

18 Constructing and supporting a linguistic analysis

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1 Introduction

In this chapter, we discuss the notion and practice of “making an argument” in generative linguistics, taking examples from phonology, morphology, and syntax. Argumentation is central in linguistics, yet there are few explicit and thorough accounts of what it is to make an argument (though see Soames and Perlmutter 1979; Aarts 2001; Green and Morgan 2001; Kertész and Rákosi 2012 for argumentation in syntax). Our goal here is not to present a general philosophical discussion of argumentation, but rather to present the concept as it is typically practiced in linguistics. Through this, we will provide an overview of how to construct a linguistic analysis and support it. The chapter is structured as follows: we first outline how an argument is typically formulated, in abstract terms, based on the notion of supporting a hypothesis more generally. We then discuss various case studies of arguing for hypotheses of different degrees of abstraction, ranging from empirical arguments to theoretical arguments. We conclude with some discussion of writing style in argumentation.

2 Making an argument in linguistics

Making an argument is a creative exercise, to develop and motivate a hypothesis which provides some insight into some set of facts. There are a few linguists whose work has come to be associated with a strong emphasis on argumentation. David Perlmutter is one, and he writes in the introduction to Perlmutter 2010 (xx):

I have tried to emphasize four things in my work in linguistics: explicit arguments for one hypothesis over others, extending the range of languages and phenomena for which linguistic theory is to be held accountable, making explicit the ways languages differ and the ways they are alike, and explanation in linguistics. All four were already present in my 1968 doctoral dissertation (Perlmutter 1971), especially in the chapter arguing for surface structure constraints on the order of clitic pronouns in Spanish and French (Perlmutter 1970b) [Perlmutter 1970].

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In writing that chapter, I was teaching myself how to do linguistics. I was learning how to construct alternative hypotheses and test their predictions against additional data. I discovered that the question of how such a surface structure constraint is to be formulated covered a range of issues, each statable as a separate hypothesis on which evidence could be brought to bear.

In this classic kind of argument discussed by Perlmutter, we are comparing two alternative hypotheses on empirical grounds. One – call it *H* – makes predictions which are supported by the data, and the other – call it *H'* – makes predictions which are not. From this, we conclude that *H'* is disconfirmed and in relative terms *H* is superior. It is not enough simply to show that *H* is compatible with the data; it must also be shown that an alternative *H'* is not. Thus at its heart an empirical linguistic argument in this style involves the four components listed below, where *H* and *H'* lead to different predictions relative to some data (see Larson 2010: 169ff.):

- a. A specific, clear statement of *H* that is to be argued for
- b. A description of the set of data that *H* is meant to account for
- c. A clear explanation of how *H* accounts for the patterns described in the data
- d. A comparison of *H* to some clearly articulated *H'*, which shows *H* superior to *H'*.

H can be as simple as a surface-level generalization of basic linguistic categorization (e.g., some sequence is a constituent) or a more complex theoretical hypothesis (e.g., segments showing a voiced/voiceless alternation are underlyingly voiceless). The data description must be such that it outlines exactly the patterns within the data to be explained, while not deviating into unnecessary aspects of the data, so that a reader knows exactly what to pay attention to and what the scope of *H* is. Components (c) and (d) involve demonstrating clearly how *H* accounts for the data and, crucially, that the alternative *H'* does not. Indeed, the choice of *H* or *H'* may not be independent of one another – *H* may be developed specifically to respond to a prediction of some known *H'* or vice versa, or they may be developed in tandem to explore some specific difference in predictions. In the rest of this section, we dissect these components of an argument. This schema as such is not unique to linguistics – it is applicable to any empirical argument – but as we proceed we will focus on aspects of such arguments which are specific to linguistics, or at least commonly used in the field.

2.1 Using data as the basis of an argument and deriving predictions

In making an argument it is necessary first to establish what the pattern of fact is, and for that we must define what constitutes data. A piece of data in (generative) linguistics is a string – anything from a sound or sound sequence up to an entire discourse – whose validity in the language is shown either through (a) its existence in a corpus (by which it is assumed therefore to be acceptable to native

speakers) or (b) an associated judgment provided by a native speaker regarding its acceptability or interpretation (or possibly other judgments, such as whether it is zeugmatic, stylistically appropriate, etc.). For example, it is linguistic data that English syllable structure allows the two-consonant sequences of voiceless stop plus liquid in (1a), where all are well formed except */tʃ/, and that, of those, only a subset may appear in three-consonant sequences, as shown in (1b).

- (1) a. pr, tr, kr, pl, *tʃ, kʃ
b. spr, str, skr, spl, *stʃ, *skʃ

Syntax data might include sentences showing some word order pattern of a language. For example, (2) shows that an auxiliary verb such as *has* can occur either after the subject, as in (2a), or sentence-initially, as in (2b).

- (2) a. David has seen every movie about penguins.
b. Has David seen every movie about penguins?

Crucial to much work in linguistics in the generative era is the fundamental insight in Chomsky's work that not just strings themselves but associated native speaker intuitions constitute data, and most particularly that *unacceptable* strings – those which native speakers regard as not conforming to their expectations about natural language use – also count as valid data. For instance, (2c) shows us something more about the distribution of auxiliaries, namely that they may not appear immediately after the main verb.

- (2) c. *David seen has every movie about penguins.

Acceptable data tell us what is possible in a language; unacceptable data tell us what is not (see Chapter 3 for a discussion of judgment data). A good hypothesis should have the potential to explain both kinds of facts.

The next component of the argument is the main hypothesis H, which should not only apply to the data, but also offer potential insight into the patterns in the data. In particular, the goal of H is to explain the judgment patterns for the data in terms of other features, typically by making appeal to its surface properties (e.g., which kinds of segments can be adjacent, where certain words can appear within phrases), as well as more abstract entities (e.g., phonemes, morphemes, constituents, null markers such as the plural of *sheep*) or principles (e.g., subject-verb agreement) that are hypothesized to reflect aspects of the language faculty even if not apparent on the surface. H itself can be at any level of abstraction – a relatively surface-level hypothesis about the distribution of basic linguistic elements, or a highly abstract hypothesis regarding a complex interaction of subtle principles.

But one key aspect of any good hypothesis is that H should be stated in some way that makes crystal clear why the patterns in the data should be the way they are, due to expectations H generates about possible and impossible data. These expectations should follow from the way H is stated, either because H is embedded within some given framework or references some more basic linguistic concepts that make those expectations clear. Even if independent of any

framework, H should be stated in a way that makes some expectations clear. Those expectations constitute the predictions H makes, and unless they are clear, it will be impossible to determine (a) whether it actually says anything about the data at all and (b) whether H is superior to any alternative hypothesis. Furthermore, only if hypotheses make different predictions can they be compared empirically (see the second part of the quote from Perlmutter above). As Carlson (2003) notes, what linguists mean by the term "prediction" is precisely the test against additional data, with the hypothesis in mind; the data may in fact already be established and well known, but the key point is that the coverage of the hypothesis scales up from an initial set of facts to a wider set of facts.

Deriving a hypothesis and stating it clearly is something of an art, as we will try to illustrate with an example. Consider again (2a–b), and let us suppose that we have some antecedent definition or classification of the English auxiliary verbs. First, we observe that the auxiliary is not in initial position in (2a), and is in (2b) – that is, it has some property in (2b) which it lacks in (2a) (which instead has a different positional property of the auxiliary).¹ We can see further that this positional distinction corresponds to a semantic distinction: (2b) is a matrix polar interrogative clause (a "yes/no question"), while (2a) is a matrix declarative clause. Finally, importantly, there is not any other obviously differing property between the two examples (i.e., they are a minimal pair differing just in the feature under consideration). There are of course other interesting things about these data – the interpretation of the quantifier *every* or the irregular inflection on *see* – but for our purposes we have identified a correlation in need of explanation, and as long as these other observations are identical in both tokens of data, they are not germane to the central point.

Hypothesis 1: If an English main clause is a polar interrogative, then the first word in that clause is an auxiliary verb.

This hypothesis is established in such a way as to be testable. First, it immediately – and correctly – predicts that (2b), which is an interrogative, has an initial auxiliary. The hypothesis embodies a generalization about a potentially large set of data, but it has been created based on a very small sample of data so far. To further validate hypothesis 1 we must look for more examples, specifically more interrogative clauses. We need to see how they are formed, paying particular attention to the first word (doing so will confirm or disconfirm the generalization which underlies the hypothesis). Conversely, we might consider various other auxiliaries, and look for examples where they are in initial position:

- (3)
- a. Will David speak to Kim?
 - b. Can David sing "Goodnight Sweetheart Goodnight?"
 - c. Did David forget his mother's birthday?

¹ This observation and the subsequent argument rest on the ancillary assumption that the category of auxiliary verb is independently identifiable, something that would ultimately need to be argued for.

These data are again interrogatives, and since they have initial auxiliaries, the hypothesis is again confirmed. Crucially, though, the prediction of (3) is *not* that all examples with initial auxiliaries are polar interrogatives, but rather that all polar interrogatives have initial auxiliaries. Thus some examples with initial auxiliaries may not be polar interrogatives. Further data shows this to be so (e.g., curses like *May all your hair fall out at an inopportune moment!*). It is thus important to consider carefully what *exact* predictions any given hypothesis makes – in this case, these additional factors follow from the shape of the hypothesis as a one-way implication (*if ... then ...*), a formulation that helps sharpen what predictions are made. Still further, from the way that hypothesis 1 is stated, we can also consider its contrapositive: if the first word in a clause is *not* an auxiliary verb, then the clause should *not* be a polar interrogative. This certainly holds for (2a), and we can look for other examples in which this obtains:

- (4)
- a. David will speak to Kim.
 - b. David can sing "Goodnight Sweetheart Goodnight."
 - c. David did forget his mother's birthday.

Here the interpretation is that these sentences are not interrogatives, again consistent with hypothesis 1.

So far, hypothesis 1 is stated in such a way as to make its empirical predictions clear, in particular because it is linked to surface-level properties of the data (illocutionary force, auxiliary position) relatively directly, in ways that make clear *exactly* what data to look for and why. An alternative would be to embed the hypothesis in a theoretical framework that would derive the same predictions. For example, in one version of Minimalist syntax terminology (Adger 2003), an auxiliary in the node T(Tense) will move to the position C (Complementizer) in polar interrogatives triggered by a featural interaction between the C position and the auxiliary verb in T, involving the interrogative feature Q (for "question"). In such a framework, hypothesis 1 could be stated as follows:

Hypothesis 2: English polar interrogative C has a Q feature which checks an uninterpretable, unvalued clause type feature [*uclause-type:*] on T.

In the absence of any context for what these notions mean, this hypothesis is not well formulated. But if the relevant framework is assumed – and its predictions are known or made clear – hypothesis 2 should amount to saying the same thing as hypothesis 1.

Nonetheless, a commonly made misstep at this point is simply to assert the correctness of hypothesis 1. Yet one part of the reasoning has not been completed: all we have shown so far is that hypothesis 1 is compatible with the given data. We have not yet *argued for* hypothesis 1, since it has not been compared to any alternative and shown to be superior. We turn to this next.

2.2 Completing the argument

Comparing the proposed hypothesis H to alternative hypotheses is crucial to a complete argument. It is not sufficient simply to show that H *can* serve as an analysis of some set of data; other hypotheses may be just as good as H. Rather, the goal is to show that H is a *preferable* analysis, which can only be done in comparison to other hypotheses. Regarding the development of alternative hypothesis H', suppose H itself is an initial hypothesis in the absence of any previous one. In this case H' might well be the null hypothesis (sometimes thus labeled H₀; see Chapter 15) – most generally that no particular hypothesis at all, or some default hypothesis, is to be entertained. In the teaching of many basic aspects of linguistic analysis, this style of argumentation is used. For instance, H might be the hypothesis that segments are organized into syllables or that words are organized into constituents. H' will be the hypothesis that these units of analysis do not exist.

Consider again the polar interrogative analysis above. Although hypothesis 1 certainly accounts for the data, to complete the argument we should at least make clear that had we assumed no hypothesis regarding the relationship of polar interrogatives to auxiliary position – the null hypothesis – the prediction would be that there is no correlation of auxiliary position and interpretation, with both interrogatives and declaratives found among sentences both with and without initial auxiliaries, contrary to fact.² Given that the null hypothesis fails, we now have an *argument* for the potential correctness of hypothesis 1.

In more advanced argumentation, we might adopt a more specific H' to compare H to. In this case, H' should be articulated at least to the same degree as H, but be formulated so as to make different predictions. We will then demonstrate that H covers the initial data while H' does not, or that they cover the same initial data, but there is additional data that H covers but not H'. In this case, H' is often determined by the context in which the argument is being made: H' might be a known prior analysis of the same initial facts, a hypothesis about related facts in another language, or just some novel alternative that seems “obvious” on the basis of the initial data, even if ultimately wrong.

For example, in some languages (such as modern Romance languages), a polar interrogative can be formed by placing not just an auxiliary but *any* inflected verb initially. Interestingly, on the basis of the above data, this hypothesis would work just as well for English:

Hypothesis 3: If an English main clause is a polar interrogative, then the first word in that clause is a verb.

In other words, we have not yet probed the role of the word “auxiliary” in hypothesis 1, as we have not yet considered examples with non-auxiliary verbs

² If this is not clear, consider the distribution of main verbs, which shows no correlation with the interpretation of the clause. Thus for any given position of the main verb (second, third, last), there is no expectation that the clause would be declarative or interrogative.

in them. So, if hypothesis 1 is correct and 3 is not, it will be the case that examples parallel to those in (3), but with a non-auxiliary verb in the initial position, will not be polar interrogatives. This is a testable prediction, for which we need examples such as those in (5).

- (5)
- a. *Spoke David to Kim.
 - b. *Sings David "Goodnight Sweetheart Goodnight".
 - c. *Forgot David his mother's birthday.

Such examples are not only not polar interrogatives, they are not possible sentences at all, disconfirming hypothesis 3 and supporting hypothesis 1.

We should add here a cautionary note. It is simple enough to disprove H' on the basis of incorrect predictions it makes, and to show that H makes correct predictions. It is quite another matter to have "proved" that H is the right hypothesis. There may be other data out there somewhere that will invalidate H , or perhaps there will be a still better formulation of H which relates an additional set of data to the old data that had never previously been considered together. Thus the best that one can reasonably do in an argument – and thus the importance of comparison – is to show that H is the best hypothesis under consideration.

Furthermore, regarding data, it is often the case that the data may be naturally split into two (or more) subsets, for various reasons, although this is not strictly necessary. The first set may be considered the data under discussion – that is, the particular phenomenon that is specifically to be analyzed and for which H is primarily responsible for explaining. A second set of data that falls outside of this particular domain may be introduced as being relevant for "additional predictions" that H makes, thus providing further support for H – that is, the new data suggest that H is independently motivated, and is thus "on the right track." The way in which the data are split may depend on the specific hypotheses being compared, but some general heuristics are listed below:

- a. The initial dataset forms some unified domain – a class of words, a class of constructions, a set of examples illustrating an alternation of two or more forms, etc. The additional predictions constitute a different domain.
- b. The initial data reflect predictions that are more straightforward, superficial, or stronger, while the additional predictions are more subtle, weaker, or require more work to demonstrate, or perhaps are just inherently more complicated in some way.
- c. The initial data are known or largely known through prior literature, or show strong plausible similarities to known data, while the additional predictions are new facts which specifically support H (and not H').

For example, the data in (1) above partition naturally, simply because of the forms in question. And in comparing hypotheses 1 and 3 for English polar interrogative formation, the "additional predictions" in (5) conformed to (c) above, in that they were chosen on the basis of the formulation of H' so as to demonstrate that H' was

not supported but H was. There are no hard-and-fast rules for how one presents the core data and how one decides what to call "additional" predictions, and it is always possible, of course, simply to lump all of the data together. However, it will often be that a division such as this can provide for a more streamlined overall argument, and even add a certain rhetorical flourish if the additional predictions are particularly impressive, subtle, or dramatic.

Finally, although we have focused on empirical arguments here, there are other, more conceptual arguments that can be made for hypothesis H over H'. It may be that both are empirically identical, but H is more intuitive, simpler, or more elegant, or involves fewer abstractions, or is otherwise preferred on conceptual grounds. Such arguments are also prized in some areas of linguistics, especially in the context of theoretical a priori (see Sections 3.2. and 4.3). Yet the ultimate core of any linguistic hypothesis is its empirical coverage, and with the basic schema for an argument outlined here as background, we now consider several types of arguments that are in this mold. The main differences in our examples are, in each case, how abstract the hypothesis is, and thus what kinds of predictions are determined by the hypotheses and what sorts of data and alternatives are to be considered, although we will also discuss some more conceptual, non-empirical arguments as well.

3

Different types of simple hypotheses and their arguments

There are different kinds of hypotheses and associated arguments that linguists make. Some of the simplest – often needed to build more complex arguments – are those that establish the descriptive base of linguistics – that is, the "facts" of language. These arguments often involve basic linguistic categorization – that is, supporting the hypothesis that some string(s) belong to some category known to exhibit certain properties. The categories may be given by theoretical assumption, or may be more traditional categories like "phoneme" or "direct object." Such arguments typically rely on two major types of empirical evidence: contrast and distribution, though such arguments – and indeed almost all arguments – will likely also involve ancillary assumptions to frame the key issues, as with the arguments given above involving English auxiliary verbs. As arguments for basic categorization are among the simplest, we start with them, before turning to arguments based on naturalness and simplicity.

3.1 Argument based in contrast and distribution

Perhaps the most basic notion in linguistics is that of contrast, due to de Saussure (1959) (originally published in French in 1916), the principle by which we can discover the fundamental properties of linguistic systems, of linguistic structures, or of any other kind of linguistic expression. In many

cases, the excitement and interest in linguistic study stems from the fact that it is not immediately clear which elements contrast, or how, and therefore this must be discovered. Stated in the most general terms, the way we make linguistic discoveries is quite abstract, but it is important to try to encapsulate what it is to reason with linguistic data. In order to make an argument that some string has a property P, we must be able to conceive of another string just like it but without P, or with a different property Q. Then, within the context of some analytic assumptions or a more specific theoretical system, we must hypothesize what kind of system could provide our expression with P, and a variation within the same system where it lacks P or has Q instead. All of our basic data above are interesting precisely because of such contrasts – for example, the segmental data in (1) are of linguistic interest because even within (1a), some logical combinations contrast in acceptability with others, and then compared to (1b), there is yet a different contrast.

3.1.1 Basic categorization

Basic linguistic categorization and the utility of contrast and distribution can be illustrated in terms of the English phonemic inventory, where two phones represent separate phonemes if and only if they contrast meaningfully in a language. The hypothesis that two phones are separate phonemes can be argued for by direct appeal to the definition of a phoneme, which provides an empirical “test”: we must find a single context where the only differing factor is those phones (i.e., a minimal pair) and then evaluate whether a meaning contrast arises. If no such minimal pairs exist, the phones cannot be shown to contrast phonemically by this method, and are most likely allophones or variants of the same phoneme (i.e., different surface expressions of a single element in the sound system of the language; though see Section 3.1.2.).

For instance, an argument that /s/ and /z/ contrast phonemically can be based on one pair, as in (6).

- (6) a. sip
 b. zip

These data form a minimal pair, differing in one segment, and in fact differ in only one feature, [–voice] for *sip* and [+voice] for *zip* in their initial segments. This featural difference in turn corresponds to a semantic difference (a small drink vs a fast movement) – that is, it is a “difference which makes a difference” (Bateson 1972). On the basis of this simple argument, we can conclude that /s/ and /z/ contrast phonemically. The null hypothesis, that they do not, would be unable to explain the contrast in meaning.

On the same definition of a phoneme, the argument that two phones are allophones can be accomplished by one of two procedures. The first is to show that the two phones never form a minimal pair (that they are in complementary distribution, never appearing in the same environments, a distributional fact). The second is to show that if there is a minimal pair, they are not contrastive in

meaning. Either argument would suffice, though making both would of course make the conclusion even more convincing. With some creativity, we can apply both tests to a pair of English sounds which are not separate phonemes. As it happens, neither is entirely straightforward, albeit in illustrative ways.

Consider the hypothesis that English [p^h] and [p] are allophones, for which they are good candidates since they differ in just one feature. By the first test we need a range of data that show that the two phones never occur in the same contexts. Such data might consist of examples such as (7).

(7)	[p ^h]	[p]
	pit	spit
	pun	spun
	pill	spill

From such data one can make a separate argument that to a first approximation, [p^h] only occurs when initial in a (stressed) syllable and [p] elsewhere. Thus the two phones are in complementary distribution and therefore no minimal pair contrasting in only these phones can be found.³ One can then argue that the two phones therefore do not contrast phonemically. This argument crucially involved two steps: first arguing for complementarity based on distribution, and then for allophony based on (the lack of) contrast. It is not uncommon that arguments must be “chained” in this way.

Complementarity would appear to render moot the second procedure (finding a non-contrastive minimal pair), thus suggesting that it is the “easier” argument. However, this is not necessarily the case, since the argument could be made based on constructed examples. Starting with the usual pronunciation of *pit* as [p^hɪt] and *spit* as [spɪt], we could create variants [pɪt] and [sp^hɪt], with the two phones reversed. These would not be perceived of as semantically distinct from the typical pronunciations, even if somewhat odd to native speakers. Thus minimal pairs can be found, albeit in constructed examples, and there is no semantic contrast, supporting the hypothesis that the two phones are allophones. This argument requires the creative step of hypothesizing what would show the contrast, and then manipulating known data to test for it, another common procedure in linguistic argumentation (see Section 4.). Regardless of the argument(s) put forward, there is support for the hypothesis. The alternative hypothesis, that [p] and [p^h] are *not* allophones, would incorrectly predict that these constructed contrasts should be meaningful, or that minimal pairs will be found naturally.

3.1.2 Making an informed argument

One aspect of making a linguistic argument that should be highlighted is that only “reasonable” hypotheses should be entertained or introduced. For example, in English, [h] and [ŋ] are in complementary distribution: [h] only

³ See Davis and Cho (2003) for a precise discussion of where aspirated and non-aspirated voiceless stops appear in English.

appears as a syllable onset as in [hæt], and [ŋ] only appears as a syllable coda as in [sæŋ]. By the complementary distribution test outlined above, we appear to have support for a hypothesis that [h] and [ŋ] are allophones. However, while the application of the complementary distribution test is technically correct, the hypothesis itself violates the intuition underlying the concept of a phoneme, wherein non-contrasting forms are considered variants of the *same* sound. In this case [h] and [ŋ] do not share even one articulatory feature in common, unlike [s] and [z], which share all but one. Further, one cannot form a constructed contrast as with *spit* and *pit*: [ŋæt] and [sæh] are barely pronounceable in English, and would never be judged to have the same meanings as [hæt] and [sæŋ]. This again suggests the unreasonableness of the hypothesis.

3.1.3 Dealing with conflicting evidence

There is an important and instructive wrinkle to the argument that English /s/ and /z/ contrast phonemically: the contrast is sometimes neutralized. For instance, the notional plural -s for nouns has three surface forms, but these are entirely conditioned by the preceding context:

- (8)
- a. boot ~ boots [buts] (*[butz])
 - b. hood ~ hoods [hʊdz] (*[huds])
 - c. bus ~ buses [basəz] (*[basəs])

The three allomorphic variants are [s] if the preceding segment is voiceless, [z] if it is voiced, and [əz] if it is a sibilant (an alveolar or palatal fricative, regardless of voicing). Taken at face value, the fact that there is no semantic contrast between (8a) and (8b) in terms of the contribution of the plural morpheme might appear to undermine the argument that /s/ and /z/ contrast phonemically. However, the hypothesis can still be maintained with the caveat that the distinction is neutralized when preceded by an obstruent in the same syllable (due to voicing assimilation, see Section 3.2; note that in our *sip/zip* data the segments were word-initial). This shows that confounding data such as that in (8) may cause one to revise (or ultimately reject) a hypothesis supported by other data, as in (6). Thus while it is strictly true that the original hypothesis that /s/ and /z/ always contrast is "wrong," its essence can be maintained in a revised, more nuanced hypothesis.

More generally, let us think more about ways to deal with conflicting kinds of evidence when constructing an argument. In this and the preceding subsection we see that the apparent conflict can be resolved – that is, factored into different domains which do not directly impinge on each other – through some linguistic sensitivity. For [h] and [ŋ], distributional facts suggest one analysis, yet all phonetic properties suggest another. Here we would take the phonetic evidence to support the hypothesis that /h/ and /ŋ/ are different phonemes, as they cannot plausibly be related in a grammatical description, and seek other ways to account for their non-overlapping distribution. With regard to /s/ and /z/, we can make a different point. If we found any number of minimal pairs in which the two sounds contrast, as in (6), we would have to conclude that these two segments are separate phonemes. There

would be no other way to account for the data. Given this, if we were then to find other data in which these two segments do *not* contrast, it *must* be the case that there is some other confounding factor that we have to take into account for a complete hypothesis. In this case, we would identify the preceding phonological context as the environment in which the phonemic contrast is neutralized. The analytic challenge lies in identifying the more general ("elsewhere," default, underspecified) set of properties or behaviors as against a more specialized or conditioned set.

3.1.4 Summary

What we have illustrated here and above are five points relating to contrast and distribution. First, in basic categorization the definitions will often give clues to what tests are needed to argue for the hypothesis that some expression has the given category. Second, sometimes making the argument will require side arguments leading up to it, or involve seeking out novel confirming data. Third, the hypothesis must be intuitively plausible. Fourth, the hypothesis may require sub-cases or caveats; these revisions do not necessarily invalidate the insight conveyed by the hypothesis so much as refine it. Fifth, the argument must be supported by at least one line of argumentation, but ideally more than one if they are available. That said, not every conceivable line of argumentation will be possible, and some tests may fail for independent (yet to be discovered) reasons. Especially in basic categorization, the evidence of an expression belonging to some linguistic category might be thought of as like showing the symptoms of a disease. A patient who goes to a doctor for a diagnosis might display one symptom of a particular disease, but the doctor would ideally want to see multiple symptoms before saying with confidence that the disease has been identified. However, the doctor would not necessarily expect the patient to manifest all possible symptoms – a confluence of at least some evidence is usually sufficient.

3.2 Argument based in parsimony and naturalness

The data in (8) raise yet another interesting issue regarding argumentation. In generative phonology, we consider the plural suffix to have a single phonemic form with three surface realizations. What is the 'underlying' form? Following English spelling, we might take it to be /s/. But we know that spelling is notoriously unreliable, especially in English. Looking at the surface forms in (8), we might alternatively hypothesize that the phonemic form is /z/. How can we compare these two hypotheses? Consider the rule systems that are needed in each case to generate the correct surface forms:

- Hypothesis 4: The underlying form is /s/, but realize it in the following way:
- i. after a sibilant, epenthesize ə and undergo voicing assimilation, else
 - ii. after a voiced segment, undergo voicing assimilation, else
 - iii. after a voiceless segment, no change.

- Hypothesis 5: The underlying form is /z/, but realize it in the following way:
- i. after a sibilant, epenthesize ə, else
 - ii. after a voiceless segment, undergo voicing assimilation, else
 - iii. after a voiced segment, no change.

Either hypothesis can generate all the forms in (8), so it is unlikely that direct empirical evidence will decide between them. However, one can argue for the underlying /z/ hypothesis by looking more closely at the assumptions made. The phonological systems for each hypothesis are nearly the same: the same contexts are relevant and voicing assimilation occurs in each case (albeit in different contexts). However, the sibilant condition differs: underlying /s/ requires two operations (epenthesis followed by assimilation), while underlying /z/ requires just one (epenthesis). Occam's razor dictates that the underlying /z/ hypothesis is preferred, thus constituting an argument for hypothesis 5 over hypothesis 4.

There are other external considerations which might favor one hypothesis over another. For example, a [t]/[θ] alternation in some language may have analyses involving underlying /t/ or underlying /θ/, with both analyses being equally complex. However, the underlying /t/ analysis might be preferred on naturalness grounds, as the segment [t] is found in almost all languages, while [θ] is quite rare, so /t/ would constitute a more "normal" choice for the basis of the analysis (and therefore [θ] would only appear in special environments, as defined by a phonological rule). Although these are not empirical arguments per se (based on the body of data to be analyzed), they illustrate how consideration of elegance, simplicity, and naturalness can constitute an argument for one hypothesis H over its alternatives, when there is more than one empirically equivalent option.

4 More advanced arguments

Above we illustrated arguments of basic linguistic categorization made in terms of contrast and distribution, and also one more abstract argument about an underlying element. We can make arguments for still more abstract types of hypotheses, such as those supporting higher-order statements about basic primitives, those based on hypothesized principles and their interactions, or those that make crucial reference to differing sets of theoretical assumptions. The latter two types of arguments involve embedding the hypothesis within a larger framework of additional assumptions, a more complex procedure that often requires more subtle data or more careful thinking. For example, showing that sentences contain phrases and constituents does not necessarily distinguish between context-free phrase structure rules and X'-theory, both of which capture that fact. Rather, the choice of theoretical framework may make additional predictions that must be carefully deduced and tested for. In fact, the first step in constructing certain more complex arguments is often not showing that something is the case, but rather showing how one would show that something is the case – devising types of hypothetical data

(e.g., "If we wanted to show that Japanese has subject-verb agreement, we would have to . . .") – and only then, as a second step, actually doing it, if even possible.⁴ Still further, some generalizations may be difficult or even impossible to state unless one adopts a particular set of theoretical assumptions. We turn to specific examples of these sorts of more complex arguments next.

4.1 Argument based in abstract properties

We consider first an extended example that looks at generalizations that go beyond surface-level properties (albeit still rooted in basic linguistic categorization), and show how one can derive predictions from such hypotheses which are formulated so as to guide us into looking for appropriate data to argue for them, as well as reformulate them for accuracy as new data arises.

Another key innovation introduced by Chomsky (1957) was his demonstration that surface constituency and distributional properties alone do not capture the full range of language "facts." He argued that while the string in (9a) follows all the grammatical rules of English word and constituent order, it has two interpretations, shown in (9b, c).

- (9) a. The chicken is ready to eat.
 b. The chicken is ready for us to eat (it).
 c. The chicken is ready to start eating (its food).

In (9c), the chicken is understood as the eater, while in (9b) it is understood as the thing eaten. Moreover, as Chomsky showed, not all adjectives show this flexibility. Chomsky's (1964: 34) famous illustration is given in (10a) and (10b), illustrating different adjectives which each have only one interpretation, corresponding to (9b) and (9c) respectively.

- (10) a. John is easy to please.
 b. John is eager to please.

In (10a) John is the one pleased, but in (10b) he is the one pleasing, and neither example is ambiguous. Other adjectives behave the same (e.g., *apt*, *preparing*, and *likely* behave like *eager*; *tough*, *hard*, and *impossible* are like *easy*). As the only superficial difference in (10) is *easy* vs *eager*, we take it that the semantic difference is due to the difference in adjectives, but is somehow "below the surface," ultimately, in this case, connected to a syntactic distinction. When considering the empirical predictions of abstract syntactic hypotheses, there are two primary ways in which a minimal pair of superficially similar syntactic examples might differ:

- a. Both examples are grammatical, but they differ in the ways that their semantics are assigned (as in the examples above), as determined by their syntax.
 b. One example is grammatical and one is ungrammatical.

⁴ In psychology, it is possible to construct an experiment in any kind of artificial condition to test an abstract idea. In linguistics, this is much harder, as one cannot rely on finding a language with the necessary properties.

Note that we have to control for each type of difference by looking at the other. For instance, (10a) has a variant (11), which is essentially synonymous.

(11) It is easy to please John.

However, consider the corresponding variant of (10b):

(12) It is eager to please John.

Think for a moment and you will notice that in this example the subject *it* has to be taken to signify an animal, or perhaps a robot – some specific thing that can be referred to by *it*. The meaning of the example is thus quite different from (10b), so that the difference between (11) and (12) is a difference of type (a). Conversely, we can also say that (12) cannot have the same sort of meaning as (11), and therefore *on that interpretation* it is unacceptable:

(13) *It is eager to please John. (on the intended interpretation)

Controlling for the intended interpretation means that we actually have a contrast of type (b).⁵ With that caveat, Chomsky's innovations allow us to consider arguments based on observations of type (a) to show different abstract properties about grammatical structure, and arguments based on observations of type (b) to show that one example falls within the grammatical system of the language in question and another falls outside.

What grammatical principle could explain the data in (10)? In a sense, this is not different than basic categorization; the key is to develop a hypothesis that offers insight into the pattern and also generates further predictions that can be verified (i.e., one that "does some work"). The difference is just that the hypothesis may be more abstract. One way to analyze (10) is by appeal to the grammatical relationship between each adjective and the following infinitival verb. In (10a, b) *John* is the one pleased and the pleaser respectively, which correspond to the normal subject and object of *please*, a simple transitive verb (e.g., *John pleased Mary*). We can thus hypothesize that *John* is interpreted as the object of *please* in (10a), but as the subject of *please* in (10b):

Hypothesis 6: In a construction of the form NP *be* Adj *to* VP:

- a. Adj *easy* requires its subject NP to be understood as the object of the infinitival VP.
- b. Adj *eager* requires its subject NP to be understood as the subject of the infinitival VP.

Implicit in this is another property which we could just as well make explicit, namely that *easy* will never behave as in (b) and *eager* never as in (a):

⁵ This is the same kind of observation that is made in even the most rudimentary arguments. For instance, when we categorize English as a fixed constituent order language, we might note that the examples *A dog bites a man* and *A man bites a dog* have different meanings. Strictly speaking, we are arguing that the grammar of English does not support a meaning of the second example in which a dog bites a man. That is, if we hold the meaning constant (to be that of the first example) the second example is *unacceptable on the intended interpretation*.

- c. The two adjectives differ in these properties: *easy* does not appear in the structure described by (b), and *eager* does not appear in the structure described by (a).

In hypothesis 6, we are appealing to notions that are not obvious on the surface: subject and object and the idea of one predicate "sharing" its subject or object with another. However, these notions are largely issues of basic linguistic categorization, and can be demonstrated by first demonstrating through contrast and distribution that the relevant noun phrases are subjects or objects. As long as we accept the assumption that the relevant noun phrases have these grammatical functions, we can begin to seek out evidence that the abstract hypothesis set out above is correct. The key will be in how we derive predictions from the hypothesis to test it out. We now look at three very simple such predictions.

Prediction 1: The role of semantics Although our original description of (10) appealed to semantic roles (e.g., "pleaser," "one pleased"), hypothesis 6 instead refers to grammatical functions (subject, object) associated with these roles. If we distinguish these – as we should – then technically we will have the prediction that actual semantic roles should not matter: swapping out VPs with other transitive verbs that assign different semantic roles to their subjects and objects should also yield grammatical sentences, even if the meanings differ. This is indeed the case:

- (14) a. John is easy to fight.
 b. John is eager to fight.

These data thus clarify that we indeed have a contrast of type (a), and had we tied the hypothesis to a different type of underlying category (e.g., thematic roles like "experiencer" and "stimulus") we might have made different predictions.

Prediction 2: Monadic intransitive verbs By associating the subject of *easy* with the object of the infinitival VP, hypothesis 7a predicts that the VP must allow an object in the first place. We can test for this by trying out verbs in the VP complement of *easy* that do not have objects. We would then predict that an example formed with *easy* would be ungrammatical, as it could not satisfy hypothesis 6, while the corresponding example with *eager* should be grammatical, as the VP would still have a subject for the subject of *eager* to be construed with. We demonstrate this by simply constructing the relevant examples:

- (15) a. *John is easy to run away.
 b. John is eager to run away.

Here we have a contrast of type (b), and, more importantly, it is predicted to exist on the basis of hypothesis 6. Thus the data support hypothesis 6, and hypothesis 6 offers an insight into *why* such a contrast exists.

Prediction 3: A different type of intransitive verb The intransitive we considered above had only one argument, a subject. But hypothesis 6 also predicts that verbs lacking objects but taking PP complements should similarly not appear with *easy*. As it happens, this prediction is not borne out:

(16) John is easy to talk to.

Given that hypothesis 7 has so far predicted several pieces of data, at this point we would not necessarily want to discard it entirely, but rather look for a revision that can capture the datum in (16) as well. Perhaps what (16) indicates is that while the subject of *eager* is understood as the subject of the infinitival VP, the subject of *easy* relates to a non-subject phrase within the VP:

Hypothesis 7: In a construction of the form NP *be* Adj *to* VP:

- a. Adj *easy* requires its subject NP to be understood as a non-subject of the infinitival VP.
- b. Adj *eager* requires its subject NP to be understood as the subject of the infinitival VP.

The two adjectives differ in these properties: *easy* does not appear in the structure described by (b), and *eager* does not appear in the structure described by (a). The revision in hypothesis 7 captures an insight similar to hypothesis 6 and captures all of the data hypothesis 6 did, but gives a better account for the new data. This again illustrates the comparative nature of argumentation – the old hypothesis was rejected in favor of a newer hypothesis that better captures some set of data beyond our initial data.

Building on hypothesis 8, we now have a prediction that it should be possible to “rescue” (15a) from ungrammaticality by creating a variant which is grammatical due to an additional place within the VP with which the subject of *easy* can be construed. This prediction is borne out:

(17) John is easy to run away from.

Given our hypothesis, this is expected and, crucially, we understand why (17) is grammatical: there is a syntactic position, namely the object of *from*, with which the subject *John* is construed. This is not the object of a verb, as in (10a) with *please*, but it is, crucially, not a subject.

4.2 Argument based in interactions of principles

We now consider an example that argues for an abstract principle of grammar. The argument is based on how a set of abstract principles interact with one another. Perlmutter (1978) introduced the Unaccusative Hypothesis (UH), which is built on the idea that there are two kinds of intransitive verbs (see also Burzio 1986). “Unergative” verbs are intransitives whose single argument is agent-like and has the deep grammatical properties of the subject of a transitive verb, while “unaccusative”

verbs are intransitives whose single argument is patient-like and has the deep grammatical properties of the object of a transitive verb.

Hypothesis 8: The Unaccusative Hypothesis (initial) – There are two types of intransitives:

- a. Unergatives take an agent-like argument with the grammatical properties of a subject.
- b. Unaccusatives take a patient-like argument with the grammatical properties of an object.

The UH represents a fairly stable cross-linguistic classification, and differences between the two types of intransitives can be found in many languages. One example is how they interact with the formation of impersonal passives (i.e., passives of intransitive verbs), as found in Dutch. The impersonal passive of the putatively unergative example in (18a) is given in (18b); (18c) is an example with another unergative (from Perlmutter 1978: 168).

- (18)
- | | | | | | | | | | |
|----|------------------------------------------------|-------|--------|---------|-------|-------|-----------|-------|----------|
| a. | De | jonge | lui | dansten | hier | veel. | | | |
| | the | young | people | danced | here | a.lot | | | |
| | 'The young people danced here a lot.' | | | | | | | | |
| b. | Er | wordt | hier | door | de | jonge | lui | veel | gedanst. |
| | it | is | here | by | the | young | people | a.lot | danced |
| | 'It is danced here a lot by the young people.' | | | | | | | | |
| c. | Er | wordt | in | deze | kamer | vaak | geslapen. | | |
| | it | is | in | this | room | often | slept | | |
| | 'It is often slept in this room.' | | | | | | | | |

In the impersonal passive, the erstwhile subject of the unergative is expressed as a PP, and the subject position is filled with an expletive. However, the putatively unaccusative verbs in (19) do not allow impersonal passives, as shown in (20).

- (19)
- | | | | | | | |
|----|---------------------------------------------|--------|-------------------|------|-------|----------|
| a. | Het | water | sijpelde/drippede | uit | de | rots. |
| | the | water | seeped/dripped | out | of | rock |
| | 'The water seeped/dripped out of the rock.' | | | | | |
| b. | Zulke | dingen | zijn | hier | nooit | gebeurd. |
| | such | things | are | here | never | happened |
| | 'Such things have never happened here.' | | | | | |
- (20)
- | | | | | | | | | | |
|----|-------|------|------|------|-------|--------|-------|----------|-----------------------|
| a. | *Er | werd | door | het | water | uit | de | rots | gesijpeld/gedrippeld. |
| | it | is | by | the | water | out | of | rock | seeped/dripped |
| b. | *Hier | werd | er | door | zulke | dingen | nooit | gebeurd. | |
| | here | is | it | by | such | things | never | happened | |

What might explain this pattern? Perlmutter claimed it follows from the interaction of several independent principles. First, it is useful to outline the common analysis of a canonical personal passive, in which a notionally transitive verb occurs intransitively and its surface subject corresponds to the object of its transitive form, as illustrated in (21a) and (21b) for English.

- (21) a. The girl read the book.
b. The book was read by the girl.

It is usually assumed that in personal passive formation the deep object is promoted to surface subject. As subject is taken to be a more prominent grammatical relation than object, passive involves promotion to a "higher rank" – from object to subject (there is also commensurate demotion of the original subject to a PP marked with *by* in English).

With this as background, Perlmutter set out to argue for a particular theoretical hypothesis:

Hypothesis 9: In all languages, all passive clauses involve promotion to subject (including impersonal passives).

The key prediction made by his proposal is the pattern in the Dutch data above, but to derive this prediction we have to look at how the UH interacts with other hypotheses. Perlmutter proposed first and foremost to assimilate the analysis of an unaccusative clause to that of passive. It is assumed across most syntactic frameworks that every clause must have a subject, as stated below, and if the underlying properties of the clause do not provide one, some other phrase must be promoted to be the subject.

Subject Condition: Every clause must have a subject.⁶

If an unaccusative intransitive clause is base-generated with an object but no subject, and if every clause requires a subject, then this guarantees that promotion must take place. Hence, any *actual* clause containing an unaccusative verb will have a subject, albeit one promoted to that function in the course of the derivation of that clause. On the other hand, if the verb is unergative, the subject of the clause has not advanced, for it is already a subject from the initial step of the derivation. From this we can restate the UH as follows:

Hypothesis 10: Unaccusative Hypothesis (final) – There are two types of intransitives:
a. Unergatives take an agent-like deep subject.
b. Unaccusatives take a patient-like deep object.

The combination of the revised UH and the Subject Condition ensures that unaccusatives have single subject arguments that are in some sense also objects (i.e., together they derive hypothesis 8), explaining any independent evidence that unaccusative subjects have some object-like properties.

So far, nothing is explained about the contrast between (18) and (20). Perlmutter's argument for hypothesis 9 rests on a third, independently assumed principle:

⁶ Examples include the Extended Projection Principle (EPP) of various Principles and Parameters approaches (Chomsky 1981), the Final-I Law in Relational Grammar (Perlmutter and Postal 1983), the Subject Condition in Lexical-Functional Grammar (Lexical Mapping Theory; Bresnan and Kanerva 1989), and constraints in Head-driven Phrase Structure Grammar, which ensure that the first element of a verb's Argument Structure is the subject (Ginzburg and Sag 2000).

1 Advancement Exclusiveness Law (IAEX) No clause can involve more than one promotion to subject.

From this, Perlmutter's argument that all passives involve promotion can be completed. If a language allows impersonal passives at all, and assuming the UH and the IAEX, if all passive clauses involve promotion to subject, it is predicted that passive will be possible with unergative verbs but not with unaccusatives. This is because according to the revised UH and the Subject Condition, clauses with unaccusative verbs have already had an object-to-subject promotion. By IAEX, no further promotion should be possible, so if impersonal passives require promotion, they should not apply here. This is borne out in (20). Unergatives have no underlying promotion by the UH, so the IAEX will not rule out impersonal passive formation if it involves promotion, correctly predicting (18).⁷

In contrast to the reasoning above, consider the null hypothesis: if impersonal passives do *not* involve promotion to subject, it is expected that any kind of intransitive predicate should yield a grammatical impersonal passive; the IAEX would make no predictions in that case. However, the expectation is not borne out, as only some of the relevant examples are grammatical. Therefore the contrast between (18) and (20) supports the hypothesis that all passives involve promotion, due to the interaction of the UH, the Subject Condition, and the IAEX.

4.3 Arguments involving theoretical constructs

The moral of the preceding subsection is that empirical data can be used to argue for the existence of theoretical principles, and that sometimes the relevant predictions arise not directly from the specific principle, but within the larger theoretical context as an interaction among various principles. Indeed, the fact that the interaction of different principles makes correct additional predictions also supports the correctness of each individual principle (see Chapter 19 for more on the need for independent verification). However, for the argument to go through, it is important that an appropriate theoretical system be adopted to provide these background assumptions. This raises a more general point: for advancing a particular hypothesis, only certain theoretical frameworks may allow the argument to be made. If the hypothesis is taken to be correct, this could in turn be used as an argument for such frameworks.

For example, hypothesis 10 makes crucial reference to the notion of "surface" and "deep" grammatical functions. Only some syntactic frameworks actually provide the appropriate theoretical machinery to distinguish such notions: in theoretical frameworks that admit multiple levels of syntactic representation for a given string, there is usually a "deep" and "surface" structure that can be

⁷ In languages such as Dutch, the promotion part of the analysis is satisfied either by a preverbal PP or by the expletive *er*. In Perlmutter's proposal, the expletive is introduced as a deep object, then promoted to subject.

exploited to make such a distinction (Chomsky 1957, *inter alios*). Even in frameworks without multiple levels of syntactic representation this is possible – for example, in Lexical-Functional Grammar, arguments realized with the same grammatical function (in this case, subject) might have different featural analyses at the level of argument structure, making them more or less like canonical transitive subjects and objects (Bresnan and Zaenen 1990). Conversely, a simple phrase structure grammar typically lacks the expressive capability to make this distinction. Thus in terms of the degree to which the understanding of hypothesis 10 is taken as correct, an argument could be made for rejecting one kind of theory and continuing with a different kind.

However, care must be taken in making this kind of argument, on two grounds. First, it is often the case that, in practice, a particular theoretical framework is powerful enough that nearly anything can be stated in it, with some ingenuity on the part of the author. This means that care must be taken in presenting an argument that a given framework is truly incompatible with a given set of theoretical deductions. Second, it is often possible to find alternative ways of stating the hypothesis or of accounting for the data that can be done in terms of other equally plausible principles. Still, if a certain conclusion is sufficiently well supported and the predictions are clear, arguments for larger architectural differences are possible.

It is also possible to make “medium grain” arguments about the organization of different principles or mechanisms in different variants of the same framework. We do not illustrate the details here, but in frameworks which relate levels or stages of representation through explicit derivations, there have been many arguments made about the relative validity of constraints on the relevant derivations (“you are forbidden to do X”) vs constraints on the relevant representations (“any structure with property P is disallowed”) (e.g. Lasnik 2001; Rizzi 2001). Some such arguments are conceptual or based on notions of simplicity, but as with the Dutch impersonal passives, sometimes empirical data can be used to argue for the merits of each type of constraint.

5 Presenting your argument

The fundamental content of a good argument is this: the hypothesis is motivated because the data support it, especially over alternatives. This is what we have concentrated on above and what has scientific validity. In this final section we consider the fact that making a good argument in linguistics is almost as much about how one presents the argument as how one formulates it – an argument that is difficult to follow or poorly presented will be much less convincing, even if the substance underlying it happens to be sound. We thus sketch some important desiderata and a possible schema for outlining an argument, while noting that there may be many ways to present a valid argument in a convincing way, as long as they satisfy some of the basic desiderata.

A good argument will be structured so that one point leads directly into the next. Part of the author's job is to ensure that the reader can follow the steps in the argument, and as such it is often a good idea to create expectations on the part of the reader for what is to come. A simple way to do this is, first and foremost, to prime the reader in the introductory material by (a) summarizing the central problem in the domain under discussion, often with reference to prior knowledge/literature and what will additionally be shown, (b) stating the hypothesis clearly (at some level appropriate for an introduction) so the reader will know what to expect to see presented – a good argument does not need to be a mystery – and (c) outlining in advance the steps that will be taken to motivate the hypothesis (sometimes referred to informally as a “road map”). A good description of what will be shown and how it will be shown can make reading the argument easier, something that will facilitate the reader in ultimately accepting – or at least appreciating – the point being made.

Next, as each step of the argument is presented, a good style is to make clear which step the reader is currently in in terms of the stated outline, so the reader will know what is about to be shown and what will be coming next. At this point the relevant data appropriate for the given point can be presented and described concisely in a way that ties directly into the argument being made. If there is quite a lot of data to be presented, it should be separated into relevant chunks, each making a point, one step at a time in the developing argument. One effective way to introduce a set of data is to give a brief description of what aspect of the data the reader is to focus on *before* giving the actual examples, with a more in-depth description after the data are given, if necessary. When describing the data, it is important not to say more than is necessary and to keep the observations relevant to the point. There may be numerous things about any set of data that are worthy of attention, but in a given context only those that are relevant to the point at hand need be enumerated, for fear of distracting the reader. Furthermore, a good practice is also to make immediately clear after the data are presented and described how exactly they support the given hypothesis – essentially, recapping where in the argument the reader is so the reader can keep track. If appropriate, the author can also show how alternative hypotheses will or will not predict the same data; or this could come later in some more thorough comparison section. A rather poor style of argumentation and presentation is the “last man standing” gambit – a presentation which focuses largely on hypotheses to be rejected, an enumeration of alternative hypotheses which are presented as lacking in some desirable quality, which is then followed by the final and favored hypothesis as an inevitable conclusion, especially with little positive argumentation toward the hypothesis.

Although we said the description of the data should be made in a way that ties into the hypothesis being supported, care must be taken nonetheless to remain at least somewhat neutral to one's theory, for fear of assuming one's analysis in the description and thus “begging the question.” A good style for clear and crisp data description is to describe the data as concisely as possible, often appealing to little more than surface-level features and basic, theory-neutral linguistic

categorization, with an eye toward those properties that will ultimately tie into the hypothesis being made, even if that hypothesis is relatively theoretical or abstract. As we have stressed above, a good hypothesis will make clear its predictions about those facts, so the connection should ultimately be obvious. Finally, after the entire argument is presented, a summary that recaps what was shown, and possibly puts it into a larger perspective, can solidify the content of the argument in the mind of the reader.

Fundamentally, as discussed extensively above, the goal of an argument is not simply to show that the data fit the hypothesis. That would be to provide an analysis for some data, when in principle any one of a number of analyses would work just as well. Rather, the goal of an argument is to show either that (a) *if* one assumes the hypothesis under discussion *then* the data are exactly as predicted, or (b) *if* these are the data, *then* the hypothesis under discussion must be valid. Carefully worded prose makes clear the predictive quality of the relationship between the data and the hypothesis and thus makes for a stronger argument. Poorly worded prose will not make this clear. For example, language that implicitly presupposes the hypothesis being supported (e.g., “*because of* such and such principle the data are this way”) or that simply (re)describes the data using the proposed analysis will not add up to an argument. To some degree, explicit comparison between the proposed hypothesis and an alternative – especially when they are developed together to contrast in specific ways, as in Section 2 – necessitates the use of appropriate language, provided the hypotheses are developed in equivalent detail and given equal consideration.

Equally as important as the structure of the argument and the prose which makes that structure clear is the use of prose that is appropriate for what is to be shown. In many ways, the question of appropriate wording could be considered to be rhetorical, but well-chosen wording can lead to a more forceful argument that will be more convincing. For example, as noted above, sometimes data beyond the core data are presented as “additional” predictions that further solidify the argument. There is no shame (well, not much) in employing some rhetorical flourish when presenting such predictions if they are especially subtle or demonstrate the point stunningly. Conversely, there is no gain in overselling or overstating an argument, framing it, for instance, as “proven,” rather than “supported,” “likely,” or “reasonable,” given certain evidence.

It is also important to establish the content of the hypotheses being compared, especially if one is from previous scholarship. For example, the hypothesis should not be introduced solely in terms of the person(s) who proposed it, but in terms of the key notions that it involves. With regard to hypothesis 2 above, it would be inappropriate to refer to it as “Adger’s (2003) movement hypothesis”; a description such as “the hypothesis that T-to-C movement is triggered by an uninterpretable and unvalued feature on T (Adger 2003)” is more informative and shows that you have understood the theoretical content of the idea, and are not relying on the reader to make the connection between the author’s name and the key components of the cited hypothesis.

These stylistic guidelines conform to accepted ways of presenting what should already be a developed argument, and like any commentary on writing, they have only heuristic value. Arguments can certainly be presented in other ways. For example, it is sometimes more expedient to save any hypothesis comparison until after the main hypothesis is motivated, perhaps because its predictions are subtle and must be explored in detail together, or perhaps because it is difficult to see why certain alternatives are less plausible until the full argument is made for the supported hypothesis. Alternatively, if the theoretical assumptions embodied or assumed in the hypothesis are sufficiently rich and complex, it might be that some space should be devoted to making clear how the framework and/or hypothesis conspire to derive certain predictions, after which confirmation within the data should be more straightforward, thus putting the hypothesis first and the data second.

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