5 Functional linguistics: the Prague School

We have seen that the impetus towards synchronic linguistics, as opposed to traditional philology, originated independently with Saussure in Switzerland and Boas in the USA. A third impulse in the same direction came from Vilém Mathesius (1882–1945), a Czech Anglicist who studied and subsequently taught at the Caroline University of Prague. Saussure's lectures on synchronic linguistics were given in 1911, and that year also saw the publication of Boas's *Handbook*; coincidentally, it was in 1911 too that Mathesius published his first call for a new, non-historical approach to language study (Mathesius 1911).

Around Mathesius there came into being a circle of like-minded linguistic scholars, who began to meet for regular discussion from 1926 onwards, and came to be recognized (until they were scattered by the Second World War) as the 'Prague School'. The Prague School practised a special style of synchronic linguistics, and although most of the scholars whom one thinks of as members of the school worked in Prague or at least in Czechoslovakia, the term is used also to cover certain scholars elsewhere who consciously adhered to the Prague style.

The hallmark of Prague linguistics was that it saw language in terms of function. I mean by this not merely that members of the Prague School thought of language as a whole as serving a purpose, which is a truism that would hardly differentiate them from others, but that they analysed a given language with a view to showing the respective functions played by the various structural components in the use of the entire language. This differentiated the Prague School sharply from their contemporaries, the American Descriptivists (and it differentiates them equally sharply from the Chomskyan school which has succeeded the Descriptivists). For a linguist working in the American tradition, a grammar is a set of elements – 'emes' of various kinds in Bloomfield's framework, 'rules' of

various sorts for a Chomskyan; the analyst seems to take much the same attitude to the linguistic structure as one might take to a work of art, in that it does not usually occur to him to point to a particular element and ask 'What's that for?' – he is rather content to describe and to contemplate. Prague linguists, on the other hand, looked at languages as one might look at a motor, seeking to understand what jobs the various components were doing and how the nature of one component determined the nature of others. As long as they were describing the structure of a language, the practice of the Prague School was not very different from that of their contemporaries – they used the notions 'phoneme' and 'morpheme', for instance; but they tried to go beyond description to explanation, saying not just *what* languages were like but *why* they were the way they were. American linguists restricted themselves (and still restrict themselves) to description.

One fairly straightforward example of functional explanation in Mathesius's own work concerns his use of terms commonly translated *theme* and *rheme*, and the notion which has come to be called 'Functional Sentence Perspective' by recent writers working in the Prague tradition. Most (or, at least, many) sentences are uttered in order to give the hearer some information; but obviously we do not produce unrelated pieces of information chosen at random, rather we carefully tailor our statements with a view not only to what we want the hearer to learn but also to what he already knows and to the context of discourse which we have so far built up. According to Mathesius, the need for continuity means that a sentence will commonly fall into two parts (which may be very unequal in length): the *theme*, which refers to something about which the hearer already knows (often because it has been discussed in immediately preceding sentences), and the *rheme*, which states some new fact about that given topic. Unless certain special effects are aimed at, theme will precede rheme, so that the peg may be established in the hearer's mind before anything new has to be hung on it.

Very often, the theme/rheme division will correspond to the syntactic distinction between subject and predicate, or between subject-plus-transitive-verb and object: we may say *John kissed Eve* because we have been talking about John and want to say what he did next, or because the hearer knows that John kissed

someone and we want to tell him who it was. However, it might be that the hearer knows that Eve was kissed and we want to say who kissed her: in other words, we want to make *John* the rheme and *kissed Eve* the theme. But theme normally precedes rheme. In an inflecting language, such as Czech, this is no problem: we simply put the grammatical subject at the end of the sentence and say *Evu políbil Jan* – the accusative *-u* and absence of feminine ending on the verb shows that Eve was kissed rather than kisser. However, English uses word-order to mark grammatical relations such as subject and object, and so is not free to permute the words of *John kissed Eve* so simply. Instead, we solve the problem by using the passive construction, *Eve was kissed by John*, which reconciles the grammatical demand that the subject stand first with the functional demand that the kisser, as rheme, be postponed to the end, by means of a special form of the verb which signals the fact that the grammatical subject is not the 'doer' of the action. In Czech the passive construction is rare, and particularly so when the actor is mentioned in the equivalent of a *by*-phrase. Even in English the passive has a second function: it enables us to reconcile the occasional wish not to be explicit about the identity of the actor with the grammatical requirement that each finite verb have a subject, so that we can say *Eve was kissed* if we are unable or unwilling to say who kissed her. (The passive construction, in sentences such as *Adoption of the proposal is felt to be inadvisable*, is beloved by bureaucrats aiming to disclaim responsibility for their decisions.) But English is unusual in the frequency with which 'full' passives with *by*-phrases occur; the notion of Functional Sentence Perspective shows us a job which such constructions do in English and which is carried out by other means in other languages. (That is not to say that the job is always and only done by means of the passive in English, e.g. it is possible to mark *John* as rheme rather than theme in *John kissed Eve* by stressing it; but that is normally reserved for contradicting an expectation that someone else did the kissing.)

It would be inaccurate to suggest that the notion of Functional Sentence Perspective was wholly unknown in American linguistics; some of the Descriptivists did use the terms 'topic' and 'comment' in much the same way as Mathesius's 'theme' and 'rheme'. But, apart from the fact that the Prague scholars developed these ideas rather further than any Americans ever

did, I believe it is fair to say that the Americans never dreamed of using the ideas to explain structural differences between languages, such as the frequency of the passive construction in English as opposed to many other languages. In the case of the Descriptivists this was understandable, since these explanations make unavoidable use of concepts (such as 'the wish not to identify the actor explicitly') which do not correspond to observables and are therefore illegitimate by behaviourist standards. Descriptivists, indeed, tended to be suspicious of questions beginning with the word 'why', regarding them as a relic of childhood which mature scientists should have learned to put behind them (cf. Joos 1957, p. 96). The modern Chomskyan school, however, lays great stress on the need for linguists' statements to 'explain' rather than merely 'describe', and it has no objection to the postulation of unobservables; yet a Chomskyan grammar will simply list the syntactic 'transformations', such as Passive, which a given language contains, and will give no hint as to why the language needs them, or why one language possesses some particular construction which another language lacks or uses very rarely.

A related point is that many Prague linguists were actively interested in questions of standardizing linguistic usage: see e.g. Havránek (1936). Such an interest was perhaps natural for Czechs, whose language is marked by unusually extreme divergence between literary and colloquial usage, and had in the inter-war period only just become the official language of an independent State; but it was certainly encouraged also by the functional approach of the Prague School. The American Descriptivists not only, quite rightly, drew a logical distinction between linguistic description and linguistic prescription, but furthermore left their followers in little doubt that prescription was an improper, unprofessional activity in which no respectable linguist would indulge: cf. the title of R. A. Hall's *Leave Your Language Alone!* (1950). This latter attitude is wholly irrational; a high culture needs conventional norms of linguistic usage (though such norms are surely better evolved through informed debate than imposed from above by an Academy), and presumably training in linguistics ought to be a help rather than a hindrance in formulating appropriate standards. But certainly one cannot talk sensibly about which usages are worthy of acceptance and which are not, unless one sees language as a tool

or set of tools for carrying out a range of tasks more or less efficiently.

The theory of theme and rheme by no means exhausts Mathesius's contributions to the functional view of grammar; given more space, I might have included a discussion of his notion of 'functional onomatology', which treats the coining of novel vocabulary items as a task which different languages solve in characteristically different ways (see, for example, Mathesius 1961). Let us turn instead, though, to a consideration of the functional approach to phonology, as exemplified in the work of Trubetzkoy.

Prince Nikolai Sergeyevich Trubetzkoy (1890–1938) was one of the members of the 'Prague School' not based in Czechoslovakia. He belonged to a scholarly family of the Russian nobility; his father had been a professor of philosophy and Rector of Moscow University. Trubetzkoy began at an early age to study Finno-Ugric and Caucasian folklore and philology; he was a student of Indo-European linguistics at his father's university, and became a member of staff there in 1916. Then came the revolution, and Prince Trubetzkoy had to flee: first to Rostov on the Don, where (after the servants had taken him for a tramp and had tried to thrown him out of the Rector's house) he was given a chair at the local university; and, when the Whites lost Rostov in 1919, to Constantinople. In 1922 he was appointed to the chair of Slavonic philology at Vienna, and he became a member of the Prague Linguistic Circle when it came into being under Mathesius's aegis a few years later. (Prague is only some 150 miles from Vienna, and separated from it by a political boundary which was then very new.) Trubetzkoy remained in Vienna until he died a few months after the 1938 *Anschluss*, from a heart condition brought to a crisis by Gestapo interrogation (he had been a public opponent of Nazism). We know Trubetzkoy's ideas today chiefly through the book, *Principles of Phonology*, which he struggled to finish (and all but succeeded in finishing) in his last weeks of life.

Trubetzkoyan phonology, like that of the American Descriptivists, gives a central role to the phoneme; but Trubetzkoy, and the Prague School in general (as I have suggested is characteristic of the European style of linguistics), were interested primarily in the paradigmatic relations between phonemes, i.e. the nature of the oppositions between the

phonemes that potentially contrast with one another at a given point in a phonological structure, rather than in the syntagmatic relations which determine how phonemes may be organized into sequences in a language. Trubetzkoy developed a vocabulary for classifying various types of phonemic contrast: e.g. he distinguished between (i) *privative* oppositions, in which two phonemes are identical except that one contains a phonetic 'mark' which the other lacks (e.g. / f / ~ / v /, the 'mark' in this case being voice), (ii) *gradual* oppositions in which the members differ in possessing different degrees of some gradient property (e.g. / ɪ / ~ / e / ~ / æ /, with respect to the property of vowel aperture), and (iii) *equipollent* oppositions, in which each member has a distinguishing mark lacking in the others (e.g. / p / ~ / t / ~ / k /). In some cases a given phonemic opposition will be in force only in some environments and will be suspended or 'neutralized' in others, for instance the German / t / ~ / d / opposition is neutralized in word-final position (only / t / occurs word-finally, and roots which end in / d / before a suffix replace the / d / by / t / when the suffix drops, e.g. / 'ba:dən / *baden* 'to bathe' v. / ba:t / *Bad* 'bath'); in such cases we can speak of the occurrence of the *archiphoneme*, that is the highest common factor of the phonemes whose opposition is neutralized. Trubetzkoy's 'archiphoneme' idea is useful in dissolving pseudoproblems. For instance, in English also the / t / ~ / d / opposition is neutralized, after / s / (there is no contrast between e.g. *still* and **sdill*); but, unlike in the German case, the sound which occurs in the environment of neutralization is identical to neither member of the opposition (the sound written *t* in *still* is unaspirated like / d /, though it is voiceless like / t /). A Descriptivist would have to assign the sound arbitrarily either to the / t / phoneme or to the / d / phoneme; the archiphoneme concept allows us to avoid this arbitrary choice.[1] Trubetzkoy, in the *Principles*, establishes a rather sophisticated system of phonological typology – that is, a system which enables us to say what *kind* of phonology a language has, rather than simply treating its phonological structure in the take-it-or-leave-it American fashion as a set of isolated facts. (Typology was another distinctive preoccupation of the Prague School; Mathesius (1928; 1961) worked on what has been rather inelegantly translated as 'linguistic characterology', which aimed to enable one to discuss what kind

of grammar a language has. Americans, on the other hand – with occasional exceptions such as Sapir or Hockett (1955) – tended to treat the synchronic structures of various languages as globally different examples of a single genus of thing; this was perhaps part of their inheritance from the German neogrammarians, who had suggested that the only interesting way of classifying languages was in terms of their historical relationships.)

What is particularly relevant to our present discussion is that Trubetzkoy distinguished various functions that can be served by a phonological opposition. The obvious function – that of keeping different words or longer sequences apart – he called the *distinctive function*, but this is by no means the only function that a phonological opposition may serve. Consider the opposition between presence and absence of stress, for instance: there are perhaps rather few languages in which this is regularly distinctive. In Czech (in which every word is stressed on the first syllable) or Polish (in which words normally bear penultimate stress), stress has no distinctive role but it has a *delimitative function*: it helps the hearer locate word-boundaries in the speech signal, which is something he needs to do if he is to make sense of what he hears. In languages with more variable stress position, such as English or Russian, stress has less delimitative function and scarcely any distinctive function (pairs such as *súbject* (n.) ~ *subjéct* (v.), which are almost identical phonetically except for position of stress, are rare in English); but it has a *culminative function*: there is, very roughly speaking and ignoring a few 'clitics' such as *a* and *the*, one and only one main stress per word in English, so that perception of stress tells the hearer how many words he must segment the signal into, although it does not tell him where to make the cuts. Nor is it only suprasegmental[2] features such as stress which fulfil these subsidiary functions. Thus Trubetzkoy points out that, in German, while the opposition between / j / and other consonant phonemes has a distinctive function (*verjagen* 'expel' contrasts with *versagen* 'deny', for instance), / j / also has a delimitative function in that this consonant occurs only morpheme-initially (*verjagen* is morphemically *ver+jag+en*). Conversely, English / ŋ / has a 'negative delimitative function': when we hear that sound we know that there cannot be a morpheme boundary immediately before it, because / ŋ / never begins an

English morpheme. In English, consonant clusters such as / ts /, / ps / signal an intervening morpheme boundary (in all but a few very exceptional cases such as *tsetse*, *lapse*); Finnish on the other hand has no initial or final consonant clusters, and permits only / n t s / as final consonants, so that the clusters in *yksi* 'one' or *silta* 'bridge' signal absence of morpheme boundary.

In the American tradition there is no room for such statements. The Descriptivists thought of all phonological contrasts as 'distinctive' contrasts in Trubetzkoy's sense. In the case of the fixed stress of Czech, for instance, a Descriptivist would have said either that it never keeps different words apart and is therefore to be ignored as non-phonemic, or else (if pairs of word-sequences can be found which differ only in position of word-boundaries and hence of stresses, e.g. *Má melouch* ['ma:'meloux] 'He has a job on the side' v. *Máme louh* ['ma:me'loux] 'We have lye') that there is a phonemic contrast between stress and its absence which is fully on a par, logically, with the opposition between / p / and / b / or / m / and / n /. Trubetzkoy's approach seems considerably more insightful than either of these alternatives.

Each of the three phonological functions discussed so far has to do, ultimately, with enabling the hearer to work out what sequence of words has been uttered by the speaker. But Trubetzkoy, like other members of the Prague School, was well aware that the functions of speech are not limited to the expression of an explicit message. In analysing the functions of speech Trubetzkoy followed his Viennese philosopher colleague Karl Bühler, who distinguished (Bühler 1934) between the *representation function* (i.e. that of stating facts), the *expressive function* (that of expressing temporary or permanent characteristics of the speaker), and the *conative function* (that of influencing the hearer). I find Bühler's three-way distinction rather too neat and aprioristic to merit the somewhat exaggerated respect which many have paid it, but it does serve to make the point that there is more to language than the 'representation function'. Trubetzkoy shows that Bühler's analysis can be applied in phonology. A phonetic opposition which fulfils the representation function will normally be a phonemic contrast; but distinctions between the allophones of a given phoneme, where the choice is not determined by the phonemic environment, will

often play an expressive or conative role. For instance, in London the diphthong / au / has a range of allophones differing in the degree of initial openness – one encounters pronunciations ranging from [ɑʊ] through [æʊ] to [ɛʊ] (together with differences in the off-glide which I ignore here); and this allophonic gradient correlates with or 'expresses' a variable of social status: roughly speaking, the less open the beginning of the diphthong, the lower the speaker's prestige. (In the diphthong / ai / , on the other hand, the correlation is reversed: the 'rough' speaker who has [ɛʊ] in the first case will have something like [ɒɪ] for the latter, while a 'well-spoken' individual will have something like [ɑʊ] and [aɪ] respectively.) In a Mongolian dialect (Trubetzkoy, 1939, p. 17) frontness of vowels 'expresses' sex: back vowels in men's speech correspond to central vowels in women's speech, and male central vowels correspond to front female vowels. As an example of the conative function in phonology, we might take the use of duration in American English vowels. Vowel duration is a respect in which RP and standard American English differ markedly in their phonological structure. In RP, vowel duration is phonologically determined: the 'checked' or 'lax' vowels, such as / ɪ / , are short, and other vowels are long or short depending on their phonemic environment. In American English, on the other hand, vowel duration has no 'distinctive' function and is always free to vary, and length is used to engage the emotions of the hearer: thus an American making an appeal on behalf of a charity might wind up his peroration with a phrase like 'I want you to put your hands in your pockets and gɪ::v', with an ultra-long vowel in *give* where an Englishman would be bound to use a short vowel.[3] Again, statements of these kinds tell us considerably more about how a language works than do phonological analyses in the American style. For a Descriptivist, alternation between allophones of a phoneme is either phonologically determined (as is the case with plain versus velarized / l / in RP) or else is said to be in 'free variation'. But this latter phrase merely dodges the issue: cases of truly random allophonic variation which correlates with *no* other factors either internal to or outside the language are vanishingly few and far between.

Another manifestation of the Prague attitude that language is a tool which has a job (or, rather, a wide variety of jobs) to do is the fact that members of that School were much preoccupied with the aesthetic, literary aspects of language use (Garvin

1964 provides an anthology of some of this work). Many American linguists, both Descriptivists and, even more so, those of the modern Chomskyan school, have by contrast maintained an almost puritanical concentration on the formal, logical aspects of language to the exclusion of more humane considerations. This aspect of Prague School thought lies somewhat outside the purview of the present book. Suffice it to say that the Prague group constituted one of the few genuine points of contact between linguistics, and 'structuralism' in the Continental (nowadays mainly French) sense – a discipline whose contemporary practitioners often appeal to the precedent of linguistics in their approaches to literary criticism without, in many cases, really seeming to understand the linguistic concepts which they cite.

If American linguists ignored (and still ignore) the aesthetic aspects of language, this is clearly because of their anxiety that linguistics should be a science. Bloomfieldians and Chomskyans disagree radically about the nature of science, but they are united in wanting to place linguistics firmly on the science side of the arts/science divide. The Prague School did not share this prejudice; they were not interested in questions of methodology, and it seems likely that, say, Mathesius in discussing the 'characterology' of English would, if asked, have thought of his work as more akin to that of a historian than to that of a physicist.

There have, however, been certain developments whose roots lie in Prague School thought but which have come to be fairly clearly scientific in their nature; it happens that in each case the conversion into a fully fledged empirical theory took place away from Prague.

The first of these is what may be called the therapeutic theory of sound-change. Mathesius, and following him various other members of the Prague School, had the notion that sound changes were to be explained as the result of a striving towards a sort of ideal balance or resolution of various conflicting pressures; for instance, the need for a language to have a large variety of phonetic shapes available to keep its words distinct conflicts with the need for speech to be comprehensible despite inevitably inexact pronunciation, and at a more specific level the tendency in English, say, to pronounce the phoneme / e / as a relatively close vowel in order to distinguish it clearly from / æ /

conflicts with the tendency to make it relatively open in order to distinguish it clearly from /ɪ/. At any given period the phonology of a language will be in only imperfect equilibrium, and changes are to be expected at the points of asymmetry. For instance, before the seventeenth century the phoneme /ʒ/ did not occur in English, but the sound involved no un-English phonetic features: most of our obstruents were found in voiced/voiceless pairs and only /ʃ/ was unpaired, so /ʒ/ was a 'vacant slot' waiting to be filled by a phoneme at no extra cost to the language – and sure enough /ʒ/ has now entered English, both through coalescence of /zj/ sequences (as in *leisure*) and by remaining unchanged in words borrowed from foreign languages (e.g. *rouge*). While /ʒ/ was a 'vacant slot', /h/ on the other hand might be called a 'sore thumb' – it is an isolated sound not fitting into the overall pattern of English phonemes; and many English dialects (although not RP) have abandoned the /h/ phoneme (Cockney is by no means the only regional variety of English in which it is usual to 'drop one's aitches'). Since languages are immensely complex structures and since new factors are constantly coming into play as human life evolves, this therapeutic process will never reach a conclusion: a change which cures one imbalance will in turn create tensions elsewhere in the system (as a move at chess removes one danger only to bring about another), so that linguistic change will continue indefinitely.

It is worth noting that this view of sound-change is somewhat at odds with Saussure's approach to linguistics. Saussure, remember, contrasted synchronic linguistics, as the study of a system in which the various elements derive their values from their mutual relationships, with historical linguistics as the description of a sequence of isolated, unsystematic events.[4] As a description of the kind of historical linguistics current in Saussure's day, this latter characterization is fair; but the Prague School is in effect arguing that the atomicity which Saussure attributes to 'diachronic' linguistics is not an intrinsic property of historical as opposed to synchronic linguistics but only of a particular school of linguists, who happened to be interested in historical rather than synchronic linguistics for reasons independent of their atomistic approach. The Prague School argues for system in diachrony too, and indeed it claims that linguistic change is determined by, as well as determining,

synchronic *état de langue*. To pursue the chess metaphor, for the Prague School no player is blind, although one might say, perhaps, that the players do not foresee all the indirect consequences of their moves (any more than real chess-players do). We shall see, later in this chapter, that recent work in the Prague tradition has tended to undermine the synchronic/diachronic distinction in other ways too.

The scholar who has done most to turn the therapeutic view of sound-change into an explicit, sophisticated theory is the Frenchman, André Martinet (b. 1908). Martinet himself never lived in Prague; he was appointed to the École Pratique des Hautes Études in Paris in 1938 but spent the war years interned as an army officer, becoming head of the linguistics department at Columbia University (New York) in 1947 and returning in 1955 to the École des Hautes Études. However, Martinet (who is unusual, and admirable, in his appreciation of diverse trends in linguistic thought) was heavily influenced by Prague thinking from an early stage in his career, and nowadays it seems fair to describe him as the chief contemporary proponent of mainstream Prague ideas. The book in which Martinet set out his theories of diachronic phonology most fully is significantly entitled *Économie des Changements Phonétiques* (1955). The therapeutic view of sound-change is indeed reminiscent of the economists' doctrine of the invisible hand, according to which the various countervailing forces in an economy tend (in the absence of governmental interference) towards an ideal equilibrium.[5]

One of the key concepts in Martinet's account of sound-change (borrowed by him from Mathesius) is that of the *functional yield* of a phonological opposition. The functional yield of an opposition is, to put it simply, the amount of work it does in distinguishing utterances which are otherwise alike. Thus the opposition between the English phonemes / θ / and / ð / is of unusually low functional yield, since there are very few minimal pairs of the kind *wreath* ~ *wreathe* (and furthermore this particular pair could normally be distinguished in context by the syntax even if they were pronounced alike); the yield of / f / ~ / v / is higher, because there are quite a number of minimal pairs, such as *foal* ~ *vole*, in which genuine confusion is possible. Because we can imitate one another's pronunciation only inexactly and because we have no linguistic analogue of the pianist's tuning-fork by reference to which a community can

preserve the identity of a sound over time, Martinet argues, the pronunciations of similar phonemes will overlap and will tend to merge. This tendency towards merger will be opposed by the need to preserve distinctions in order to communicate, but the strength of that countervailing force will depend on the functional yield of the opposition in question. Therefore phonological developments should be predictable from statistics of functional yield.

This notion is of course rather more complex than it looks. Martinet is well aware that he leaves many questions open: for instance how much weight, in estimating the yield of the / f / ~ / v / opposition, should be given to the fact that *foal* and *vole* are not merely both nouns but both names of animals and are therefore that much more likely to occur in similar contexts? It is unclear even what category of phonological oppositions are relevant; there is no observable tendency for / θ / and / ð / to merge in English, but we could explain this by saying that what distinguishes e.g. *wreathe* from *wreath* is presence v. absence of voice (in the final segment), and the yield of the voiced/voiceless distinction in the language as a whole is enormous even though, in the special case of interdental fricatives, it happens to be low. Martinet certainly does offer a number of persuasive examples for which his principle seems to account neatly. Thus, in a conservative style of French, we find a distinction ot duration between, for example, [mɛtr] *mètre* and [mɛ:tr] *maître*; but there are few minimal pairs, and duration is not distinctive in other vowels (except that some speakers distinguish a long and a short *a*, but again this opposition has a low yield): as predicted, younger speakers pronounce words such as *mètre* and *maître* alike. Again, among French nasal vowels the opposition between / œ̃ / and / ɛ̃ / (e.g. *brun* 'brown' ~ *brin* 'sprig') has a far lower yield than that between / ɔ̃ / and / ɑ̃ / (*long* ~ *lent, don* ~ *dent*, etc.); and an innovating style of speech has abandoned the former distinction by replacing / œ̃ / with / ɛ̃ /.

Unfortunately, despite the attraction and plausibility of this hypothesis about sound-change, further examination does not seem to have borne it out. Even the examples cited from Martinet himself seem somewhat inconsistent; English / θ / and / ð / remain distinct because what matter are oppositions between phonetic features rather than between phonemes, but on the other hand (since the rounding which distinguishes / œ̃ /

from / ɛ̃ / is also what distinguishes / ɔ̃ / from / ɑ̃ /, which show no sign of merging) the nasal-vowel example seems to work only if we think in terms of phonemes rather than of phonetic features. King (1967) and Wang (1967a; 1969, p. 10 n. 3) have tested the hypothesis by evolving explicit, numerical measures of functional yield and comparing the known histories of certain languages with the predictions which follow from these statistics; their results have been rather clearly negative.

It is of course possible to defend the functional-yield hypothesis by arguing that King and Wang have formalized the notion in an inappropriate way. We have seen that there are various conceivable ways in which functional yield could be measured (and any measure that could be applied in practice would presumably be only a crude approximation, at best, to the variable which is in fact relevant); it might be that a more sophisticated measure would give better results in the cases King and Wang discuss (cf. Weinreich *et al.* 1968, p. 134; Kučera 1974). But the onus is on proponents of the hypothesis to show this, and in any case there are phenomena in the history of the world's languages which seem so radically incompatible with Martinet's hypothesis that no reformulation could conceivably avail against them. The history of Mandarin Chinese, for instance, has been one of repeated massive losses of phonological distinctions: final stops dropped, the voice contrast in initial consonants was lost, final *m* merged with *n*, the vowel system was greatly simplified, etc. In Chinese, morphemes and syllables are co-terminous, but modern Mandarin has so few phonologically distinct syllables that on average each syllable is ambiguous as between three or four etymologically distinct morphemes in current use (and most morphemes, as is to be expected in the language of an ancient culture, display a more or less wide range of meanings). A case such as English / faul / (*fowl* or *foul*, and the latter morpheme ambiguous between moral and sporting senses) would be unusual in Mandarin not because it permits alternative interpretations but because the number of alternatives is so small. The language has of course compensated for this loss of phonological distinctions – if it had not, contemporary Mandarin would be so ambiguous as to be wholly unusable. What has happened is that monomorphemic words have to a very large extent been replaced by compounds – in many cases compounds of a type, very unusual in European

languages, consisting of two synonyms or near-synonyms. (Cf. English *funny-peculiar* v. *funny-ha-ha*; although the analogy is a poor one, first because the ambiguity of *funny* is a case of polysemy rather than of homonymy – i.e. the two senses of *funny* are alternative developments of what was once one unambiguous word, rather than two words having fallen together in pronunciation – and secondly because in the English expressions only the first half is ambiguous, whereas in a Chinese synonym-compound the two halves disambiguate one another.) But, unless we interpret Martinet as saying merely that a language will *somehow* maintain its usability as a means of communication, then Mandarin must surely refute him; the distinctions it has lost were of great functional yield (while on the other hand the sound [ʈ], from Middle Chinese [ɲ], has remained distinct despite being a 'sore thumb' in terms of the overall phonological pattern and despite the very low functional yield of the oppositions between this sound and the similar sounds [l], [n]). In other words (to stretch the chess metaphor to breaking point) the player making moves on the Chinese board seems to be not merely blind but incapable of distinguishing by touch between pawns and queen. Mandarin strikingly vindicates Saussure's view of the difference between diachronic and synchronic linguistics.[6]

Perhaps this obituary for Martinet's theory of sound-change is premature; one can think of ways in which some sort of rearguard action might be mounted in its defence. (For instance, although I think it is improbable, one might conceivably be able to demonstrate that replacement of monomorphemic words by compounds in Chinese took place before rather than as a consequence of the major losses of phonological contrasts, and that would rob Chinese of much of its force as evidence against Martinet's theory.) But even if the therapeutic theory of sound-change has indeed to be given up, one can say in its favour that Martinet put it forward very explicitly as an empirical, testable hypothesis (Martinet 1955, p. 34). Sir Karl Popper has taught us that the first duty of a scientist is to ensure that his claims are potentially falsifiable, because statements about observable reality which could be overturned by no conceivable evidence are empty statements. Martinet's defeat is therefore an honourable one.

The situation is rather different in the case of another theory

evolved out of Prague School doctrines, namely Jakobson's theory of phonological universals.

Roman Osipovich Jakobson (b. 1896) is a scholar of Russian origin; he took his first degree, in Oriental languages, at Moscow University. From the early 1920s onwards he studied and taught in Prague, and moved to a chair at the university of Brno (capital of the Moravian province of Czechoslovakia) in 1933, remaining there until the Nazi occupation forced him to leave. Jakobson was one of the founding members of the Prague Linguistic Circle. He spent much of the Second World War at the École Libre des Hautes Études which was established in New York City as a home for refugee scholars from Europe. In 1949 Jakobson moved to Harvard, and since 1957 he has been associated also with the next-door institution of MIT, which was to become the focus of the modern revolution in linguistics. Jakobson in fact represents one of the very few personal links between European and American traditions of linguistics; and, as will become apparent in the course of the following chapters, his ideas have had much to do with the radical change of direction that has occurred in American linguistics over the last twenty years.

Jakobson's intellectual interests are broad and reflect those of the Prague School as a whole; he has written a great deal, for instance, on the structuralist approach to literature. However, in terms of influence on the discipline of linguistics, by far the most important aspect of Jakobson's work is his phonological theory. Here Jakobson is recognizably a member of the Prague School – like Trubetzkoy he is interested in the analysis of phonemes into their component features rather than in the distribution of phonemes; but his views represent a special development which takes to their logical extreme ideas that are found only briefly and tentatively adumbrated in the work of Trubetzkoy and other members of the School. The essence of Jakobson's approach to phonology is the notion that there is a relatively simple, orderly, universal 'psychological system' of sounds underlying the chaotic wealth of different kinds of sound observed by the phonetician.

Let us begin by defining some terms. Speech-sounds may be characterized in terms of a number of distinct and independent or quasi-independent *parameters*, as we shall call them. Thus the height within the oral cavity of the highest point of the tongue is

one articulatory parameter (a vowel may be 'close' or 'open'), and the position of this point on the front/back scale is another parameter (vowels may be 'front' or 'back'). These two parameters represent choices which are to some extent independent of one another, but not wholly so: the more 'open' a vowel is – that is, the more the tongue is depressed into a flat mass in the bottom of the mouth – the less meaningful it is to speak of a particular 'highest point' and hence the less difference there is between front and back vowels. Position of the soft palate is a third articulatory parameter, and this is more independent of the two former parameters than they are of each other: any vowel (and many consonants) can be 'nasal' or 'oral', though the independence is not absolute – there is a tendency, because of the way in which the workings of the relevant muscles interact, for nasal vowels to be relatively open rather than relatively close. We may call the range of alternative choices provided by any single parameter the *values* of that parameter: thus [e] differs from [ɛ] in having a different value of the aperture parameter, and [e] differs from [ẽ] in having a different value of the parameter of nasality (i.e. position of soft palate). The word 'feature' is used ambiguously by various writers to mean either 'parameter' or 'parameter-value' (and Bloomfield (1933, p. 79) even used it in a third sense when he defined a phoneme as a 'minimum unit of distinctive sound-feature', which suggests that for him a 'feature' was a bundle of simultaneous parameter-values); discussion will therefore be much clearer if we avoid using the word 'feature' in what follows.

One of the lessons of articulatory phonetics is that human vocal anatomy provides a very large range of different phonetic parameters – far more, probably, than any individual language uses distinctively. In English, for instance, the various alternative airstream mechanisms play no part whatsoever in the phonological system – all our sounds are made with air forced out of the lungs by the respiratory muscles; and the wide range of possible vocal-chord actions are only marginally exploited, for the simple voiced/voiceless distinction and for the use of pitch in stress and intonation, the latter being relatively peripheral matters in English phonology. Furthermore, parameters differ considerably in the number of alternative values they may take. Nasality, arguably, is a simple binary choice: the soft palate is

either raised or lowered, and thus a sound is either oral or nasal. The open/close and front/back parameters for tongue position, on the other hand, represent continuous ranges of values: the highest point of the tongue may be anywhere between the highest and lowest, furthest front and furthest back positions which are anatomically possible. The system of cardinal vowels divides up these continua in a discrete fashion: thus it provides for just four equidistant degrees of vowel aperture; but this is simply a convention invented for ease of description, and the cardinal parameter-value 'half close' is no more 'special' phonetically as compared to adjacent non-cardinal values than the line '54 degrees North' is special geographically as compared to the territory immediately to the north and south of it. The articulatory phonetician would be much more inclined to say that parameters which appear *prima facie* discrete are really continuous rather than *vice versa*. Thus, physiologically speaking, the soft palate can be lowered to a greater or lesser extent rather than being simply up or down; and, though the perceptual differences between sounds with different degrees of soft-palate lowering are very slight, there is claimed to be at least one language which distinguishes three values on the nasality parameter (Ladefoged 1971, pp. 34–5).

The Descriptivists emphasized that languages differ unpredictably in the particular phonetic parameters which they utilize distinctively, and in the number of values which they distinguish on parameters which are physically continuous. Many languages exploit the contrasts in airstream mechanisms and vocal-chord actions which English ignores, while making no use of contrasts which are important in English: the voiced/voiceless distinction, for example, which is central in the phonology of English and even more so in some other European languages, is non-distinctive in Chinese, while that language makes heavy use of pitch to distinguish words in a way quite alien to all European languages, including the few sometimes called 'tonal'. English distinguishes three degrees of aperture in pure vowels, as in *pit/pet/pat*; French has four distinctive aperture values, none of which are identical to any of the English values, as in *rit/ré/raie/rat*; Tswana is said to have six (Cole 1955). The Descriptivists' approach to phonology might be described metaphorically as 'democratic', in that they tended to see all phonetic parameters and all sounds as intrinsically equal

in their potential for use in a language. Descriptivists tended to be reluctant to admit that any sound which can be found in some language might nevertheless be regarded as a relatively 'difficult' sound in any absolute sense: if an Englishman thinks of the [a] of French *rat* as a more 'straightforward' vowel than the [y] of French *rue*, for instance, this is only because English, as it happens, has vowels which are similar (though admittedly not identical) to [a] but completely lacks front rounded vowels such as [y].

Jakobson, on the other hand, is a phonological Tory. For him, only a small group of phonetic parameters are intrinsically fit to play a linguistically distinctive role; despite surface appearances each of these parameters is of the rigidly two-valued type, and the system of parameters forms a fixed hierarchy of precedence.[7] Furthermore, the details of the invariant system are not determined by mundane considerations such as vocal-tract anatomy or the need for easily perceived distinctions, but by much 'deeper' principles having to do with innate features of the human mind. Differences between the phonologies of languages are for Jakobson superficial variations on a fixed underlying theme. Jakobson thus attacks Saussurean/Boasian relativism for phonology, as we have seen Berlin and Kay attacking it for semantics.

The ideas just outlined are classically expressed in Jakobson, Fant and Halle's *Preliminaries to Speech Analysis* (1952). This short book lists a set of twelve pairs of terms which label the alternative values of what are claimed to be the twelve 'distinctive features' of all human speech. Notice that the word 'distinctive' here is used in a sense quite different from Bloomfield's. For Bloomfield, voicing (say) was distinctive in English and non-distinctive in Mandarin, but the question 'Is voicing distinctive in *language in general*?' would have been wholly meaningless, since *any* phonetic parameter could be and probably was used distinctively in at least a few languages. For Jakobson and his collaborators, on the other hand, 'distinctive' means 'able to be used distinctively in a human language': only twelve features are distinctive in this sense, and since there are so few the expectation is that almost all languages will actually make use of almost all the twelve features (although it is allowed that some languages may ignore one or two of the features).

Of course, if the Jakobsonian 'distinctive features' were equated directly with ordinary articulatory parameters, Jakobson's theory would be obviously false since many more than twelve articulatory parameters are exploited by the languages of the world. But nothing so crude is intended. An important part of the theory is that certain physically quite distinct articulatory parameters are 'psychologically equivalent', as one might say.[8] Thus, for example, the Jakobsonian feature 'Flat' (as in music – the use of impressionistic rather than technical phonetic terms is deliberate) represents interchangeably each of the following articulatory parameter-values: lip-rounding (as in rounded vowels or labialized consonants); pharyngalization (i.e. the secondary consonantal articulation which involves retracting the body of the tongue towards the [ɑ] position); and retroflex articulation (i.e., [t̠] is 'Flat' where [t] is 'Plain' or non-Flat). In this fashion a wide range of articulatory parameters are reduced to a small set of 'distinctive features', and this reduction makes testable claims about what can and cannot happen in human languages. Thus the definition of 'Flat' implies that whereas some languages (e.g. Twi) distinguish labialized and plain stops, others (e.g. Arabic) distinguish pharyngalized and plain stops, and others again (e.g. many languages of India) distinguish retroflex from alveolar or dental stops, no language can contrast, for example, a labialized [tʷ] with a retroflex [t̠] – even though they are made quite differently, and one can certainly learn to hear the difference – because the physical difference between the two sounds is psychologically non-existent (*Preliminaries*, p. 31).[9]

The notion that the universal distinctive features are organized into an innate hierarchy of relative importance or priority appears in a book which Jakobson published in the period between leaving Czechoslovakia and arriving in America (Jakobson 1941). He makes the point, to begin with, that a study of children's acquisition of language shows that the various distinctions are by no means mastered in a random order. Thus, among consonants, the distinction between labial and alveolar stops appears before the distinction between alveolars and velars: all children go through a stage at which, for example, *cat* is pronounced as something like 'tat'. Stops are acquired before fricatives. Back rounded vowels such as [u o] are distinguished from front spread vowels ([i e]) sooner than

front rounded vowels (e.g. [y ø]) are distinguished from either: thus, in a language such as German which has vowels of all three kinds, [y ø] will be the last to appear in the child's speech. The opposition between [r] and [l] is normally one of the last contrasts learned among the consonants. And so on.

Jakobson then goes on to argue that this hierarchy of phonological features, which is established on the basis of data about children's acquisition of language, manifests itself also in comparative studies of adult languages and in the symptoms of aphasia. Thus, we find that the later distinctions acquired by the child are the distinctions which are absent in some adult languages: there are many languages which lack front rounded vowels [y ø] (e.g. English) or which have only a single liquid instead of a distinction between [r] and [l] (e.g. Japanese), but no languages fail to distinguish [p] from [t] (except for a few special cases of tribes which mutilate the lips for cosmetic purposes and are therefore *physically* incapable of producing labials). Furthermore, 'late' sounds are relatively uncommon sounds even in those languages which contain them: e.g. front rounded vowels are used less in French or German than vowels of the other two kinds. Thus there is after all good reason for the Englishman to regard French [a] as more straightforward than [y]; neither sound occurs in his own language, but the former is more basic in the universal hierarchy than the latter. (Jakobson adapts a term of Trubetzkoy's by calling [y] relatively 'marked' – meaning not that the opposition between [y] and [a] is 'privative' in Trubetzkoy's sense – it is not – but rather that [a] has a sort of universal psychological priority over [y].) In aphasics whose pronunciation decays gradually, the last distinctions acquired by the child are the first to go, and *vice versa*; and if, later, they regain their ability to pronounce, the order of reacquisition is the opposite of the order of loss, and is identical to the order in which children originally acquire the distinctions.

Jakobson uses observations of the latter categories as evidence against those who would suggest that his universals have relatively superficial physiological explanations. Thus, in his system the most basic contrast of all is between labial consonants [m b] and an open vowel such as [ɑ]. It is often suggested that the reason why labials are relatively early consonants is because they are made with an action similar to

the sucking reflex which allows newborn children to feed at the breast; but not even 'the most extreme Freudian' will claim that this explains why labials are more resistant than other consonants to loss by diachronic sound-changes from adult languages (1941, p. 67), or – as Jakobson might have added – why labials are the last consonants to disappear from aphasic speech.[10]

In order to substantiate his belief that the phonological universals he discusses are determined by 'deep' psychological principles rather than by relatively uninteresting facts about oral anatomy or the like, Jakobson devotes considerable space to discussion of synaesthetic effects: that is, cases where perceptions in one sensory mode (in this case, speech-sound) correlate with perceptions in another mode (Jakobson considers mainly associations of sounds with colours). If he can show that, for people who make such associations, particular distinctive features as he analyses them are consistently linked with particular visual qualities, then clearly he has good evidence both for the validity of his system of distinctive features and for the claim that the reality to which the system corresponds is something in the mind rather than in, for example, the musculature of the mouth. Jakobson dismisses with some scorn, as 'completely untenable', such alternative explanations for synaesthetic associations as that of a German psychologist, K. Langenbeck, who suggested that he 'saw' the vowel *a* as red because the first toy *Wagen* (lorry) he was given was a red one: if this were the reason, the universality of these sound/colour correspondences would be inexplicable (Jakobson 1941, p. 83).

The difficulty with this aspect of Jakobson's work is that his evidence is highly anecdotal – he bases his 'universals' of synaesthesia on a tiny handful of reports about individuals; and one anecdote is always very vulnerable to a counter-anecdote. Thus, one of the claims that is important for Jakobson is that synaesthetic subjects tend to perceive vowels as coloured but consonants as colourless – black, white or grey (cf. Jakobson 1941, ch. 3; *Preliminaries*, p. 32). However, the present writer has since childhood perceived the letters of the alphabet as having certain fixed colours; and almost the only phonetic principle I can detect in my own synaesthesia is that while three of the five vowel letters (E, I, O) are colourless, all but two of the twenty-one consonant letters are coloured (the exceptions

being the nasal letters M and N). The nature of Jakobson's evidence being what it is, this individual observation goes quite a long way towards refuting his claims about universals of sound-synaesthesia.

This anecdotal quality in Jakobson's argumentation applies not merely to his statements about synaesthesia but more generally to his claims about the distinctive features. Thus, there certainly have been sound-changes in some languages which resulted in the loss of labials; and Jakobson's statements about aphasia also seem to be based on very few cases. *Preliminaries to Speech Analysis* consists essentially of a series of *ex cathedra* pronouncements about the identity of Jakobson's twelve features, which may be correct or may be incorrect but which are backed up by reference only to scattered phenomena drawn, admittedly, from an impressively wide range of languages but each of which is described in isolation and, of necessity, at a fairly shallow level. In fact I see no reason whatsoever to believe in any universal set of binary phonological features, let alone in the particular set that Jakobson promulgates (cf. Sampson 1974a). Except for a ritual remark in the preface to *Preliminaries*, Jakobson's writings never, by their tone or by their content, encourage the reader to regard the statements contained in them as open to debate or testing, and this feature of Jakobson's work makes his failure all the more ignominious when counter-examples are in fact produced. To quote Martinet (in Parret 1974, p. 240):

> Take for example a panchronic law, presented by Jakobson, according to which a language cannot combine a distinctive place of accent [i.e. contrastive stress] and phonological length .... Yet the two features happen to coexist in Franco-Provençal dialects: *bére* is opposed to *beré* and *bó:la* to *bóla*. And there goes your panchronic law ....

For further counter-examples to Jakobson's claims, see McCawley (1967). In view of considerations such as these, it becomes difficult to view Jakobson's approach to phonology as constituting a genuinely empirical theory; Jakobson might have been allotted fewer pages in this book were it not for the influence he has exerted over his juniors in America (an issue to which we shall return in later chapters).

Let us finish this chapter by considering another aspect of Prague thought, which has led to one of the most interesting

and fruitful developments in the linguistics of the last decade or so.

One of the characteristics of the Prague approach to language was a readiness to acknowledge that a given language might include a range of alternative 'systems', 'registers', or 'styles', where American Descriptivists tended to insist on treating a language as a single unitary system. Consider, as a very crude example of the problem, the treatment of non-naturalized foreign loan-words. Many Englishmen, for instance, pronounce the word *restaurant* with a vowel, [ɔ̃], whose nasal quality is inherited from French (even if the timbre of the vowel differs in other respects from the French original). Nasal vowels are not usual in English; but this word is uttered by Englishmen, so a Descriptivist would find it difficult to justify the omission of / ɔ̃ / from a phonemic analysis of English. Yet once we admit / ɔ̃ /, where do we stop? I commonly refer to the Confucian concept of the *chün-tzŭ* or 'princely man' using the Mandarin pronunciation, since I know of no standard Anglicization of the term; almost all the sounds of *chün-tzŭ* are quite un-English – does my use of the term imply that they must be added to the inventory of English phonemes? A related problem arises when we compare the sounds of rapid speech with those heard in careful delivery of the same language. Many Englishmen, for instance, have a flap [ɾ] in very fast speech which does not occur in slow speech, and which represents both the phonemes / t / and / d / in intervocalic position: [pʻæɪɪ] is ambiguous as between *patty* and *paddy*. For the Descriptivist the choice seems to lie between treating [ɾ] as an allophone of one or the other of the phonemes / t / and / d / or setting it up as a further phoneme, but each of these three choices misses the point that [ɾ] is characteristic of a special style of speech. A Prague linguist would be ready, indeed eager, to say that English has a system of native phonemes which excludes / ɔ̃ / even though that sound may occur in a subsidiary stock of borrowed words, and that if the phonology of rapid English differs in various respects from that of English spoken slowly then their respective grammars should be kept distinct rather than merged together. The Descriptivists' reluctance to make such statements may have been because they often seemed methodologically unrespectable: if we agree that it is appropriate to exclude / ɔ̃ / from the phoneme-inventory of

English that is largely because we feel the sound to be foreign even though we may use it regularly, and it is not obvious what observable facts such feelings can be correlated with. We have seen that questions of scientific methodology did not concern the Prague linguists.

Because of their functional approach, it was natural that the Prague scholars were particularly interested in the way that a language provides a speaker with a range of speech-styles appropriate to different social settings. (As has already been mentioned, such differentiation of usage in terms of degree of formality or social milieu is particularly salient in Czech.) This aspect of their work has recently been developed into a rich and sophisticated theory by the American William Labov, formerly of Columbia University and since the early 1970s at the University of Pennsylvania.

Labov's work (see, for example, Labov 1966) is based on recorded interviews with sizable samples of speakers of various categories in some speech-community, the interviews being designed to elicit examples of some linguistic form – a *variable* – which is known to be realized in a variety of ways in that community. (Unlike the members of the Prague School proper, Labov is very much concerned with methodological issues, and indeed he is the outstanding exponent, both in theoretical writing and in practice, of empirical scientific method in contemporary American linguistics.) A typical variable is presence v. absence of postvocalic *r* in New York City: as in some towns in England, one can hear in New York pronunciations of, say, *farm* varying between [fɑ:m] and [fɑɽm] or the like (although the social implications of the respective pronunciations are very different in New York City from what they would be anywhere in England). In such a situation, a Bloomfieldian would acknowledge that various individual speakers may speak different 'idiolects', and would recognize the possibility of an idiolect in which pronunciations such as [fɑ:m] and [fɑɽm] were in 'free variation', as well as idiolects which consistently used one or the other form. But (apart from the fact that the difference between '*r*-less' and '*r*-ful' pronunciations of a word like *farm* is phonetically a gradient rather than a sharp two-way distinction, a complication we shall ignore here) in practice it turns out that almost everyone uses both *r*-less and *r*-ful pronunciations; and the term 'free variation'

is quite misleading, because there is great regularity (although the speakers themselves are unconscious of the pattern) in the proportions of *r*-less and *r*-ful pronunciations uttered in various circumstances, but the regularities are statistical rather than absolute. Age and social standing of the speaker, degree of formality of the interview, and other factors all interact to determine in a highly systematic and predictable fashion the proportion of possible post-vocalic *r*s which are actually pronounced in any given utterance. (Cf. Trudgill 1974 for application of Labov's research techniques in an English context.)

What is particularly germane to issues discussed earlier in this book is the fact that while some determining factors, such as speaker's educational attainments, will be constant for a given speaker throughout his adult life, others, such as degree of formality of the speech-situation (which Labov controls in relatively objective ways), will vary for a given speaker from one occasion to another; and even in the case of factors which are constant for each individual speaker, it can be shown that hearers are acutely sensitive to the correlations between linguistic and social variables (although they cannot consciously identify the relevant linguistic variables). That is – to cite a hypothetical case resembling in principle some of the experiments conducted by Labov and his associates – if a young white linguist makes a tape-recording which deliberately includes the proportion of post-vocalic *r*s appropriate to an elderly uneducated New York negro, then another New Yorker hearing the tape will make the value-judgements about the recorded speech that he would normally make about elderly uneducated negroes, although he will have no idea that what he is reacting to is the pronunciation of the letter *r*. This implies that it is wrong to think of an individual as mastering a single idiolect, and understanding others' speech only insofar as it resembles his own. Rather, it seems that each speaker learns a structured range of alternative speech-patterns, together with the correlations between variation in his social environment and variation in that dialectal continuum. There is nothing particularly surprising in the finding that speakers are familar with a variety of speech-styles, of course, but many of us had supposed that such knowledge was patchy and largely inaccurate – as speakers' *conscious beliefs* about such facts certainly are.

What is staggering about Labov's work is the subtlety, consistency and mathematical regularity it reveals in speakers' use of statistical linguistic variables and hearers' reactions to them.

Furthermore, when we examine the age factor it emerges that historical change is fuelled by social variation (cf. Weinreich *et al.* 1968). Often, what a given speaker perceives as a difference between more and less socially prestigious styles of speech will coincide historically with a difference between newer and older usage, as speakers in each generation unconsciously modify their speech slightly in order to raise their social prestige. Thus, in New York City, *r*-ful forms are used more by middle-class than by working-class speakers, more in formal than in informal situations, *and* more by younger speakers than by older speakers.

There is an irony here. Saussure stressed the social nature of language, and he insisted that linguistics as a social science must ignore historical data because, for the speaker, the history of his language does not exist – a point that seemed undeniable. The Prague School and, now, Labov, are among the linguists who have taken the social dimension of language most seriously; and they have ended by destroying Saussure's sharp separation between synchronic and diachronic study. For the individual, it turns out, a sizeable portion of the history of his language *is* psychologically real; only he perceives it not as history but as social stratification. To be a native speaker of a language is to have learned not just a momentary *état de langue* but a direction of movement – this is perhaps the explanation for long-term linguistic 'drift' in Sapir's sense (see page 82). It seems likely that the tradition which Labov is pioneering is destined to become one of the most fruitful avenues of future linguistic research. If so, we may expect the techniques of synchronic and diachronic linguistic description to resemble each other much more in future than they have done in the past.