of one source or as a mixture of a range of different dialects. With New Zealand English the former view would have, as we have seen, assigned origin to the working-class dialects of London and its immediate environs (in shorthand, 'Cockney'). This does not explain, however, certain features of New Zealand English, such as the survival of /h/, not prevalent in the south-east of England except, historically, in Norfolk and some other parts of East Anglia. A theory based upon blending of inputs is therefore something of a necessity (indeed most scholars who would derive a colonial variety from one source generally admit these alternative origins as minor influences upon an otherwise homogeneous variety). It is a small step from perceiving new varieties as a blending of pre-existing dialects to one where levels of influence can be equated to population levels from various sources.

Perhaps the best known proponent of this final viewpoint is Peter Trudgill, as embraced in his 2004 book. Trudgill assumes the position that, with a degree of small-scale adjustment, we can recognize an absolute correlation between proportions of inputs fed into the early colonial mixture and the way in which the colonial variety

eventually constructs itself. Thus the presence of /h/ in an otherwise largely south-eastern English phonology can be seen as a matter of arithmetic: the majority of inputs to New Zealand speech are non-rhotic, thus guaranteeing a non-rhotic output. But the presence of East Anglian settlers, coupled with the large minority groups of Irish and, in particular, Scottish settlers meant that /h/-fullness among the early settlers at the very least came close to being the majority (Trudgill adds in the check that some features may have been ‘marked’ in the colony, often socially, that they are not perpetuated in the colonial variety even if they are majority forms; ‘h/-dropping’ may be an example of this).

Trudgill writes in a very convincing way; there can be very little doubt that he is onto something in his analysis, at least in relation to a relatively circumscribed variety like New Zealand English. A number of scholars have felt a degree of unease in accepting his argument in its entirety, however. In the first instance, and perhaps most strikingly, the determinism underlying his views (‘inevitability’, as Trudgill terms it). Is the situation so sociolinguistically straightforward that we can say that, when faced with a particular range of settler origins, the actual result of the contact will absolutely inevitably result in a particular set of retained features? A number of scholars have contributed counter-arguments to the determinist model, the most striking of which being the *founder principle* put forward by Mufwene in work published from the 1990s on (Holm 2004 raises some significant issues with his classifications, however).

Put simply, the founder principle states that not all founder populations are equal, no matter their proportion in the mix. Let’s briefly consider African-American Vernacular English. There is a longstanding scholarly debate over the origins of this variety. Simplifying somewhat, the primary disagreement appears to lie between the *creole* and the *dialect origin* schools. The former sees African-American Vernacular English as being a largely decreolized creole, with some features of the variety being perceived as creole in origin, such as the use of a non-standard form of verb-subject concord and the employment of *done* as an aspect marker. The dialect origin interpretation, however, emphasizes the similarity between African-American Vernacular English features and those of the dialects of – in particular poor and rural – whites from the same ‘Deep South’ focus area (as well as traditional dialects from a range of sources in the British Isles).

Even if we ignore for the moment the second school’s viewpoint, a series of historical issues encourage the questioning of a complete acceptance of its views. There is, for instance, practically no evidence that earlier varieties of African-American speech are any more creole in nature than that found now. Evidence from 1930s recordings of former slaves, present-day dialects spoken by communities from as far apart as Liberia and Nova Scotia – founded in the last few decades of slavery that have had very limited contact with black Americans and their speech since – and literary representations of black speech from the period of slavery bear this out. Counter-arguments could be framed – the proportion of educated African-Americans

was probably higher than average in many of these communities under slavery than was the case for the ethnic group as a whole; literary representations of dialect are always a compromise between verisimilitude and the need for the audience (who tend not to speak the variety portrayed) to be able to understand it quickly. But the lack of any evidence for the supposed creole state is worrying: it is very difficult to make a successful argument based on nothing.

Mufwene adds a further support to the dialect origin hypothesis for African-American Vernacular English, suggesting that the reason why this variety is different from that of, say, the English-based creoles of the Caribbean is because of fundamental differences in the early history of the colonies. When slaves first began to be introduced into the Virginia colony (and elsewhere along the Eastern Seaboard) in the early to mid-seventeenth century, plantations as we now understand them did not exist. Slaves tended to be introduced into homesteads, where a settler and his family and possibly a small number of indentured servants (essentially temporary slaves, committed to serve their masters until their passages were paid off) lived either in the same house or close by. Slaves would have interacted with native speakers of English regularly, with varieties of English of various types. This native speaker variety was the one that would have been learned by the African slaves. Even though adult learners might have made 'errors' in their spoken English, some of which were perpetuated when passed on to other black speakers (particularly, perhaps, in the speech of the next generation), constant contact with native speakers would have guaranteed that a creole as such would never have developed, with no pidgin underlying it. This is strikingly different to what happened in the Caribbean, where plantations were set up early in the colonies' development and contact between newly arrived slaves and native speakers of English was relatively limited. The 'English' that was learned had been created within the slave population with little native speaker input. In origin this variety would have been a pidgin that would have been rapidly creolized when it became the only common language for family units.

This colonial model rapidly became the norm also in the eighteenth-century American colonies. It is likely that most people of African heritage in the United States would trace their ancestry back to these large-scale, industrial, slave settlements, where contact between those of African and those of European origin was limited. And yet African-American Vernacular English does not demonstrate the same relationship to mainstream English that the Caribbean varieties demonstrate. Mufwene would argue that this is due to the roots of African-American Vernacular English lying in the earlier homestead phase. Even though many more Africans came to the colonies in the plantation phase than earlier, those whose native language was derived from the latter would have acted as the teachers (and to a degree overseers) of later slaves. The primary source for the later variety derived from the founder population's language, no matter its basic proportion in the later unit. Even if we acknowledge Trudgill's viewpoint that Mufwene's argument works only intermittently, the founder principle is still a powerful argument against proportional predeterminism.

Interestingly, an opposing argument can also be used to question elements of Trudgill's model: *swamping* (Lass 1990). This view is based primarily on the view that if a population of considerable numbers from a particular origin moves into a territory that already has speakers of rather fewer numbers of the same language but different varieties, the later set of varieties will *swamp* the earlier to the extent that only the most vestigial features of the earlier varieties survive (if at all). Something of this sort can actually be seen in New Zealand English, in fact. While over the first 70 years of white settlement immigrants to New Zealand from south-east England do make up an overall majority, the most overwhelming proportion of this group come not in the first 30 years or so but later in the nineteenth century. Strangely enough this evidence does not necessarily represent a complete negation of the founder principle. Mufwene argues that the founder community need not be the very first. Rather it is the community that has most effect upon later populations. This status could be conferred through overt prestige. Alternatively, it may be the most immediate sources for a language that prevail, which may explain why African-American Vernacular English is more closely connected to various dialectal forms of the language than to the written standard. Connections formed with indentured servants would have made this particularly likely, perhaps.

We can therefore say that the origins and colonial proportions of early immigrants do affect the ways in which the new, colonial variety of a language develops. That determinism through proportion is not the only way in which these origins are worked out also appears to be the case. To what extent, however, can these views be brought to bear on something as complex as the development of American English?

This is not, of course, an easy question to answer effectively. What could be suggested is that, in origin, a range of colonial Englishes developed rather than the single New Zealand form. The age of the steamship changed how well connected places could be; the same is true for the railway. The first was coming into use in the New Zealand settlement phase and made a considerable amount of difference in how well different settlements along the coasts of the two main islands were connected. Neither was in place for the first settlements of English-speakers on the east coast of North America. This inevitably meant that a range of different colonial varieties developed in different places. These would have had different levels of settlement from different places, with the leadership in different places having different backgrounds (eastern English in one place; London in another). There would also have been differences of age between settlements – New England and Virginia, for instance, have a considerably longer history of English-speaking settlement than Georgia or Alabama. This would have affected the original 'mix' in settlements. There would not have been 13 base dialects, but it is likely that the present large-scale dialect units of the area – New England, midland, upper and lower south, and so on – would represent these initial linguistic colonies. Over a considerable period first social and then geographical divergence would grow in these regions.

At the same time, settlers from these regions became the pathfinders for movements further west. Many of the dialect features of, say, the Midwest can be traced back to New England and other northern dialects, although more southerly parts of the region, like southern Indiana and Illinois have a lot more in common with the Midlands-influenced dialects of neighbouring Kentucky and Tennessee than with the Northern-influenced variety used in most of Michigan. These discussions can be continued all the way to the Pacific Ocean, although we have to bear in mind that a number of mixtures of primary, secondary and perhaps tertiary dialect focuses are likely to underlie the final product, along with the natural effects of linguistic change. If there was space, we could consider how the concepts of population proportion, founder principle and swamping might affect each of these focuses. The chances are that each has been at work on all such crystallizations, although probably in different proportions in each focusing, depending on the social, cultural and historical nature of each settlement.

We can therefore say that modern sociolinguistic breakthroughs in the nature of dialect creation have been of considerable value in our unpicking of the linguistic histories of long-term settlements. That is not to say that there aren't a considerable number of features in these histories that we still need to explain – or, at the very least, explain more clearly. But this field is undoubtedly one that has grown over the last quarter of a century and will continue to grow.

Further reading

The classic work on language contact is Weinreich (1953); this is still very readable. A more recent brief introduction is Lehiste (1988). I would particularly recommend Thomason (2001), with the provisos given above. Matras (2009) provides a somewhat different, but complementary, discussion of the field. The first place to start for the contact between Low German and Scandinavian languages is Trudgill (1986). A much more substantial, but still very approachable, book dealing with contact and creolization is Thomason and Kaufman (1988); this is particularly recommended. Mackey and Ornstein (1979) includes a number of essays on language contact in various parts of the world. [Chapter 6](#) of Harris and Campbell (1995) is a valuable survey of the borrowing of grammatical morphemes and patterns. Masica (1976) is a major study of the linguistic area of India, and Emeneau (1980) includes a number of essays on the same topic. The Kupwar case is described in Gumperz and Wilson (1971). There is now a substantial literature on pidgins and creoles. A good brief introduction is Foley (1988), which has a good deal to say about grammatical elaboration. The most comprehensive survey is Holm (1988, 1989); the first volume concentrates on structural factors, while the second deals with sociolinguistic factors and includes a review of all known pidgins and creoles, past and present. The classic work on language planning is Haugen (1966). Edwards (1994) is a popular book on multilingualism that deals with some of the issues discussed in this chapter. I would recommend Joseph (1987) and Kloss (1967, 1978) for the nitty-gritty, and Millar (2005) for a general overview. Spolsky

(2004) contributes a great deal to our understanding of the phenomena involved at a theoretical level. Dressler (1988) and Lyle Campbell's article in Asher (1994) are good brief introductions to language death with references. Krauss's estimates on the death rate of languages can be found in Hale *et al.* (1992). There has been something of an industry of books on language death in the last few years. One I particularly recommend is Nettle and Romaine (2000). Three collections of articles on language death are Dressler and Wodak-Leodolter (1977), Dorian (1989) and Brenzinger (1992). The work by Sasse discussed above is in this volume. Some of the articles in Seliger and Vago (1991) deal with attrition in language death.

Book-length studies of particular languages include Dorian (1981) for Scottish Gaelic, Schmidt (1985) for Dyirbal, and Hindley (1990) for Irish. New dialect formation is a highly vibrant field of inquiry at present. A highly readable introduction can be found in Trudgill (2004); it should be remembered, however, that many of the ideas aired there are highly controversial.

Exercises

Exercise 11.1

The pidgin ancestor of Tok Pisin contained the lexical item *baimbai* 'later, after a while, in the future', a loan from English *by and by*. This was an adverb, and its position was rather free:

Baimbai mi kom long haus. or
Mi kom long haus baimbai.
 'I'll come to the house later.'

There was a marked tendency to prefer sentence-initial position for this item, and it was phonologically reduced to *bai*:

Bai mi kom long haus.

In this position *bai* received full stress, like every word in the pidgin. In modern Tok Pisin, however, two further things have happened: the item *bai* now almost invariably occurs immediately before the verb, and it receives less than full stress:

Mi bai kom long haus.
 'I'll come to the house.'

Describe in grammatical terms what has happened to the word *baimbai*.

Exercise 11.2

Roman Jakobson once suggested that a non-Indo-European language could become Indo-European by acquiring a sufficient number of IE features through contact (or otherwise), while an IE language could equally cease to be IE by losing a sufficient

number of IE features through contact (or otherwise). This notion has generally been ridiculed by historical linguists on the ground that the ancestry of a language is a matter of unalterable historical fact. In your view, does Jakobson have a serious point, or is he talking nonsense? Why? (In considering your answer, bear in mind the observations in this chapter on the three languages of Kupwar.)

Exercise 11.3

One of the problems which my mother tongue, Scots, has is that there is no agreed orthography for the language. Like all languages, Scots has a considerable amount of variation between dialects, as can be seen in the following examples, representing phonemic transcriptions of someone reciting a famous verse from Robert Burns' *To a Mouse* (you will find the original spelling following these examples):

1. With the native pronunciations of someone, like me, who speaks a fairly traditional West Central variety:

/a 'dʊtni məɪlz bɪt ðu məi θɪv
 mɪt ðɛn pɪr 'bɪstɪ ðu mʌn lɪv
 ə 'dɛmən 'ɪkər ɪn ə θrɛvz
 ə smɔ rə'kwɛst
 əl gɛt ə 'blɛsən we ðə lɛv
 ən nɜr mɪst/

2. Someone speaking a traditional variety heard in the countryside around Aberdeen:

/a 'dʊtnə fəɪlz bɪt ðu mæ θɪv
 fɪt ðɛn pɪr 'bɪstɪ ðu mʌn lɪv
 ə 'dɛmən 'ɪkər ɪn ə θrɛvz
 ə smɑ rə'kwɛst
 əl gɛt ə 'blɛsən we ðə lɛv
 ən nɜr mɪst/

3. Someone speaking a traditional variety heard on the islands of Unst and Yell at the northernmost end of the Shetland archipelago (it should be noted that it is only in Shetland that the second person singular pronoun *thou* is still current):

/a dʊtno kwəɪlz bɪt du mæ tɪv
 kwɪt dɛn pyr 'bestɪ du mʌn lɪv
 ə 'dɛmən 'ɪkər ɪn ə trɛvz
 ə smɔ rə'kwɛst
 əl gɛt ə 'blɛsən we də lɛv
 ən nɜr mɪst/

Given this level of dialectal diversity, what would you, as a language planner, do when designing a national orthography? Would you try to be inclusive, or would you choose one variety as the 'best'? What would be the advantages and disadvantages

of these choices? Given that everyone in Scotland is literate in Standard English, would you choose an orthography based upon that of English, or choose one that was as different as possible? What would be the advantages and disadvantages of these choices?

To help you out, here is the same passage as it was originally printed:

I doubt na, whyles, but thou may thieve;
 What then? Poor beastie, thou maun live!
 A daimen icker in a thrave
 'S a sma' request:
 I'll get a blessin' wi' the lave,
 And never miss't!

Here is the same passage transcribed (by me) into the orthography of Angus Stirling (1994):

li dut na whiils, bitt thu mii thiv;
 Whitt thenn? Pär bisti, thu munn livv!
 A dämunnn ikkurr inn a thräv
 'S a sma riqquesst:
 li'll gett a blessin wä thi läv
 Annd nivvurr miss't.

and of Alasdair Allan (1995):

A dout na, whyles, bit thou may theiv;
 What then? Pair beastie, thou maun live!
 A daimen icker in a thrave
 'S a smaw request:
 A'll get a blessin wi the lave,
 An never miss't!

What advantages and problems can you see with each of these orthographies (including the traditional one)?

Exercise 11.4

As is widely known, the French are notoriously sensitive to the presence of English loans in their language and make strenuous efforts to replace them with newly coined French words. The Germans, in contrast, usually take a much more relaxed view of loan words: look at any issue of a popular German magazine. But things are not always so simple.

I have a friend who works in the packaging industry in Britain; she has extensive business dealings with both France and Germany. The packaging industry, like any business, has its own technical terminology: there are hundreds of words for different types of cardboard, different techniques for printing and embossing, different ways of cutting and gluing packages and so on. All three languages have their own

terms for all of these. However, my friend tells me that her French customers invariably use the English terms when speaking French: not only do they not use the 'official' French words, they don't even understand these when she uses them. The Germans, in contrast, invariably use their own German terms when speaking German and profess not to understand the English words.

Do you have any idea why my friend's French and German clients behave (a) so differently from each other and (b) so differently from the perceived stereotypes of the two nations? If this attitude to English loans proves to be widespread in France outside the packaging business, what do you suppose will be the consequences for French? Will this be a good thing or a bad thing?

Exercise 11.5

Before 1979, Basque had no standing in the Spanish Basque Country, and Spanish was used exclusively for all official purposes. Since that date, the new Basque Autonomous Government (BAG) has administered most of the region, and both the BAG and the various provincial and municipal authorities have taken steps to protect the future of the language, which, like all minority languages, is under serious threat. These steps have often induced outrage among the very large number of monoglot Spanish-speakers in the region, the majority of whom are immigrants from elsewhere in Spain who came to the industrialized Basque Country decades ago to find work and who have not bothered to learn Basque. Here is a typical example.

Several years ago, the Basque-speaking majority on the municipal council of the town of Arrasate (Spanish *Mondragón*) decreed that, henceforth, all of the council's proceedings would be conducted exclusively in Basque. Naturally, this decision infuriated the large minority of non-Basque-speaking councillors (most of them immigrants). The Basque-speakers point out that Basque is the mother tongue of the great majority of the indigenous inhabitants, and that immigrants can therefore be reasonably expected to learn it, just as Spanish immigrant workers in France have to learn French. The Spanish-speakers report that this is ridiculous, since Spanish is the national language of Spain and since all the Basque-speakers in fact speak Spanish perfectly well.

In your view, then, is the decision of the Arrasate council a fair and reasonable one? Why or why not? Is it likely that such policies will have a significant effect in preserving the use of Basque? If Basque should finally be lost, will the Basques be better off as a result or worse off?

In considering your answer, you might like to note the following points and to explain how they influence your answer, if at all.

- Until recently, facilities and materials for teaching Basque were poor and limited, but there are now good textbooks, inexpensive evening classes and abundant Basque-language publication and broadcasting, including a Basque TV station.
- Basque is of virtually zero usefulness outside the Basque Country.
- Many Basques are still deeply resentful of the ferocious persecution they suffered during the 38 years of fascist government under the Spanish dictator General Franco, and believe they have a right to try to repair some of the damage to their culture and their language by means of positive discrimination.

- When the Spanish immigrants arrived, they had every reason to believe that they were merely moving to a different part of Spain and that they would be able to carry on speaking Spanish as usual.

Exercise 11.6

Like the other Celtic languages, Breton exhibits several types of *mutation*, in which the initial consonant of a word is changed in certain grammatical and lexical environments. Breton has three mutations, each of which occurs in different circumstances:

- Spirantization: initial /p t k/ change to /f z h/, as in *penn* 'head' but *va fenn* 'my head'
- Fortition: initial /b d g/ change to /p t k/, as in *belo* 'bike' but *o pelo* 'your bike'
- Lenition: initial /p t k b d g m/ change to /b d g v z h v/, as in *penn* 'head' but *e benn* 'his head' and *belo* 'bike' but *e velo* 'his bike'

As you can see, lenition applies to a larger set of consonants than the other two, and it also applies in a much wider range of circumstances. These mutations tend to be lost by semi-speakers of Breton, but not all are lost at once or in the same way. Investigation shows that loss of mutations typically proceeds more or less as follows:

- First, spirantization is lost and replaced by lenition, so that *va fen* 'my head' is replaced by *va benn*.
- Second, the consonants subject to lenition are reduced to /p t k/, so that *e benn* 'his head' remains but *e velo* 'his bike' is replaced by unmutated *e belo*.
- Third, fortition is lost and replaced by lenition, so that *o pelo* 'his bike' is replaced by *o velo*.
- During all this time, the range of circumstances in which any mutation occurs is steadily reduced; in the final stages, the mutations may be lost altogether.

Can you see any principled reasons why the loss of the mutations should proceed in this manner and not in some other way? In particular, why should the other two mutations be replaced by lenition instead of merely disappearing? (Data from Dressler 1991.)

Exercise 11.7

English has no third-singular pronoun that is unmarked for sex, a fact that is highly inconvenient: traditionally, we have been obliged to say things like *Someone has forgotten his umbrella* even when addressing a mixed group. Such usages are greatly annoying to women, and recently there have been efforts to find a solution. On the one hand, some people have proposed the invention of a new pronoun, unmarked for sex, such as *herm* (a blend of *her* and *him*) or *han* (borrowed from Finnish), and a few of these proponents actually use one of these creations in their own English. On the other hand, popular speech has usually preferred to turn plural *they* into a singular: *Someone has forgotten their umbrella*. Both of these solutions are felt by many speakers to be unsatisfactory; even the second choice runs into difficulty in cases

like Any candidate who considers themselves adequately prepared is requested to present themselves to their personal tutor for their examination.

What, if anything, can be done about this? Should we attempt to impose a solution by legislation or by public pressure? (There is precedent for this: the Swedes and the Italians, among others, have consciously attempted to reform their pronoun systems in certain respects, with mixed success.) Should we merely wait to see if a solution emerges of its own accord? Is either of the solutions mentioned above likely to prove satisfactory in the long run?

Exercise 11.8

The following extract is taken from an article by the distinguished British sociolinguist and creolist Robert Le Page (1993); the article deals with the manner in which an identifiable and more-or-less standardized language may emerge from a very complex linguistic situation.

I went to Jamaica in 1950 to be the first lecturer in English language in the newly-founded University College of the West Indies. I became involved in a spectrum of language studies ranging from the very highly reified and focused concept of something called Old English, which I had to teach because it was in the London University syllabus, to something at the other end of the spectrum, the vernacular usage of the people around me in the streets and markets, which local teachers denied the dignity of even a name, dismissing it as 'broken talk' or 'bungo talk' or 'patois', as having no grammar, something to be stamped out by teachers for whom 'grammar' was the Holy Grail. When I first proposed to London University that the study of West Indian vernaculars should form part of our English language syllabus I was told that this was impossible: there were no grammars, no books about it, nobody at London University knew anything about it and therefore would not be able [sic] to mark examination questions on it, whereas Old English was a familiar object of study with a primer and a normalized grammar and well-edited texts about which examination questions could reasonably be asked and the answers marked. Notice I say an object rather than a subject of study. The Old English I was taught at Oxford came from Henry Sweet's *Anglo-Saxon Primer and Reader*, with standardized spellings and only a few short extracts to indicate that there had been five centuries of Germanic language use in Britain before late West Saxon, many different centres of culture before Wessex, that it had been a slave-owning society with only a clerical elite having any sort of formal education, and that education normally meaning learning Latin, that the Vikings had imposed a different kind of culture on the north and east of Britain from the ninth century on, and so on. Sweet's Anglo-Saxon was just one possible abstraction from several highly dynamic sets of linguistic circumstances, just as Standard English is today, but it was Sweet's Anglo-Saxon which we were all taught to use as a base for an edifice known as the history of the English language, a set of stereotypes shaped at least in part by the desire of Germanic scholars in the nineteenth century to have the same kind of animal to study with the same kind of genetic pedigree as the Romance scholars and the Sanskritists and the

classicists had. It was for this reason that they changed the name 'Anglo-Saxon' to 'Old English'. I myself had learned to read and pronounce Sweet's texts from scholars who had been taught by scholars who had been taught by Henry Sweet, and I taught my West Indian students in the same way, so that when one of them went on to do graduate work at Oxford and was interviewed by Neville Coghill and read *Beowulf* to him as he had read it to me, she was admitted without further question. This is an example of focusing a stereotype ...

Something called a 'language' may be reified and totemized out of complex and even chaotic human activities. In many cases there is a multiple linguistic input to and, initially at least, a multiple linguistic output from the community, a range of idiolects, each itself complex, from which more focused behaviour emerges. The reality of a focused reified language is one toward which groups work rather than their inherited starting point, something which linguists easily forget. At any given time a complex dynamic of interacting systems is in use, each socially marked, the rules for the outcome of the interaction more like those of cloud-formation than of clockwork. The nature of the system is socio-linguistic, although linguistic abstractions are imposed upon it.

Some historical linguists might find Le Page's views radical, heretical, even outrageous or shocking. What do you think? Is Le Page right to compare the origins of modern Standard English, and even the origins of the literary Old English used in King Alfred's Wessex, to the complex and bewildering linguistic state of affairs found in contemporary Jamaica and in the rest of the West Indies? In particular, is he right to maintain that what we call 'English' is an idealization, perhaps even a goal, rather than a contemporary or a historical reality? In considering these questions, bear in mind what you've learned in the earlier chapters of this book.

Language and prehistory

12.1 Introduction

Up to this point, we have been largely concerned with evidence derived from historical texts. This involved a negotiation and discussion of the information encoded in these texts as evidence for how people spoke at a particular time. From this, we have also tentatively attempted to reconstruct earlier forms and structures of a language that lie beyond the historical period, but only when we are completely sure that a relationship can be demonstrated. In this chapter we will attempt to look further back in time and also endeavour to reconstruct something of the historical and cultural background of the people who spoke these ancient languages. I wish to stress at the outset, however, that much which follows is provisional and hotly contested.

12.2 Linguistic palaeontology

The term **linguistic palaeontology** is given to the technique of drawing conclusions about the material and non-material cultures of ancient peoples by extracting evidence from their languages. Such evidence is almost exclusively lexical. If we can show that an ancient people had a word for a particular object or practice, then it is (possibly!) safe to conclude that they were familiar with that object or practice.

Here is a simple example. Since the arrival of the Romans in the Basque Country just over 2,000 years ago, Basque has borrowed thousands of words from Latin and Romance. However, the cereal names *gari* ‘wheat’, *garagar* ‘barley’ and *olo* ‘oats’ bear no relation to anything in Latin or Romance, and must be indigenous; we may therefore assume that these cereals were already known to the Basques before the Romans arrived. But we must be careful. Basque *arto* ‘maize, American corn’ is also an indigenous word, and a rash investigator might therefore conclude that maize too was known to the ancient Basques. But this is absurd, since maize is native to the Americas and was introduced into Europe only in the sixteenth and seventeenth centuries. In this case, our historical records of Basque are adequate to explain what has happened. The word *arto* originally meant ‘millet’, which was formerly a major food crop among the Basques; since the newly introduced maize proved to be much more suitable for the damp Basque climate than millet, the new crop virtually displaced the old one, and the name was transferred from millet to the somewhat similar-looking maize. Today the Basques call millet *artatxiki* ‘little *arto*’. But it is nonetheless millet, and not maize, which is the indigenous cereal. Such transfer of words from one referent to another is a constant stumbling block in evaluating lexical evidence for ancient cultures.

On the other hand, the universal Basque word for ‘plough’ is *golde*, which appears to be a borrowing from Latin *culter* ‘ploughshare’. We might therefore surmise that the pre-Roman Basques lacked the plough, but this would be dangerously rash, not to mention highly implausible: it hardly seems likely that the ancient Basques would have been growing all these cereals without ploughs, and anyway the plough is a very ancient invention, attested in the fourth millennium BC in most of Europe. It is far more likely that the Latin word simply displaced the indigenous word, perhaps for reasons of prestige, just as Norman French *face* long ago displaced the native English word *anleth*. With items such as ploughs, it is also possible that the new word was associated with a technological development. This may explain why *plog*, one of the Polish words for ‘plough’, is derived from the Low German of settlers moving into Slavonic territory in the early Middle Ages, whose ploughs were able to work heavier ground than the previous ones. Negative evidence is very treacherous in linguistic palaeontology, and only in certain special circumstances can we attach any weight to our failure to find a word for something.

Beyond any doubt the most famous case of linguistic palaeontology is that involving the speakers of PIE. Since we have so many different branches of IE to consult because there are so many surviving and attested languages in the family, and since a few of these are thousands of years old, historical linguists have been highly successful at reconstructing the vocabulary of PIE. Since we don’t know where PIE was spoken, we have scoured this reconstructed vocabulary for possible clues, in the purely linguistic contribution to the **Indo-European homeland problem**. At first glance, the PIE vocabulary seems to present a very clear picture. We find PIE words for temperate plants and animals, such as ‘beech’, ‘birch’, ‘pine’, ‘ash’, ‘bear’, ‘deer’, ‘salmon’, but none for subtropical plants and animals, like ‘olive’, ‘palm’, ‘camel’. We also find a PIE word for ‘snow’, but apparently none for ‘sea’. This kind of evidence has convinced any number of linguists that PIE must have been spoken in a temperate region, probably well wooded and teeming with animal life, and possibly some distance from the sea. But things are not so simple.

For example, the reconstructed existence of the IE word **laks-* ‘salmon’ appears to require the homeland to have been in a location inhabited by salmon, a creature found in Central Europe only in and around the Baltic Sea.

Unfortunately, this word is applied in places to one or another species of trout, a creature that is ubiquitous in Europe, and it may be that ‘trout’ is the original sense of the term, rather than ‘salmon’. If so, there is no reason to assume that the IE homeland was in an area inhabited by salmon: the name may simply have been transferred from one fish to the other by people moving to a new location with different fauna; indeed, in Tocharian the ‘salmon’ word refers to any fish. (Compare English *robin*, which in Britain denotes a small, friendly bird with a red breast. English-speaking settlers in North America did not find the familiar bird there, but they did find a new bird, unrelated to the British one but also having a red breast, and so they simply transferred the name.)

More encouraging, perhaps, is the PIE tree name **bhergo-*. This word is applied to the birch tree in Indo-Aryan (Sanskrit *bhurja-*), Iranian (Ossetic *bärz*), Germanic (English *birch*), Baltic (Latvian *berzs*) and Slavonic (Russian *berëza*). In Latin, however, the reflex *fraxinus* denotes the ash tree, not the birch, while the word is absent altogether from Greek. The birch is very common in Northern and Eastern Europe, but rare or absent in the Mediterranean. It therefore seems plausible that the original meaning of the word was ‘birch’, that this sense has been retained in languages spoken where the birch is common, but that IE-speakers moving to the Mediterranean, finding no birches, either shifted the

word to a different kind of tree (as in Latin) or lost it completely (as in Greek). This conclusion reinforces the idea that the IE homeland must have been in the temperate forests of northern or eastern Europe.

The problem of IE origins remains a thorny and controversial one, and we'll be returning to it in the next section to consider it from a different point of view. For now, however, I should point out that linguistic palaeontology has led to some considerable success in characterizing the material culture of the PIE-speakers. We have managed to reconstruct a number of PIE names for domesticated animals, including **owi-* 'sheep', **agwhno-* 'lamb', **aig-* and **ghaido-* both 'goat', **kapro-* '(male) goat', **su-* 'pig', **porko-* '(young) pig', **gwou-* 'cow, bull, ox' and **kwon-* 'dog', as well as **peku-* 'cattle, wealth'. It thus appears indisputable that animal husbandry was important among the PIE-speakers. Further, we also reconstruct **grHno-*, **yewo-* and **pūro-*, all 'cereal, grain, corn', **wrughyo-* 'rye', **bhares-* 'barley', **al-* and **melH-* both 'grind', **sē* 'sow', **arH-* 'plough' (verb), **wogwhni-* 'plough-share', **perk-* and **selk-* 'furrow', **yeug-* 'yoke', **serp-* 'sickle', **kerp-* 'gather, harvest' and **gwHrHn-* 'hand mill', all of which points to the existence of agriculture. There is also a PIE word **ekwo-* 'horse', as well as **wegh-* 'convey, go in a vehicle', **kwekwlo-* 'wheel', **aks-* 'axle' and **nobh-* 'hub of a wheel'.

This had led some scholars to conclude that the PIE-speakers not only rode horses but had wagons and chariots as well. This is debatable, however, since everyone places PIE at least 6,000 years in the past, while hard evidence for wheeled vehicles is perhaps no earlier than 5,000 years ago. Watkins (1969) considers that these terms pertaining to wheeled vehicles were chiefly metaphorical extensions of older IE words with different senses (**nobh-*, for example, meant 'navel'). The word **kwekwlo-* 'wheel' itself is derived from the PIE root **kwel-* 'turn, revolve'. Nevertheless, the vision of fierce IE warriors, riding horses and driving chariots, sweeping down on their neighbours brandishing bloody swords, has proved to be an enduring one, and scholars have found it difficult to dislodge from the popular consciousness the idea of the PIE-speakers as warlike conquerors in chariots. In fact, as we will see in the next section, there are scholars who actively defend such an interpretation.

12.3 Links with archaeology

Archaeology is the science of prehistory; naturally, archaeologists and historical linguists have often been interested in comparing their findings, in the hope of finding links between linguistic and archaeological evidence. Nowhere have these links been pursued more vigorously than in connection with the IE homeland problem discussed in the last section. Since we find IE speech established many centuries ago in a broad swathe extending from Ireland in the west to India and central Asia in the east, it is a plausible surmise (although not necessarily a correct one!) that the ancestral speakers of PIE must have spread out widely from some original homeland, and that we might therefore be able to find some traces of such movements in the archaeological record.

In order to compare notes with the archaeologists, of course, we first need to have some idea what kind of time and place we want to look at. The time is easier: most specialists consider that the degree of linguistic divergence among the IE languages points to a date of roughly 6,000 years ago for the ancestral language – although see below for a dissenting view even on this. That is, a date of 4,000 years ago would be too late to allow the development of the differences we can see in the first millennium BCE between Greek,

Sanskrit, and Latin, while a date of 8,000 years ago would probably have allowed the development of much greater differences than we see in the daughter languages.

There are ways of cross-checking estimated dates. The Uralic languages sprawl across much of northern Eurasia, and they exhibit a number of loan words from IE. One of these is the word for ‘pig’, which appears as *porsas* in Finnish and as *pars* in Udmurt (formerly called Votyak). These two Uralic languages are spoken at least 600 kilometres apart, and they are not closely related. Uralic specialists believe they must have separated from their common ancestor no later than 1500 BCE. The word for ‘pig’ cannot possibly, on phonological grounds, have been borrowed from PIE **porkos*: instead, it must have been borrowed from Indo-Iranian **parsa* (the regular development of **porkos* in Indo-Iranian). But that means that Indo-Iranian must already have been in existence before 1500 BCE, complete with its distinctive phonological developments, and hence that it must already have undergone many centuries of individual evolution by that date – confirming that PIE must have begun breaking up significantly earlier than 4,000 years ago.

The place is more difficult, and of course the whole point of the homeland problem is to find the place. In practice, all we can do is either make what we hope is a plausible guess and then ask the archaeologists if they have any evidence for migrations out of that area at something like the right time, or else ask the archaeologists what interesting migrations they’ve turned up and then see if we can make the linguistic data fit.

Unfortunately, none of this has yet led to any kind of consensus. Even though, as we saw in the last section, most linguists favour a homeland in Northern or Eastern Europe for purely linguistic reasons, the number of diverse proposals on the table is startlingly large. Figure 12.1 shows the various locations proposed for the IE homeland just since 1960, and it excludes some rather less plausible locations defended in the past, such as Africa, the Pacific coast of North America, the North Pole and the inside of the (hollow) Earth!

As you can see, the recent proposals extend from southern Scandinavia (Häusler) or Lithuania (Schmidt) through central Asia (Jain) to Egypt (Hodge), demonstrating that the

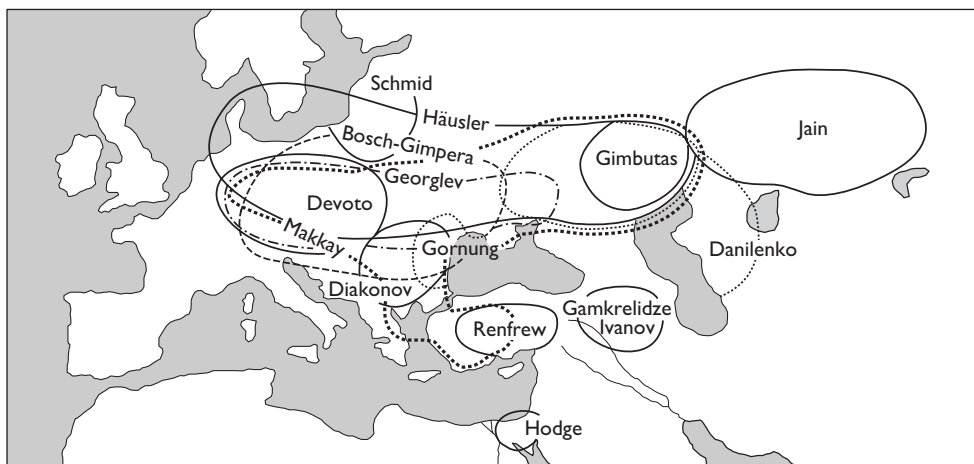


Figure 12.1 Proposals for the Indo-European homeland

homeland problem is still very far from being solved. But you can also see that the majority of proposals cluster around Eastern Europe. This makes sense: since IE speakers seem to have been so phenomenally successful at spreading their languages across much of Eurasia, we might guess that they started somewhere near the middle of the territory that eventually became IE-speaking and spread out both east and west. It would be less easy to understand how they might have started out near one edge of what is now IE-speaking territory and spread out only in one direction. Moreover, the IE languages of Europe show much greater diversity than those of Asia, where a single, and relatively homogeneous, Indo-Iranian branch occupies a vast stretch of territory running from the Caucasus almost to Myanmar. It is a principle of historical linguistics that a language family exhibits the greatest diversity in the area where it has been established longest, and the least diversity where it has arrived most recently, as we saw in the case study in the last chapter.

Observe also that most of the proposals posit an original area for PIE of between 250,000 and 1,000,000 square kilometres. This is in line with other research that suggests that, several millennia ago, this was about the largest area that could be occupied by a single language: anything much larger, and before literacy and standardization communication would become impossible among widely separated speakers, so that the ordinary processes of linguistic change would rapidly splinter the language into several divergent daughters.

We will therefore assume that the speakers of PIE occupied only such a modest area something like 6,000 years ago, and that they spread out from there over what eventually became the vast IE-speaking area of recorded history. We know this scenario is possible in principle, because we have comparatively modern parallels. In the sixth century CE, the speakers of Turkic languages occupied only a small area in central Asia; by the ninth century, they had abruptly expanded over about 2.5 million square kilometres; by the thirteenth century, they occupied nearly 5 million square kilometres, including a large extent of territory that had formerly been IE-speaking. Of course, the Turks, with their mobile, nomadic lifestyle, were ideally placed for this sort of rapid expansion. As we saw in the preceding section, the first stages of the IE dispersal may have taken place before wheeled vehicles existed, but then that dispersal probably took 3,000 or 4,000 years to complete: for example, the archaeological evidence suggests that the Celts did not reach Britain and Ireland before the first millennium BCE, and at least some of the territory of modern France, Spain and Portugal was still occupied by non-IE languages when the Romans arrived in the first century BCE.

However slow the IE dispersal was, it was certainly thorough. By about 1000 CE, the sole surviving pre-IE language in Western Europe was, as it is today, Basque. In Spain and Portugal, intrusive IE speech had obliterated earlier languages like Iberian, Tartessian and Punic, and probably others whose names we don't even know; the same had happened to Etruscan in Italy and, no doubt, to many other languages spoken in Central or Northern Europe where the lack of literacy at that time means that only place-name, particularly river-name evidence can give us any inkling of what they were like. These are the last faint traces of what must have been an extraordinarily diverse linguistic map in Europe before the arrival of Indo-European speech.

Can we find any archaeological traces of the IE dispersal? There are undoubtedly some plausible candidates for certain stages of that dispersal. For example, in the third millennium BCE, a time when linguists would reckon that PIE had already begun to break up into daughter languages, the archaeologists have abundant evidence in North-Eastern Europe for a culture they call the 'Cord Ware' culture, after its distinctive pottery. Some scholars

suggest that the Corded Ware people probably represented a northern branch of IE, possibly the linguistic ancestors of the Celts, the Germans, the Balts and the Slavs. But can we find something earlier, some physical remnants of a people who might have been the speakers of PIE itself?

One proposal stands out. In the fifth and early fourth millennia BCE, we find a distinctive culture appearing in the region of the Volga River, north of the Caspian Sea, and spreading westwards across the steppes and forests of southern Russia and Ukraine. These people were apparently nomadic pastoralists who rode horses and used wheeled vehicles. They built few settlements, and we know them primarily by their highly conspicuous burial practices: they buried their important dead in tombs that were often covered by an artificial mound called in Russian a *kurgan*, and it is their grave goods that provide most of the evidence for the nature of their society.

This **Kurgan culture** has for decades been the favourite candidate for the PIE-speakers. The Kurgan identification was pursued in particular by Marija Gimbutas, who spent nearly 30 years developing and defending this identification of Kurgan and PIE. She finds evidence that the Kurgan people, sometime after 4000 BCE, spread out eastwards into central Asia, Persia and India, westwards into central Europe and the Balkans, and southwards across the Caucasus into Anatolia – more or less the attested IE territory.

Gimbutas devotes particular attention to the Kurgan intrusion into Europe. In her view, Europe before the Kurgan people was settled, primarily agricultural and seemingly peaceful; horses and wheeled vehicles were unknown; fine ceramics were produced and often painted; there was a major copper industry in the Balkans; clay female figurines were produced in thousands, suggesting a society, and perhaps a religion, in which women played an important part. The Kurgan invasion changed all this: settlements were abandoned in numbers; agriculture collapsed and was replaced by pastoralism; horses and wheeled vehicles were introduced; the copper industry collapsed; the fine ceramics disappeared and were replaced by much cruder ones; fortified strongholds appeared for the first time; Kurgan-style burials appeared; the production of female figurines ceased abruptly, and instead we find stone stelae decorated with sunbursts, horses, wagons and, above all, weapons; a new physical type appeared, very different from the earlier European skeletons but identical to those found in the steppes.

All this Gimbutas takes as evidence that a quiet, matriarchal, agricultural society was invaded from the steppes by warlike pastoralists with a cult of sky gods and sun worship, a strongly patriarchal organization, and a great love of horses and weapons. This perhaps somewhat colourful picture has attracted a good deal of support from both archaeologists and linguists. Its proponents see the Kurgan solution as an elegant and economical one that simultaneously accounts for a wide range of observations, and more than a few reference books present the Kurgan–PIE equation as gospel.

But the hypothesis also has many critics. It's not that the archaeologists have better candidates for the PIE-speakers – they don't. But the critics consider Gimbutas's seductive picture to be the result of very selective reading of the evidence: they argue that most of the physical evidence she adduces either has other explanations or is simply contradicted by further evidence that is silently ignored. The argument continues today, and it would be too much to claim that the Kurgan solution is accepted even by a majority of specialists in either field. Nonetheless, it is still the best solution we have, and it refuses to go away. We must keep our heads and look at the evidence and counter-evidence with cold scientific eyes. But even the severest critics would probably be secretly delighted to be persuaded,

in the end, that those evocative mounds we can still see today in the Russian steppes once covered the mortal remains of people who were native speakers of that most romantic of all languages, Proto-Indo-European.

In the late 1980s, however, Colin Renfrew rejected every aspect of Gimbutas's interpretation and of every similar proposal. He put forward a view of the IE dispersal that could hardly be more different. Renfrew argued that the whole conception of IE-speakers overrunning huge tracts of territory by military force is anachronistic: at a time when states and even cities did not yet exist, Renfrew considered it unlikely that any group of people could have possessed the economic and technological resources necessary to launch large-scale invasions and to overrun already populated lands. He therefore advanced a very different scenario: IE speech must have diffused slowly and peacefully across Eurasia in conjunction with some economic or technological advance. And he can find only one such advance that is sufficiently widespread and important to be the vehicle of such linguistic spread: the development and spread of agriculture. Now there is no doubt that agriculture spread out slowly across much of Europe and Asia from a very few small sites at which it was first developed – for our purposes, principally in the Middle East. The difficulty, of course, is that the spread of agriculture began, not 6,000 years ago, but more than 10,000 years ago, in the period we call the Neolithic, or Late Stone Age. As we saw above, this date is quite unacceptable to most linguists: such an early date would require IE speech to have diffused over a vast area during thousands of years while hardly changing at all, something that historical linguists consider impossible. Remember what I said in [Chapter 1](#) about the remorselessness of language change, and in [Chapter 7](#) about the dramatic consequences of the geographical dispersion of a language?

On the other hand, Renfrew's bold conception has certain advantages from the archaeological point of view. While an earlier generation of archaeologists was often inclined to see every change in the style of pottery as evidence of an invasion, contemporary archaeologists are now generally suspicious of such ceaseless appeals to hypothetical invasions, and are far more inclined to view changes in material culture as representing only the diffusion of new ideas from one population to a neighbouring population. Renfrew's hypothesis therefore makes considerable sense to some archaeologists, even if the linguists don't like it.

One advantage Renfrew's idea has over Gimbutas's is that it doesn't actually require any people to move at all, at least not more than a few kilometres. He proposes that, as knowledge of agriculture spread slowly across Europe and Western Asia, the non-farmers along the edge of the wave simply accepted IE speech from their neighbours along with a knowledge of the new agricultural techniques. A question that you might want to ponder, however, is the extent to which technology transfer even in the modern, globalized, English-dominated world necessarily implies primary language shift. What would the linguistic consequences of such transfers have been before anything like the rapidity of the present day was achieved?

Renfrew's hypothesis, which, among its other novelties, posits Anatolia (modern Turkey) as the IE homeland, remains deeply controversial, and linguists in particular mostly find it too much to swallow. Renfrew (for instance, 2001 and 2002), often working with like-minded scholars, has proposed a revision of his Anatolian hypothesis, substituting a two stage development, with an initial spread from Anatolia followed by a steppe-based conglomeration for western IE varieties at least. This has certain advantages (for instance it helps explain how Anatolian can be divergent in several ways from other early IE varieties). Most linguists still find the time depth involved worrying, however, even without the issue

of the historical linguistic heterogeneity of Anatolia which Bellwood (2013: 159–63) attempts to explain away by saying that such a patchwork is commonplace (it should be noted that in this and other recent writings large-scale migration again appears to be very much on the agenda); this argument is not entirely convincing. Only time will tell whether some way can be found of reconciling Renfrew's economic view of the IE dispersal with the linguists' understanding of language change.

In a very even-handed treatment, Mallory and Adams (2006: 441–63) demonstrate the problems inherent in both models. The Kurgan explanation is, in their opinion, not 'secure' in explaining how IE varieties spread from the steppes into central Europe. The *Anatolian* model, on the other hand, has the problem that, in historical times, not all the languages of the original focal area were IE, but with little or no suggestion that they had invaded and partly conquered the territory. Neither explanation is, in their view, terribly helpful in explaining the complete spread of the IE languages, although they seem the best explanations presently available. Indeed, there is every likelihood that we will never know for certain.

12.4 Statistical methods

As we move further back in time, the evidence available to us becomes ever scantier and much more difficult to interpret. On the one hand, what written evidence there is becomes sparser and finally disappears. On the other hand, the internal linguistic evidence for genetic relationships becomes increasingly faint as the languages in question become further separated in time. Eventually, of course, we have to reach a point at which two originally related languages have diverged for so long that we can no longer find any evidence at all of their common origin, at least with standard, mainstream techniques: the last faint traces of a common origin just disappear into the background noise of chance resemblances. Indeed, a number of scholars, including Dixon (1997), Nichols (1992) and Nettle (1999), have produced models of change that demonstrate the obliterating effects of time, with only 'fossilized' distinctions maintained in isolated areas. This is, of course, an ongoing process, as Heine and Kuteva (2006) have demonstrated. But fields other than linguistics have developed useful techniques for extracting faint 'signals' from 'noise', and these techniques are mathematical in nature, chiefly statistical.

There have been several attempts to bring statistical methods to bear upon various aspects of historical linguistics. The earliest and simplest of these is **lexicostatistics**. This is in fact a very general label for any kind of statistical analysis of vocabularies, but it is most particularly applied to a simple procedure for estimating the degree of linguistic distance between genetically related languages. The central idea is that individual words in any language are steadily replaced over time. Thus, if we have several languages that we know are related, then we can choose a representative sample of the vocabularies of all of them and calculate the percentage of shared vocabulary items. Languages that share a larger proportion of their vocabularies are presumably more closely related than those sharing a smaller proportion. Thus, if among the three related languages A, B and C, we find that A and B share 62 per cent of their vocabulary, A and C share 54 per cent, and B and C share 83 per cent, we might conclude that B and C are more closely related to each other than either is to A. This is admittedly a rather crude approach, but it may sometimes yield results of interest.

Note, however, that lexicostatistics of this kind can be applied only *after* the languages of interest have been shown to be related and *after* cognate words have been securely

identified. In defiance of this plain fact, some linguists have on occasion tried to apply the technique to languages that are not known to be related, often in the very hope of finding evidence for a genetic link. Thus, for example, Tovar *et al.* (1961) attempted a lexicostatistical comparison of Basque with several other languages, including the North and South Caucasian languages and Berber, solemnly reporting a figure of 10 per cent ‘cognates’ for Basque and Berber and a 7.5 per cent figure for Basque and Kartvelian. But Basque has never been shown to be related to these other languages (or indeed to any other living languages at all), and all that these pretty numbers represent is the proportion of arbitrary resemblances between the languages by which the authors are prepared to be impressed. Such work constitutes an abuse of lexicostatistics: guesswork wrapped up in numbers expressed to any number of decimal places is still guesswork, and it should not be presented as something better.

In the 1940s Swadesh introduced a dramatic new factor into lexicostatistics: a time element. His reasoning was as follows: *if* we assume that the rate of vocabulary replacement is roughly constant, and *if* we can assign a value to the rate of replacement (so many words replaced per thousand years), then we can calculate an absolute date for the separation of any two related languages. This modified and far more ambitious version of lexicostatistics is called **glottochronology** (some people in fact use these two terms interchangeably, but this is not good practice, since the latter has at least attempted to build in scholarly controls). In the 1950s the American linguist Robert Lees derived an equation that expresses Swadesh’s idea (Lees 1953):

$$t = \frac{\log c}{2 \log r}$$

Here *t* is the *time depth*, the time that has elapsed since the two languages separated, expressed in thousands of years; *c* is the percentage of cognates (shared vocabulary) found in the two languages today (expressed as a decimal); *r* is the *glottochronological constant*, the (supposedly constant) percentage of ancestral words retained by any given language after 1,000 years has elapsed (also expressed as a decimal); and *log* stands for the logarithm to base 10.

Assuming that this idea has some validity, we need three things to make glottochronology a practical proposition. First, as I explained above, we need to be certain that the languages we are comparing really are genetically related, and we need to identify the cognate words before we begin any calculations. For example, English *foot* and Spanish *pie* ‘foot’ really are cognate, even though they scarcely look it, while English *day* and Spanish *día* ‘day’ are not cognate at all, in spite of their great similarity. Just like lexicostatistics, glottochronology must be based upon a firm foundation of good comparative work, or else it is a waste of time. Second, we need a standardized set of vocabulary items to work with. This issue was addressed by Swadesh himself, who prepared several such standard lists. Two of these are still in use; they are known as the **Swadesh 100-word list** and the **Swadesh 200-word list**. The 200-word list is given in the [appendix](#) to this book; there are several slightly different versions of it, and my composite list in fact includes 207 items. The 100-word list can be found in [Exercise 12.6](#) at the end of this chapter. The items in the list are all (supposedly) of the sort I called *basic vocabulary* in [Chapter 2](#). That is, they are words that change more slowly than vocabulary in general: pronouns, low numerals, body-part names, simple verbs and adjectives, and so on, although it is important to

note that, as Dixon (1997), among others, points out, and we have already discussed in [Chapter 2](#), some cultures may alter ‘central’ items of vocabulary regularly, in order to avoid taboo words and names. You will see that the list contains words like *mother*, *foot*, *we*, *two*, *red* and *sit*, but not words like *king*, *shoe*, *lord*, *teach* or *above*.

In using the Swadesh lists, it is essential that we should not go searching for cognates. For example, one item in the list is the word for ‘head’ in the anatomical sense. The English word is, of course, *head*, while the German and French words are *Kopf* and *tête*, respectively, neither of them directly cognate with the English word. As it happens, both the other languages *do* have cognates of the English word: German *Haupt* and French *chef*. At some ancient stage, these really were the words for ‘head’ in these languages, but today they have quite different meanings only metaphorically related to the anatomical head: they mean ‘central figure’, ‘chief person’, ‘leader’, ‘director’. Hence we don’t count these words, and the words for ‘head’ would be tabulated as non-cognate in all three languages.

Finally, and critically, we need a value for that constant r . This we can estimate by looking at languages for which we already have, on independent grounds, a good idea of their date of separation (that is, we already have a value for t) and then by counting the number of cognates that they share (so that we can find c). Most attempts at calculating r in this way give a value between 76 per cent and 86 per cent – that is, a given language allegedly retains 76–86 per cent of its ancestral vocabulary after 1,000 years, having replaced the remaining 14–24 per cent. Consequently, many people take the median value of 81 per cent, sometimes rounded off to 80 per cent, as a reasonable value for r .

Let’s do a sample calculation. The 200-word list applied to English and German yields 59 per cent shared cognates; this is our value for c in this case. If we take r as 80 per cent, we can calculate as follows:

$$t = \frac{\log c}{2 \log r} = \frac{\log 0.59}{2 \log 0.80} = \frac{-0.229}{2 (-0.097)} = \frac{-0.229}{-0.194} \\ = 1.180 \text{ kiloyears}$$

We calculate that English and German separated 1,180 years ago, or in about 830 CE. This is too late, however: by this date the Anglo-Saxons had been settled in England for centuries, and a more realistic result would have been 1,600 years ago or even earlier. Naturally, even the most enthusiastic proponents of glottochronology do not insist that their calculated dates are better than reasonable estimates; in practice, proponents normally try to estimate likely margins of error, and they cite results like the 2,200 years \pm 200 years reported by Gudschinsky (1956) as the time depth for the separation of the Mexican languages Ixcatec and Mazatec.

But a number of calculated time depths have proved to be wildly inaccurate. On the one hand, the 83 per cent shared cognates of French and Italian yield a separation date of 1586 CE, which is absurd: by this date, these two languages had been distinct for perhaps a thousand years, and both already possessed centuries-old literary traditions. On the other hand, the tiny number of shared cognates between Latin and Old Irish puts their separation as far back as 3700 BCE, a time when most specialists believe that PIE was still being spoken and that the major daughter languages had yet to emerge. We will look at some potential explanations for this type of evidence later in this chapter.

There are obvious difficulties with glottochronology. For one thing, as we saw in [Chapter 7](#), it is clearly too simplistic to assume that an ancestral language suddenly splits into

two (or more) daughters that thereafter have no contact with each other: a split into daughter languages is typically much slower and much more gradual than this, and the time depths coming out of the equation can rarely represent a genuine historical event with a hard date on it. At best, it can only be a compromise between the time when significant dialectal differences began to appear and the time when the new regional varieties were indisputably distinct languages.

More significantly, it has now been established that the supposed ‘constant’ r is not constant at all: some languages unquestionably change their vocabularies much faster than others. At one extreme, Icelandic has scarcely replaced any ancestral words at all since Iceland was first settled over a thousand years ago. At the other extreme, there was until recently a Romani variety of Armenian that, in spite of preserving the Armenian grammatical structure almost intact, had virtually no Armenian words left in it. These differences are easy to understand. Icelandic is spoken on a remote island and, until recently, its speakers had minimal contact with anyone else. Romani people, however, being wanderers, are obliged to learn and use the languages of the regions in which they travel, and hence their languages suffer unusually intense pressure from more prestigious neighbours.

Some practitioners of glottochronology have attempted to get to grips with such variation by converting the ‘constant’ r to a parameter that has different values in different circumstances or even in different language families. Naturally, there is a danger that such manoeuvres might render glottochronology vacuous, that proponents might be reduced merely to sticking in whatever value of r is required to yield the desired result. There is as a consequence no shortage of critics, especially among those linguists with a good grounding in statistics, who argue that glottochronology is little more than an empty exercise in computing impressive-looking but essentially meaningless numbers. As a case in point, some critics have pointed out that a glottochronological comparison of English and the English-based pidgin Tok Pisin of Papua New Guinea yields the result that they apparently separated about 2,000 years ago – and yet European imperialism in Papua New Guinea, which produced Tok Pisin, started less than 200 years ago, and the language itself is much younger than that. Nevertheless, a significant number of linguists continue to believe that the difficulties, while real, are tractable, and that the method, used thoughtfully and carefully, can still afford us some valuable results.

Figure 12.2 gives a nomograph of the Lees equation, using $r = 80$ per cent. If you’re not very comfortable with logarithms, you can use this nomograph to read off an approximate value of t for any given value of c . (Remember, once you have t , you must count back that many years from the present to get the date of separation.)

Above I declared that lexicostatistical (and therefore glottochronological) methods cannot sensibly be applied to languages that have not been shown to be related and between which cognates have therefore not been identified, on the reasonable ground that such attempts can involve nothing but sheer blind guesswork as to which words might possibly be cognates *if* the languages are indeed related. On the one hand, genuine cognates can be impossible to recognize without a solid basis in comparative work: recall the case of English *head* and French *chef*. On the other hand, such guesswork runs straight into the problem of spotting spurious ‘cognates’ involving nothing more than chance resemblances: recall the cases like English *much* and Spanish *mucho* ‘much’, and English *bad* and Persian *bad* ‘bad’, which are not cognate even though all three languages are in fact distantly related.

In Chapter 8 I briefly pointed out the existence of such chance resemblances in form and meaning as a potential stumbling block if the comparative method is not applied with

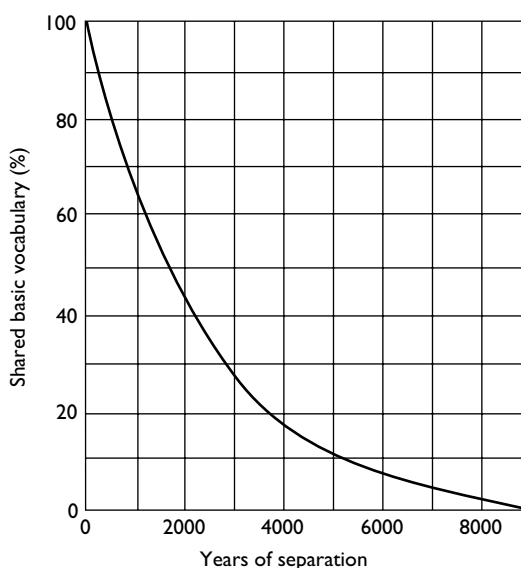


Figure 12.2 A nomograph of the Lees equation

scrupulous care. Nonetheless, a number of linguists have chosen to reject the comparative method and to appeal instead to the simpler technique of merely looking for resemblances of form and meaning between languages that interest them, in an approach often called *mass comparison*; if they find enough such resemblances, they declare that they have identified a genetic link (this view will be further exemplified in the case study below). When challenged on the issue of chance resemblances, they typically appeal to the *number* of resemblances they have found, and assert that this number is surely too large to result from chance alone. It is therefore a matter of some importance to try to estimate the likely number of chance resemblances we might reasonably expect to find between arbitrary languages that are not discoverably related.

Ringe has tackled this problem using ordinary probability theory. To start with, he is able to show that the likelihood of finding resemblances of form and meaning between arbitrary languages is considerably higher than our naïve expectations might have suggested. Naturally, the frequency of chance resemblances depends crucially on just how much resemblance in form and in meaning we want to insist on, but Ringe adheres to a very narrow and restrictive definition of resemblance, and yet he still finds that chance resemblances are bound to be almost startlingly common. Most of the linguists whose work he is evaluating in fact adopt far laxer criteria about what to count as a resemblance, and they accordingly find very many resemblances. (It should, however, be noted that some other historical linguists are dubious about Ringe's findings, as seen, for instance, in Baxter 1998.) The views are restated in their full form in Ringe and Eska (2013: [Chapter 11](#)), however.

Much of Ringe's work is based upon pairwise comparisons of languages – that is, on languages compared only two at a time. The proponents of mass comparison frequently protest about this. They agree that chance resemblances may be reasonably frequent between any two languages, but point out that they themselves don't work that way. Instead, they typically compare six languages at once, or ten languages, or even more. They argue that

increasing the number of languages in this way must necessarily reduce the likelihood of chance resemblances to insignificance, and hence that their findings must in most cases represent genuine cognates.

This line of argument sounds seductive, but Ringe easily disposes of it. The key point here is that the mass comparativists do not in practice insist that every single word should match up in every one of the languages they are comparing. Instead, they are satisfied if the words for, say, 'liver' resemble one another in three or four out of ten languages, while the words for 'day' resemble one another in a *different* three or four languages, and so on. Statistically speaking, the consequences of this policy are quite dramatic, as Ringe is able to show.

To see this, consider a simple example. Suppose, for the sake of argument, that the overall probability that any given word might be judged a satisfactory member of some comparison is 20 per cent, or 0.20, which is in fact a rather conservative estimate, given the established practice of those linguists who adopt mass comparison as their approach. Now, if we are comparing just six languages, the probability that any single word in one language will prove to have satisfactory matches in all six languages is clearly $(0.20)^6$, or 0.00032 – less than one in 3,000. But suppose we increase the number of languages to ten. What is now the probability that we will find a satisfactory match among exactly six languages by chance alone? Well, the probability of finding an acceptable six-way match-up among any given six languages is still $(0.20)^6$, as before. Since the probability of *not* finding an acceptable match in any one language is obviously $(1 - 0.20) = 0.80$, the probability of not finding any match-ups in the remaining four languages is $(0.80)^4$. Therefore the overall probability of finding suitable matches by chance alone in *any given* six languages is $(0.20)^6 \times (0.80)^4$. But, with ten languages to play with, there are no fewer than 210 different ways of choosing exactly six languages, and any one of these 210 arrangements has exactly the same likelihood of producing a six-way match-up by chance alone. Thus the *overall* probability of finding chance match-ups in exactly six of the ten languages is $(0.20)^6 \times (0.80)^4 \times 210 = 0.005505$, or roughly one in 180.

So, if we examine the Swadesh 200-word lists for ten arbitrary languages, we will certainly expect to find at least one six-way match by chance alone. But we're not done yet, because we also have to consider the probability of finding seven-way, eight-way, nine-way, and ten-way matches by chance alone, plus the probability of five-way matches, four-way matches and so on, down to whatever minimal number of matches is considered interesting. Once we've done all this, we are left with the result that the probability of finding a number of matches resulting from chance resemblance alone is not small at all: unless we are very unlucky, we will find an impressive number of chance matches among any ten arbitrary languages we happen to pick, even if we stick to the 200-word list. That is, increasing the number of languages most emphatically does *not* reduce the likelihood of chance matches: instead, it greatly increases that likelihood. The reason for this is simple: the more languages we add, the more opportunities we are providing for chance resemblances to appear. In short, Ringe has demonstrated that chance resemblances constitute a serious problem for the mass comparativists, one that they have completely failed to deal with or even to recognize.

To make matters still worse, the proponents of mass comparison do not in practice confine their attentions to the Swadesh word lists. Instead, they trawl dictionaries in search of *any* resemblances they can find anywhere: words for 'otter', 'heifer', 'fruitstone', 'moth', 'eyelash', 'room', 'old man', 'armpit', 'membrane', 'mushroom', 'shaman', 'strap', 'clumsy

person' – anything at all will do, if it offers a resemblance. Worse still, they make no reasonable attempt to control the semantics, and so they routinely match a word for 'bear' with a word for 'hamster', they match 'hear' with 'earrings', they match 'blood' with 'contents of an egg', and they match any or all of 'trough', 'spoon', 'basket', 'plate' and 'measure of grain', as long as the phonological resemblance is adequate for their purposes. This policy, of course, guarantees that they will find vast numbers of match-ups resulting from chance alone, and they most certainly do find them, but they nonetheless remain convinced that their findings must be significant because their match-ups are so numerous. In historical linguistics, as elsewhere, ignorance of the laws of probability leads to appalling misjudgements of the likelihood of coincidences. I will return to mass comparison in the case study.

A simpler, and quite ingenious, approach to the problem of ascertaining the likelihood of chance resemblances between arbitrary languages has been proposed by Oswalt. This is the **shift test**, and it works like this. We take, say, the Swadesh 100-word lists for two languages A and B. We then compare word 1 in language A with word 2 in language B, word 2 in A with word 3 in B, and so on, until we have matched word 100 in A with word 1 in B. Now, using any criteria for phonological resemblance we like, we can calculate the number of resemblances we have found between words that are virtually certain not to be cognates: *all* in A and *ashes* in B, *ashes* in A and *bark* in B, and so on. For best results, we do this 99 times: on the second pass, we compare word 1 in A with word 3 in B, and so on; on the third pass, word 1 in A with word 4 in B, and so on. The combined result is the *background score*, an estimate of the likelihood of chance resemblances between arbitrary words in the languages in question. We then go ahead and apply the same criteria of similarity to the lists in the normal way: word 1 in A with word 1 in B, and so on.

If the result is not significantly better than the background score, we may rest assured that we have found nothing but chance resemblances; if, using standard statistical tests, we find that the result is significantly better than the background score, we have reason to suppose that we may be looking at some genuine cognates.

Ringe and his colleagues have also developed a new methodology for determining the family trees of language families. This technique uses linguistic information encoded as qualitative characters. A single character consists of the presence or absence of a particular lexical item or of a particular phonological or grammatical innovation, and the characters used have to be chosen with some care. A computer program is then used to find the optimal family tree, the one that, so far as possible, puts each innovation into a single branch of the tree. The method has been tested on IE, with each established branch of the family being represented by its earliest well-attested member; the languages used were Old Church Slavonic, Lithuanian, Old English, Vedic Sanskrit, Avestan, Armenian, Greek, Latin, Tocharian B, Old Irish and Hittite.

This is an interesting exercise, for several reasons. For one thing, the conventional split of PIE into ten or more daughter languages, as seen in the familiar illustrations, is most unrealistic: it is difficult to imagine that a single language could split simultaneously into ten or more daughters. Almost certainly the family tree ought to have a lot more structure, but so far we haven't been able to find any principled way of grouping some of the ten branches into larger branches that are accepted by all scholars in the field. A second point is the **Indo-Hittite hypothesis**, proposed a century ago by Sturtevant (of 'paradox' fame). His idea was that the Anatolian branch, whose best-known member is Hittite, might not be a daughter of PIE at all, but rather a *sister* of it, so that the family tree ought to show

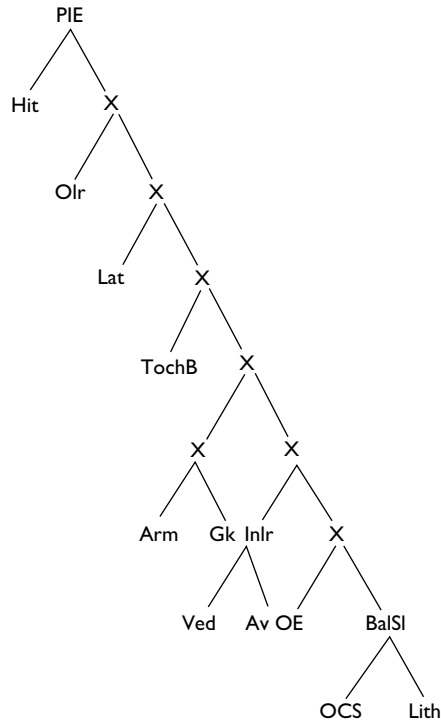


Figure 12.3 A revised tree for Indo-European

two main branches: Anatolian and everything else. Again, no one had previously found a realistic way of testing this hypothesis.

The result of the exercise is shown in Figure 12.3. You can see at once how different this tree looks from the conventional one: this time, every single branching is binary. You can also see that the results of the test confirm the Indo-Hittite hypothesis: Anatolian (represented here by Hittite) comes out as the sister of just one other group containing the whole rest of the family.

The position of Germanic, represented here by Old English, looks very odd: it comes out closer to Balto-Slavonic than to anything else. Here Ringe and his colleagues report a curious finding: uniquely, Germanic appears to belong in two different positions in the tree. In terms of its morphology, it belongs with Balto-Slavonic, as shown, but in terms of its vocabulary it belongs between the western languages Latin and Old Irish. They interpret this result as meaning that Germanic indeed began to evolve in the east, along with Balto-Slavonic, but that its speakers then migrated westwards, coming into contact with the ancestors of Celtic and Latin, and borrowing from them a large amount of western vocabulary that is now no longer distinguishable from native Germanic words.

Similar ideas lie at the heart of the work of McMahon and McMahon and their collaborators, best represented in their 2005 book. Here there is an additional input, however: genetics, both (in part) as theory and also as methodology. Although this section is too brief to do their work justice, they appear to be developing means of representing relationships between already recognized cognate language varieties that may eventually reconcile the family tree model with models of language contact.

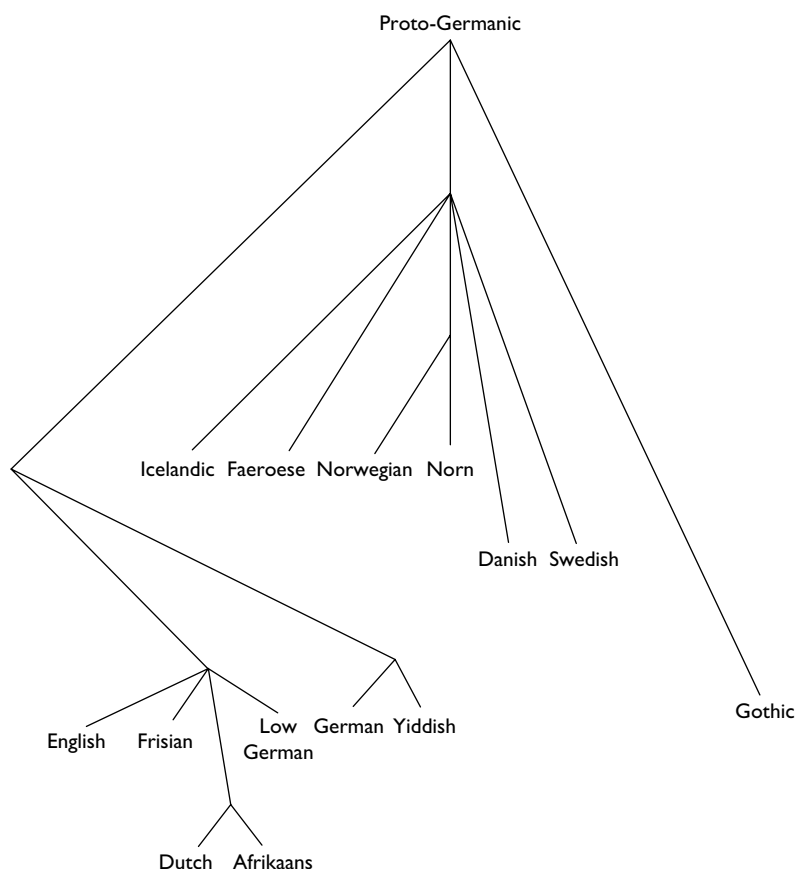


Figure 12.4 A conventional family tree of Germanic

Let's look at a (fairly) traditional family tree of the Germanic languages, which we already considered in [Chapter 7](#) ([Figure 12.4](#)).

Now let's look at [Figure 12.5](#), derived from McMahon and McMahon's work (2005: 152).

The first reaction you probably had to this diagram is consternation at its messiness in comparison with the first. This is actually a strength, however. These reticulations (as the authors term them) represent occasions when connections appear to have been re-established between sister languages that have already separated. These are strong in the early to mid period between the continental West Germanic (WGc) languages. English is unique, however, in having both the earliest of these WGc connections and also profound ties to early varieties of North Germanic. So distinctive is English, in fact, that it is treated as a genetically separate branch of the Germanic language family. This would be in line with the 'unusual' trajectory of development of English that, like the Scandinavian languages and Low German discussed in [Chapter 11](#), came into contact with a close relative (Viking Norse) with profound results for vernacular language use in the north of England in particular. These were encouraged to spread throughout the language by the 'demotion' of English and the promotion of French as the prestige dialect following the Norman Conquest

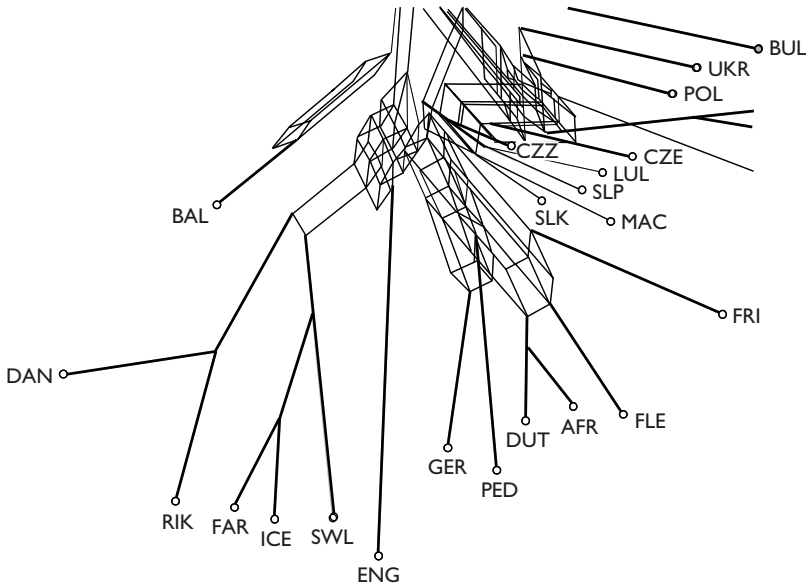


Figure 12.5 A reticulated family tree of Germanic (McMahon and McMahon 2005: 152, Figure 6.8)

of 1066. Although it would be tempting to do so, it is probably too early to tell whether this methodology would be helpful in testing more distant (or proposed) relationships, however. It certainly appears more trustworthy than the methodologies to be discussed in the case study to follow.

Case study: Greenberg's mass comparison

The Nostraticists, as we saw in [Chapter 8](#), have clung firmly to the established historical methods, in which systematic correspondences are identified, proto-languages are reconstructed, and regular phonological developments are worked out for each daughter. Not everyone is convinced, however, that this painstaking procedure is the only useful way of identifying genetic linkages. There have always been a few linguists who were prepared to adopt the quite different approach called **mass comparison**. The idea of mass comparison is simple: you collect some hundreds or thousands of words from whichever languages you are interested in, you put those words side by side to see if any languages seem to show an unusual number of resemblances and, if any do, you declare a genetic relationship between those languages. This, of course, is exactly the approach that I dismissed as unworkable above. The overwhelming majority of historical linguists similarly reject this approach; it has never in modern times been regarded as respectable, and the occasional linguist who has tried to employ it has invariably found himself dismissed as a crank. A

prominent example is the early twentieth-century Italian linguist Alfredo Trombetti, whose enthusiastic embrace of large-scale mass comparisons led to a storm of abuse aimed in his direction: as one modern sympathizer remarks, ‘They practically ran him out of the linguistics community.’

In spite of such depressing precedents, one recent linguist firmly championed the method of mass comparison, now renamed **multilateral comparison**. This was the late Joseph Greenberg, whose comment about Trombetti I have just quoted. Greenberg was, by any standard, a distinguished and influential linguist: for example, in the early 1960s, he almost single-handedly touched off the explosion of interest in linguistic typology and universals that is now such a prominent feature of our linguistic landscape. But Greenberg was also, throughout his career, deeply interested in genetic relationships.

Greenberg began his genetic work in the 1950s with a comparatively brief examination of the languages of Australia, at the time almost *terra incognita*. With only a few fragmentary and unreliable sources at his disposal, he sketched out in Greenberg (1953) a classification of Australian languages that has stood up surprisingly well: in its main lines, at least, it compares favourably with the more recent classification of Dixon (1980), which is based on far more comprehensive and reliable data. He then turned his attention to the troubled area of African languages. In a series of publications, culminating in his brilliant 1963 book (Greenberg 1963b), he substantially reorganized some recognized families (most notably, by scrapping the venerable but clearly creaky ‘Hamito-Semitic’ family in favour of an Afro-Asiatic family with at least five coordinate branches), he moved some languages out of one family and into another, and, most dramatically, he reduced all the 1,500 or so African languages to just four families. He did this by applying multilateral comparison – that is, by the rapid inspection of hundreds of words and grammatical forms from each of hundreds of languages, with languages showing sizeable numbers of resemblances being grouped together. In spite of his suspect methodology, Greenberg’s new language map of Africa was so obviously a great improvement on previous conceptions that it rapidly gained something approaching total acceptance. Today, while many of the details naturally remain controversial, there is almost no serious opposition to Greenberg’s four families (at least being the best interpretation presently possible and based on prior comparative work). Greenberg’s method was nothing short of heresy, but, to the astonishment of the community of linguists, it appeared to work (although see Campbell and Poser 2008: 127–45 in particular for discussion of some of the constructs involved).

Greenberg next turned his attention to New Guinea and the surrounding area, a region whose languages had long proved difficult to classify. Throughout the 1960s he applied his method to an ever greater number of languages, and finally in 1971 he published his findings. He concluded that virtually all of the non-Austronesian (Papuan) languages of New Guinea and of the surrounding islands were genetically related, and he proposed a number of subgroupings. To his new family he added the

language of the Andaman Islands, some 3,000 kilometres away, and, surprisingly, the extinct languages of Tasmania, on the far side of the Australian continent. This new super-family he dubbed **Indo-Pacific**.

The Indo-Pacific hypothesis has had a mixed reception. Several specialists have greeted it with enthusiasm: for example, Blust (1978) found it 'bold and brilliant', showing Greenberg 'at his best'. Others, however, were far from impressed. The inclusion of the Tasmanian languages has been particularly controversial; for example, the Australian specialists Crowley and Dixon (1981) considered this move 'outrageous'. It seems fair to conclude that Indo-Pacific has already attained the status of, say, Altaic: accepted unhesitatingly as valid by many distinguished specialists, but rejected by other equally distinguished specialists as unsubstantiated speculation.

This mild scholarly controversy, however, provided only the slightest taste of what was to happen to Greenberg's next proposal. At the same time as his Indo-Pacific investigations, Greenberg began turning his attention to the largest outstanding problem on earth: the languages of the Americas. Generations of patient work had already succeeded in establishing a number of fairly large families, especially on the better-investigated North American continent, as well as innumerable smaller groupings, but most Americanists were still recognizing at least 140 distinct families in the New World, and possibly as many as 200 – a surprisingly large number, considering that the total number of surviving American languages is probably only about 650. This, of course, was a situation tailor-made for Greenberg, and he spent nearly three decades working across the two continents with his multilateral comparisons. After a series of preliminary reports, he finally published his definitive conclusions in his 1987 book.

Whatever else one may think of Greenberg's American classification, it is certainly revolutionary. The established Eskimo-Aleut family he accepts as valid and distinct (although in his final work he assigned them to his Eurasiatic language family), and Sapir's Na-Déné is likewise classified as a separate family. There is nothing controversial about this (although there once was, remember). But these two recognized families account for no more than 50 languages. The stunning part of Greenberg's conclusions is what he does with the remaining 600 languages: he places *all* of them, without exception, in a single vast family which he calls **Amerind**. That's right: all the remaining languages of North America, all the languages of South America, and all the languages of the Caribbean, in just one family.

If I told you that the Amerind hypothesis was controversial, I would hardly be doing justice to the facts. The truth is that a storm of outraged protest and furious condemnation broke over Greenberg's head, the like of which has rarely been seen in linguistics. If the general public think of historical linguists at all, they probably think of us as quiet, meek, bespectacled eccentrics poring over mouldering books in cluttered studies and rarely venturing any comment more offensive than a polite modification of somebody's proposed Proto-Dravidian word for 'elbow'. This is not the way it looked to Greenberg.

Greenberg's critics – who are numerous and often very distinguished – apply to his work such phrases as 'worthless', 'illusory', 'unsupported', 'deeply flawed', 'distressing', 'crude and puerile', 'irrelevant nonsense', 'misguided and dangerous' and 'completely unscientific'. One critic described the attention given to Greenberg's ideas as 'really depressing' and suggested that Greenberg should be 'shouted down', while another inventive critic coined a new term of abuse just to throw it at Greenberg: he accused Greenberg of *columbicubiculomania*, or an obsession with putting things into pigeon-holes. At the same time, Greenberg was not without his – equally distinguished – supporters, who praised his boldness and imagination, declared his Amerind grouping 'obviously correct', and, on occasion, attacked the critics for what they see as unfair distortions and misrepresentations of Greenberg's work.

Quite apart from their contempt for the very method of multilateral comparison, Greenberg's critics make a number of more substantial points: they complain that Greenberg often ignored reliable and up-to-date sources of information in favour of antiquated and defective ones, they complain that he sometimes neglected the best-studied languages altogether and, most importantly, they complain that his data contain a simply enormous number of errors. In reply, Greenberg took the rather unexpected line that his method is so powerful, so effective at finding genetic links, that none of this matters: scanty and defective materials, he argued, will reveal a relationship just as well as abundant materials of good quality. Few critics have found this response reassuring.

On the other hand, Greenberg's evidence includes the identification of what appear to be virtually identical grammatical alternations in a number of widely dispersed American languages not previously known to be related, and, as we saw in [Chapter 8](#), shared grammatical alternations are commonly taken as powerful evidence for a genetic link. But perhaps the most startling support for Greenberg has come from some quite unexpected quarters: from genetics and from physical anthropology. Entirely independently of Greenberg, Cavalli-Sforza has published a map of genes in the cell nucleus for Native American populations; he reports three distinct population groups whose distribution corresponds remarkably well to the distribution of Greenberg's three language families, with the Eskimo-Aleut and Na-Déné speakers being genetically noticeably distinct from the comparatively homogeneous remainder: Greenberg's Amerinds (Cavalli-Sforza 1991). At the same time, Turner has made a study of the dental anatomy of native Americans, and he too finds three anatomically distinct groups corresponding reasonably well to Greenberg's three language families (Turner 1983, 1985, 1986) – although the match with Na-Déné is decidedly poor. As a result, Greenberg, Turner and another geneticist, Stephen Zegura, jointly put forward the hypothesis that what we are looking at is the result of three separate peoplings of the Americas from the Old World: an early Amerind invasion, a much later Na-Déné settlement, and a rather recent Eskimo-Aleut settlement, with each group being internally rather homogeneous in genes, teeth and language, but different in all respects from the other groups (Greenberg *et al.* 1986).

Such coincidence between the findings of historical linguists and those of other disciplines is unprecedented, and many linguists have reacted with astonishment, disbelief and suspicion. While nineteenth-century linguists were inclined to see language as part and parcel of culture and race, modern linguists have, in complete contrast, generally regarded it as a central tenet that languages show no particular tendency to correspond to genetic or physical differences – recall the black Chadic speakers in the ‘white’ Afro-Asiatic family, and note the widespread imposition of European languages on Africans, Asians, Australians and Native Americans in the last few centuries. There is a widespread feeling, therefore, that these results are just too good to be true, and some critics have had harsh words to say, particularly about Cavalli-Sforza, who, they suggest, has been worryingly vague about his data and methods.

A further difficulty is that the ‘three-invasions’ picture drawn by Greenberg and his supporters requires that the first of those invasions should not have occurred more than about 13,000 years ago. Until recently, this was indeed the approximate date for the first peopling of the Americas preferred by most anthropologists, but things have changed. Evidence for much earlier human habitation of the Americas, while still controversial, has been steadily mounting, and an increasing number of archaeologists and anthropologists are convinced that we have evidence for settlement 20,000, 35,000, perhaps even 50,000 years ago – far too early to allow the presence of only three language families in the New World, let alone only three ethnic groups. Moreover, Nichols (1990) has concluded that the degree of structural diversity among American languages is so vast as to require a dozen or more separate settlements dating back at least 36,000 years and perhaps 50,000 years. In terms of our ideas about the settlement of the Americas, the tide now seems to be running very much against Greenberg.

In the meantime Greenberg moved to his last major project: the proposed super-family **Eurasiatic**, embracing all of IE, Uralic-Yukaghir, Altaic, Korean, Japanese, Ainu (the last three being grouped together as one sub-family), Gilyak, Chukchi-Kamchatkan and Eskimo-Aleut (and Etruscan!). (Note that this Eurasiatic construct largely overlaps the Nostratic proposal but is by no means identical to it. Indeed Greenberg was scathing about Nostratic.) In the two-volume book that discusses and exemplifies his theory (Greenberg 2000 and the posthumous 2002), he again used multilateral comparison, and the response, of course, was a predictably furious one from most of the specialists in the relevant families, albeit somewhat muted in comparison to earlier discussion, largely because of his death. Ringe’s (2002) review of the first volume, which begins, ‘One is seldom asked to review a book that proves to contain nothing of value, but that is unfortunately true of this volume . . .’ is fairly typical. Moving beyond the anger, however, it is striking for me – as someone who is not a specialist in this particular field and has no preconceived notions – how unconnected the comparisons made are. There seems little evidence for the systemic regularity necessary for any language, past or present, to function.

What are we to make of all this? Can Greenberg's seemingly simple-minded method really be so devastatingly effective at uncovering genetic relationships, even at astounding time depths? Even, as he himself claimed, with only scanty and defective materials to work with? Or was he, as his numerous critics claim, merely deluding himself by collecting fistfuls of the meaningless chance resemblances to be found everywhere and arranging them into pretty patterns to suit himself, like a child playing with a big box of buttons?

There seem to me, broadly speaking, to be three possible responses to Greenberg's work:

1. Mass comparison is, all by itself, adequate to establish previously undetected genetic groupings.
2. Mass comparison is not, of itself, adequate to establish genetic links, but it is nonetheless valuable in throwing up promising hypotheses for further investigation by conventional methods.
3. Mass comparison is worthless for any purpose, and is indeed pernicious and obstructive of serious work.

What strikes me most forcibly about the discussion to date is that the eminently plausible and reasonable position 2 has hardly been taken up by anyone. Indeed, the closest thing I have found to an explicit defence of this middle way is, surprisingly, in Greenberg's own writings (Greenberg 1987: 37), though elsewhere, of course, this same work defends position 1 with some vigour. Virtually everyone else who has ventured into print has opted either for position 1 ('Greenberg is obviously right, so stop carping') or for position 3 ('Greenberg is a dangerous madman, and you should steer clear of him'). This extreme polarization of opinion can hardly be either rational or healthy.

One possible approach to the evaluation of multilateral comparison might be to apply it to an area that has already been well mapped out by conventional methods to see if we get the same result. We might, for example, look at Europe, in order to ascertain whether the recognized IE and Uralic families, together with their main branches, emerge from the method. However, unless one counts Greenberg's work on African languages, this seems not to have been attempted on a large scale, although Greenberg briefly considered the point in his various publications.

Finally, methodological controversies aside, is Greenberg right or wrong about Amerind? Only time will tell, but, as one fairly neutral commentator put it: 'If you were forced to bet, you'd just have to bet on Greenberg. He's been right so often.' It must be said, however, that not many linguists share even this cautious degree of optimism.

Further reading

Watkins (1969) is a convenient brief summary of linguistic palaeontology with the Indo-Europeans. For the IE problem in general, the best introduction is Mallory (1989); Mallory (1973) is much briefer and less up to date. See also Cardona *et al.* (1970), Puhvel (1970) and Benveniste (1973). A brief overview of the issues can be found in the last two chapters of Lehmann (1993). Renfrew's early ideas are laid out in Renfrew (1987) and given a popular treatment in Renfrew (1989); a revised version can be found in Renfrew (2001 and 2002). Glottochronology is presented in Swadesh (1955, 1971: 271–84); the equation is derived in Lees (1953); Gudschinsky (1956) is the most approachable introduction, but see also the article in Asher (1994). If you can read German, Tischler (1973) is an excellent account of the application of the method to IE languages; Bergsland and Vogt (1962) is a vigorous critique of the whole approach. The chief presentation of Don Ringe's analysis is Ringe (1992); in further publications (Ringe 1993, 1995, 1996; see also Ringe and Eska 2013: [Chapter 11](#)) he extends his work, applies it to some particular cases of interest, and replies to his critics. Robert Oswalt's shift test is described in Oswalt (1991). Embleton (1986) is a handbook of statistical methods in historical linguistics. The new method for constructing family trees is presented in Warnow *et al.* (1995). Campbell and Poser (2008) is a highly recommended discussion and evaluation of all the distant relationships, often of a rather fanciful nature, discussed in [Chapter 8](#) and this chapter, along with many others.

Exercises

Exercise 12.1

You will need to consult a good etymological dictionary. For each of the following groups of words and names, identify the ones that are ultimately derived from a single common origin and the ones that are unrelated. You might find it helpful to draw a tree showing how the related items are derived from their common source.

- (a) east, Easter, aster, Esther, Austria, Ostrogoth
- (b) hell, hall, holly, holster, Valhalla, helmet, occult, clandestine, eucalyptus (comment here on the variation between /h/ and /k/)
- (c) yellow, gold, chlorine, guild, guilden, cholera, gleam, glass

Exercise 12.2

Suggest a plausible historical explanation for each of the following observations:

- (a) In Bronze Age Greece, the word *wanax* meant 'king', while the word *basileus* denoted some kind of local official, a governor. The Bronze Age civilization underwent some kind of disastrous collapse, and all knowledge of writing was lost. After writing was reintroduced centuries later, the word *wanax* had disappeared, and the word *basileus* had come to mean 'king'.

- (b) The Greeks call themselves *Hellenes*. Most other European languages, including English, give them a name derived from Latin *Graecus*, which in turn derives from the name of the *Graikoi*, a particular Greek tribe in western Greece. But the Turkish word for 'Greek' is *Yunan*, which derives from *Ionian*, the old name for western Asia Minor.
- (c) In southern Greece and Crete, there are a number of place names ending in *-nthos* and *-ssos*, such as *Korinthos*, *Zakynthos*, *Knossos* and *Tylissos*. These names are of odd formation and have no etymologies.

Exercise 12.3

Whatever one may think of the evidence for the Kurgan hypothesis of Indo-European origins, defenders of the hypothesis are clearly obliged to provide answers to at least two questions:

- (a) Why should the Kurgan people have moved out of the Russian steppes in the first place, into terrain that was often less suitable for a pastoral way of life?
- (b) How could they have been so successful at imposing themselves over such a huge area that was already inhabited, mostly by farmers?

Suggest answers to these questions. Bear in mind that an agricultural economy typically supports a much higher population density than a pastoral economy.

Exercise 12.4

Almost all of the northern part of the Indian subcontinent is occupied by languages belonging to the Indo-Aryan branch of Indo-European, while the (non-IE) Dravidian family of languages occupies most of southern India. There is one Dravidian outlier, Brahui, spoken in northern Pakistan, some 1,500 kilometres from the rest of the family. In the second millennium BC, there was a flourishing and prosperous urban civilization, the Harappan culture, located in the Indus valley, in what is now Pakistan. That civilization collapsed and disappeared abruptly and completely, and its cities were never rebuilt. A number of scholars have proposed that the Harappan civilization was Dravidian-speaking and that it was destroyed by the invading Indo-Aryans, whose language displaced Dravidian speech. Apart from the existence of Brahui, what *linguistic* evidence might you look for to evaluate this scenario?

Exercise 12.5

Below are the percentages of cognates shared between certain pairs of languages. In each case, apply glottochronology to calculate the date at which the languages separated. If at all possible, use the Lees equation; use the nomograph only if you have no command of algebra.

- (a) Nootka and Kwakiutl, two Wakashan languages of British Columbia: 30 per cent;
- (b) Georgian and Zan, two Kartvelian languages of the Caucasus: 44 per cent;
- (c) Spanish and Romanian, two Romance languages of Europe: 61 per cent.

Exercise 12.6

Table 12.1 gives the Swadesh 100-word lists for English (given in its RP pronunciation), French and Basque, in phonemic transcription.

Table 12.1 Swadesh word-lists for English, French and Basque

	<i>English</i>	<i>French</i>	<i>Basque</i>
1. 'all'	ɔ:l	tur	gusti
2. 'ashes'	æfəz	sãdr	hauts
3. 'bark'	bɑ:k	ekɔRS	asal
4. 'belly'	beli	vãtr	šabel
5. 'big'	big	grã	handi
6. 'bird'	bɜ:d	wazo	tʃori
7. 'bite'	bait	mɔRdr	horskatu
8. 'black'	blæk	nwaR	belts
9. 'blood'	bləd	sã	odol
10. 'bone'	bəʊn	ɔs	hesur
11. 'breast'	breɪst	pwatrin	bular
12. 'burn'	bɜ:n	bryle	ere
13. 'claw'	klɔ:	grif	askasal
14. 'cloud'	kləʊd	nyaz	hodei
15. 'cold'	kəʊld	frwa	hots
16. 'come'	kʌm	vniR	etori
17. 'die'	daɪ	murir	hil
18. 'dog'	dɒg	fʃe	sakur
19. 'drink'	drɪŋk	bwaR	edan
20. 'dry'	draɪ	sɛk	agor
21. 'ear'	iə	ɔREj	belari
22. 'earth'	ɜ:θ	tɛR	lur
23. 'eat'	i:t	mãʒe	jan
24. 'egg'	eg	œf	araultsa
25. 'eye'	aɪ	œj	begi
26. 'fat'	fæt	gra	gants
27. 'feather'	feðə	plym	luma
28. 'fire'	faɪə	fø	šu
29. 'fish'	fɪʃ	pwasɔ	arain
30. 'fly'	flaɪ	vɔle	hegas [egin]
31. 'foot'	fʊt	pje	oin
32. 'full'	fʊl	pie	bete
33. 'give'	gɪv	dɔne	eman
34. 'good'	gʊd	bɔ	on
35. 'green'	gri:n	vɛR	berde
36. 'hair'	heə	fʋø	ile
37. 'hand'	hænd	mɛ	ešku
38. 'head'	hed	tɛt	buru
39. 'hear'	hiə	ãtãdr	entsun
40. 'heart'	hɑ:t	kœR	bihots
41. 'horn'	hɔ:n	kɔRn	adar
42. 'I'	aɪ	ʒə	ni
43. 'kill'	kɪl	tye	hil
44. 'knee'	ni:	ʒnu	belaun
45. 'know'	nəʊ	savwaR	jakin
46. 'leaf'	li:f	fœj	ori

Table 12.1 (cont'd)

	<i>English</i>	<i>French</i>	<i>Basque</i>
47. 'lie'	lai	alɔʒe	etsan
48. 'liver'	livə	fwa	gibel
49. 'long'	lɒŋ	lɔ̃	luse
50. 'louse'	laʊs	pu	sori
51. 'man'	mæn	ɔm	gison
52. 'many'	meni	boku	aško
53. 'meat'	mi:t	vjād	haragi
54. 'moon'	mu:n	lyn	ilargi
55. 'mountain'	mʌʊntən	mɔ̃ʔan	mendi
56. 'mouth'	mʌʊθ	buʃ	aho
57. 'name'	neim	nɔ̃	isen
58. 'neck'	nek	ku	lepo
59. 'new'	nju:	nuvo	beri
60. 'night'	nait	nèi	gau
61. 'nose'	nʌʊz	ne	śudur
62. 'not'	nɒt	pa	es
63. 'one'	wʌn	œ	bat
64. 'person'	pɜ:sən	pɛʁsɔn	gisaki
65. 'rain'	rein	plèi	euri
66. 'red'	red	RUʒ	gori
67. 'road'	rʌʊd	RUt	bide
68. 'root'	ru:t	rasin	ero
69. 'round'	rʌʊnd	ʀɔ	biribil
70. 'sand'	sænd	sabl	hondar
71. 'say'	sei	dir	eśan
72. 'see'	si:	vwaʀ	ikuśi
73. 'seed'	si:d	grɛn	ale
74. 'sit'	sit	aswaʀ	jari
75. 'skin'	skin	po	asal
76. 'sleep'	sli:p	dɔʁmiʀ	lo [egin]
77. 'small'	smɒl	pti	tʃiki
78. 'smoke'	sməʊk	fyme	ke
79. 'stand'	stænd	[ɛʀ] dəbu	sutik [egon]
80. 'star'	stɑ:	etwal	isar
81. 'stone'	stəʊn	pjɛʀ	hari
82. 'sun'	sʌn	sɔləʒ	eguski
83. 'swim'	swim	naʒe	igeri [egin]
84. 'tail'	teil	kø	bustan
85. 'that'	ðæt	səla	hura
86. 'this'	ðis	səsi	hau
87. 'thou'	ju:	ty	hi
88. 'tongue'	tʌŋ	lāg	min
89. 'tooth'	tu:θ	dā	horts
90. 'tree'	tri:	arbr	suhait
91. 'two'	tu:	dø	bi
92. 'walk'	wɒk	marʃe	ibili
93. 'warm'	wɔ:m	ʃo	bero
94. 'water'	wɒtə	o	ur
95. 'we'	wi:	nu	gu
96. 'what'	wɒt	kwa	ser
97. 'white'	wait	blā	suri
98. 'who'	hu:	ki	nor
99. 'woman'	wʊmən	fam	emakume
100. 'yellow'	jeləʊ	ʒon	hori

English and French are generally believed to be distantly related, while English and Basque are generally believed not to be discoverably related. Apply Oswalt's shift test to English and French, and again to English and Basque. Unless you are very ambitious, make just one pass, not 99. You may use any criteria of phonological similarity you like, but I advise you to choose something simple. For example, you might count words as similar if they both begin with labial consonants, or both begin with coronal/palatal consonants, or both begin with back consonants, or both begin with vowels. Evaluate your results. (Basque /s/ and /s/ represent contrasting apical and laminal sibilants, respectively.)

Appendix: the Swadesh 200-word list

Note: Items in the 100-word list are listed in boldface, including seven words not included in the 200-word list. Source: Gudschinsky (1956).

- | | | |
|------------------|------------------------|--------------------------|
| 1. all | 33. dull (blunt) | 65. hair |
| 2. and | 34. dust | 66. hand |
| 3. animal | 35. ear | 67. he |
| 4. ashes | 36. earth | 68. head |
| 5. at | 37. eat | 69. hear |
| 6. back | 38. egg | 70. heart |
| 7. bad | 39. eye | 71. heavy |
| 8. bark | 40. fall (v.) | 72. here |
| 9. because | 41. far | 73. hit |
| 10. belly | 42. fat /grease | 74. hold/take |
| 11. big | 43. father | 75. how |
| 12. bird | 44. fear (v.) | 76. hunt |
| 13. bite | 45. feather | 77. husband |
| 14. black | 46. few | 78. I |
| 15. blood | 47. fight (v.) | 79. ice |
| 16. blow (v.) | 48. fire | 80. if |
| 17. bone | 49. fish | 81. in |
| 18. breathe | 50. five | 82. kill |
| 19. burn | 51. float | 83. know |
| 20. child | 52. flow | 84. lake |
| 21. cloud | 53. flower | 85. laugh |
| 22. cold | 54. fly (v.) | 86. leaf |
| 23. come | 55. fog | 87. left (side) |
| 24. count | 56. foot | 88. leg |
| 25. cut (v.) | 57. four | 89. lie (recline) |
| 26. day | 58. freeze | 90. live |
| 27. die | 59. fruit | 91. liver |
| 28. dig | 60. give | 92. long |
| 29. dirty | 61. good | 93. louse |
| 30. dog | 62. grass | 94. man/male |
| 31. drink | 63. green | 95. many |
| 32. dry | 64. guts | 96. meat/flesh |

97. mother	134. short	171. tie
98. mountain	135. sing	172. tongue
99. mouth	136. sit	173. tooth
100. name	137. skin	174. tree
101. narrow	138. sky	175. turn
102. near	139. sleep	176. two
103. neck	140. small	177. vomit
104. new	141. smell (v.)	178. walk
105. night	142. smoke	179. warm
106. nose	143. smooth	180. wash
107. not	144. snake	181. water
108. old	145. snow	182. we
109. one	146. some	183. wet
110. other	147. spit	184. what
111. person	148. split	185. when
112. play	149. squeeze	186. where
113. pull	150. stab/pierce	187. white
114. push	151. stand	188. who
115. rain	152. star	189. wide
116. red	153. stick	190. wife
117. right (correct)	154. stone	191. wind
118. right (side)	155. straight	192. wing
119. river	156. suck	193. wipe
120. road	157. sun	194. with
121. root	158. swell	195. woman
122. rope	159. swim	196. woods
123. rotten	160. tail	197. worm
124. rub	161. that	198. ye
125. salt	162. there	199. year
126. sand	163. they	200. yellow
127. say	164. thick	201. breast
128. scratch	165. thin	202. claw
129. sea	166. think	203. full
130. see	167. this	204. horn
131. seed	168. thou	205. knee
132. sew	169. three	206. moon
133. sharp	170. throw	207. round

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