For Ida Mae Heemstra

I tried not to split too many infinitives.

INTRODUCTION TO TYPOLOGY

THE UNITY AND DIVERSITY OF LANGUAGE

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SAGE Publications
International Educational and Professional Publisher
Thousand Oaks London New Delhi

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Issues of Method and Explanation

In 1995, a new pill arrived on the shelves of drugstores—the latest attempt to provide consumers with an easy way to trim off unwanted fat. The makers of the pill boldly asserted that their product sped up the body's metabolism so that fat was burned at an accelerated rate during exercise. It sounded too good to be true: lose more weight with less exercise. Best of all, proponents of the drug could provide test results to back up the efficacy of the drug. Additional research on the wonder pill, however, demonstrated that it actually had no effect on metabolism whatsoever and that it had no value as a weight loss measure. The desperate hopes for effortless weight loss were dashed yet again. What about all the research that initially had been put forth as evidence that the drug did what it was claimed to do? It turns out that the researchers had overlooked (or chosen to ignore) a simple fact: People who took the pill started to exercise more because they were told that it operated most effectively

during periods of intense physical activity. It was this additional exercise, and not the pill, that led to weight loss.

This anecdote highlights a crucial point about any kind of empirical study. The method that one uses to research the phenomenon at hand has a profound impact on the results. If the methods are shoddy, the results will be also. For this reason, empirical scientists pay careful attention to how they go about their research. Typologists are no exception. There are key questions as to how universals are to be described, how they are to be determined, and how they are to be explained. In this chapter, each of these components of methodology is discussed.

1.0. Types of Universals

Language universals are statements of fundamental properties of language. They are empirical claims. To say that they are empirical is to say that they are descriptions of patterns found in observed language data. As such, their accuracy can be tested by applying them to previously unstudied languages.

It is crucial to recognize that descriptive statements like those reviewed in this section are not explanatory in any way. That is, they do not tell us why language is the way it is. Therefore, to get at the essential nature of language, statements of language universals must be supplemented by explanations for why they exist. I return to this issue in Section 3.0.

■ 1.1. Absolute Versus Nonabsolute Universals

In the previous chapters, I have alluded several times to a basic distinction in types of universal statements: absolute versus nonabsolute. When the word *universal* is used, most people generally take it to mean something that holds true in every instance. For all instances of X, Y, and Z, a universal statement is one that holds true only if it always holds true of X, Y, and Z. Thus, Ramat (1987) rightly points out that a term such as "nonabsolute universal" is, technically speaking, a logical contradiction. This terminology, however, has become common in typological research; therefore, it is used here and throughout the book.

Absolute universals hold true of all languages. The following are examples:

(1) a. All languages have consonants and vowels.
b. All languages make a distinction between nouns and verbs.
c. All languages have ways to form questions.

Notice that the universal properties listed in (1) are not logically necessary. That is, we can conceive easily enough of a language that lacked one or all of these properties. Consequently, although statements such as those in (1a-1c) might seem intuitively obvious to you, they are nonetheless quite exciting in that they reflect something about the essential nature of language. Absolute universals are assumed to be true of all languages at all times, even for the hundreds of languages for which there is no written description and for many hundreds of others that have become extinct without leaving behind any record. Theoretically, it is a simple thing to demonstrate that an absolute universal is inaccurate. One need only discover a single language for which it does not hold true. Most absolute universals, however, are sufficiently well established that it is a rare occurrence when they are shown to be false.

Nonabsolute universals admit exceptions. They are properties of languages that usually hold true. Although they cannot be regarded as reflecting properties that are essential to all languages, they represent significant tendencies. How significant the tendencies actually are depends on the number of exceptions to the universal. In (2), several nonabsolute universals are provided.

(2) a. Most languages have the vowel [i] (as in the English word *feet*).
b. Most languages have adjectives.[1]
c. Languages usually employ rising intonation to signal a yes or no question (i.e., a question that anticipates either a yes or a no answer such as "Did you have fun reading Chapter 2?").

All the statements in (2) have a high degree of probability. (2a), for example, is true of over 90% of languages (Maddieson 1984).[2]

■ 1.2. Implicational Universals

Besides varying in whether they are absolute, statements of universals can be either implicational or nonimplicational. An **implicational universal** has a precondition. That is, it can be placed in an "if X then Y" form. Examples of implicational universals are given in (3).

(3) a. Greenberg's Universal 4: With overwhelmingly greater than chance frequency, languages with normal SOV order are postpositional.
b. Greenberg's Universal 3: Languages with dominant VSO order are always prepositional.

In these universals, S is the subject, O is the object, and V is the verb. In (3a) and (3b), it is possible to rewrite the universals as a conditional statement—for example, if a language is SOV, then it is postpositional with overwhelmingly greater than chance frequency. This is an easy diagnostic for determining whether a universal is implicational.

There are several noteworthy properties of implicational universals. First, they can be absolute, as in (3b), or they can be nonabsolute, as in (3a). Second, the implications are unidirectional. This means we cannot take an implicational universal and switch around the precondition and the universal statement to derive another universal. For instance, taking (3b)—if a language is VSO, then it is prepositional—and reversing it—if a language is prepositional, then it is VSO—leads to an incorrect claim because there are many prepositional languages that are not VSO (e.g., English, which is SVO).

Finally, implicational universals are tetrachoric (from Greek *tetra* [four] and *choris* [separated], meaning *put into four parts*). That is, they introduce two independent variables (such as having VSO word order and being prepositional) that give rise to the following four logical possibilities:

(4)

	Prepositions	*Postpositions*
VSO	Yes	No
–VSO	?	?

Remember that the implicational universal makes no claims about languages that are not VSO. These logical possibilities may or may not be attested. The implicational universal simply does not tell us. As Croft (1990) points out, the benefit of implicational absolute universals is that they eliminate one possible language type. In our example, for instance, the existence of a VSO language with postpositions is ruled out.

So far, the universals we have looked at have all been in a simple form. It is possible, however, to have **complex implicational universals** as well. In

complex statements, there are two (or more) preconditions, as shown in the following:

(5) Greenberg's Universal 5: If a language has dominant SOV order and the genitive follows the governing noun, then the adjective likewise follows the noun.

The claim in (5) takes the form, "If X, then if Y, then Z."[3] At one and the same time, complex implicational statements are both more powerful and less powerful than simple ones. Complex implicational universals have the advantage of removing exceptions—frequently, then, they can be stated as absolutes. On the other hand, when they are absolute, they eliminate a smaller proportion of language types.

(6)

	Noun + Adjective	*Adjective + Noun*
SOV		
N + Gen	Yes	No
Gen + N	?	?
–SOV		
N + Gen	?	?
Gen + N	?	?

The three parameters of the complex implicational statement give rise to eight language types. The universal eliminates just one of the eight and affirms the possibility of the existence of one of the eight.

It is also relatively more difficult to account for complex implicational universals. Rather than trying to establish some kind of interrelationship between two variables as one would with a simple implicational universal, there must be a way to associate three. For the absolute universal given in (5), for instance, one must account for why the combination of an SOV constituent order and noun + genitive allows one to predict the order noun + adjective.

Because complex universals tend to eliminate exceptions, they make stronger predictions about the essential nature of language. They suggest properties that must hold true of any language. Therefore, locating a single counterexample is sufficient to refute the claim made by an absolute universal. For example, Campbell, Bubenik, and Saxon (1988) identify Tigre (Semitic: Eritrea) as a violation of the universal given in (5):[4]

(7) a. rabbí 'astar wāmədər fatra
God heaven and.earth created
God created heaven and the earth.

b. 'ab la-ḥəsān
father ART-boy
The boy's father

c. la-gəndāb 'ənās
ART-old man
The old man

(Data from Raz 1983, 32, 83, 94)

The data reveal that the language is SOV (7a) and has noun-genitive order (7b), yet also has the order adjective-noun (7c).

Although Tigre thus falsifies the absolute status of (5), this does not fully undermine the significance of the universal. It can be restated as a strong tendency.

> If a language has dominant SOV order and the genitive follows the governing noun, then the adjective almost always follows the noun.

Even in its reformulation as a nonabsolute universal, the claim still reflects an intriguing property of language—Why is it that languages usually behave in this manner?[5] For this reason, one must take care not to throw the proverbial baby out with the bathwater when exceptions to universals are encountered.

The fact is that the vast majority of universal statements about language are probabilistic rather than absolute. This prompts another issue, however. Claims about what "almost always" or "usually" occurs in language are only legitimate if they are based on a representative sample of human languages. For example, if I were to examine only English, French, Spanish, German, and Yuma (Hokan: United States), I could generate hundreds of "universals" such as in the following:

(8) Languages almost always have definite articles that precede the noun they modify.

Given my database of five languages, the statement in (8) is true because all the languages but Yuma (which has no definite articles) adhere to the generalization, but no linguist would give the universal much credence. After all,

the claim is based on just 5 out of the 5,000+ languages of the world! Furthermore, the 4 languages that adhere to the universal are all closely related. English, French, Spanish, and German are Indo-European languages.

It is easy to see the problems with the method used to arrive at (8) because the example is extreme, but it begs the question, "what constitutes a representative sample of languages?" This is the topic of Section 2.0.

2.0. A Problem in Determining Universals—The Database

It has been my experience that people usually find discussions on methodology to be extremely dull. They are quick to remind me that the interesting aspect of data is what they reveal to us, not how data are collected or examined. However, the type of data that typologists use in formulating statements about language patterns is critical to their results. In fact, understanding the methodology used in typological research may be the single most important item one can learn about the field.

To see the significance of statistical techniques, compare the numbers in Table 3.1 that concern the relative order of S, O, and V.

The three studies depicted in Table 3.1 share certain results. One example is that they all reflect a statistical dominance of subject initial languages. There are, however, some troubling differences. For instance, Greenberg (1966) identifies SVO as the most common word order pattern, whereas the other two reveal SOV to be most common. Object initial languages only appear in Tomlin (1986). VSO languages range from constituting one-tenth of the world's language to one-fifth. Why do such differences appear? These discrepancies arise due to differences in the samples that the researchers used. The most glaring difference is the number of languages that were examined. The smallest sample is Greenberg's (30 languages) and the largest is Tomlin's (402 languages).

How many languages should a typologist examine in determining language universals? Your intuition might be that the only safe course of action is to look at all of them. For many reasons, however, a database consisting of all the languages of the world is impractical. First of all, many human languages are now extinct, and there is little or no record of them. Consider the case of Illyrian: The language is thought to be related to Albanian and to

TABLE 3.1 Relative Percentages of Basic Constituent Orders

	%		
Order	*Greenberg (1966)*	*Ohio State (1992)*	*Tomlin (1986)*
SVO	43	35	42
SOV	37	44	45
VSO	20	19	9
VOS	0	2	3
OVS	0	0	1
OSV	0	0	0

have been spoken in southeastern Europe. No texts or inscriptions of the language survive, however, so the sum total of what is known about the language is a list of a few place names and a handful of words referred to in Greek texts. Consequently, although linguists know of Illyrian, they cannot include it in a typological study.

Even for languages that are currently spoken, and thus are accessible in principle, it is impossible in practice to gather information on all of them. Many of them are not documented adequately for the purposes of comparison, and many have no documentation at all.

It is also technically impossible to create a database of all human languages because many languages are yet to come into existence. Languages are constantly changing. As a result, different dialects of languages emerge. Over time, speakers of the different dialects cease to be able to understand one another very well. Eventually, if the dialects continue to diverge, the lack of intelligibility between them becomes so great that they must be considered separate languages. Because language is dynamic in this way, there is no possibility of ever comprising a sample of all human languages.

For all these reasons, one must choose a sample of languages when seeking to identify cross-linguistic patterns. Quite often, samples are constructed out of convenience. In such instances, the typologists examine languages that they are familiar with or have easy access to. This is what Greenberg did in compiling the 30 languages he used in his study of basic word order.

The shortcoming of this method is that the sample is not really representative of the distribution of human languages. Inevitably, it is biased

toward certain language groups or geographical areas or both. In Greenberg's (1966) sample, almost a third of the languages are Indo-European (Greek, Hindi, Italian, Norwegian, Serbian, and Welsh) and almost a fourth are spoken in Africa. As a result, some of his conclusions are suspect because genetic traits of Indo-European have an inordinate influence on his statistics, as do any areal traits of Eurasian or African languages. For example, Greenberg suggested that languages with OV order also tend to place adjectives before nouns. This proposal, however, has been demonstrated to be false (Dryer 1988a, 1989b). In fact, it is only in the broad geographic region of Eurasia where this tendency holds true. Elsewhere in the world, it is far more common for OV languages to place adjectives after nouns—just the opposite of what Greenberg had proposed.

Despite the obvious problems with samples of convenience, they remain the most common form of database in typological literature (e.g., Foster and Hofling 1987; Hawkins 1983; Lehmann 1973; Nichols 1986; Venneman 1974a, 1974b). There is much of great value in each of these pieces of research. Indeed, their findings have been crucial to our current understanding of human language. One must recognize them, however, for what they are—not as accurate indications of the statistical distribution of language patterns but as suggestive guides to these distributions.

Three types of solutions to overcoming biases and constructing representative samples have been suggested within the field of typology. The first (outlined in Bell 1978 and developed in Tomlin 1986) is based on the frequency of language families. The idea is that each language family (e.g., Nilo-Saharan, Austronesian, Carib, etc.) is represented in the sample based on the number of languages in that family. If one decides to use 10% of the world's languages in a sample, then one would include 10% of known Nilo-Saharan languages, 10% of Austronesian languages, 10% of Carib languages, and so on. Using this method, language families with a greater number of members would receive greater representation in the sample than smaller language families. The strength of such an approach is that it provides a general idea as to the proportion of existing languages in the world that contain a particular linguistic trait. For example, Tomlin found 45% of languages are SOV, whereas 42% were SVO (see Table 3.1). Because of his methodology, these figures are probably good approximations of the percentages of SOV and SVO languages in the world. It is crucial to realize, however, that such numbers may not be indicative of the actual preferences that languages have for these word orders. On the basis of the percentages, it is illegitimate

to assume that there is a slight tendency for languages to be SOV rather than SVO. Why? Because the actual frequency of different language families is due not only to purely linguistic factors but also to historical factors (see Dryer 1989b for a good discussion). The following example will help clarify this point.

Khoisan and Niger-Kordofanian are two language families in Africa. The Khoisan family has approximately 30 members, whereas Niger-Kordofanian has over 1,000. The reasons why Khoisan is so small and Niger-Kordofanian so large have little to do with the linguistic structures found in the languages. Rather, their relative sizes are due to the histories of their speakers and the sociological profiles of the communities that speak them. In general, Khoisan speakers were assimilated into or eliminated by Bantu groups expanding into their territory from the north and Europeans from the south. Attendant to these expansions was the elimination of many Khoisan languages and the containment of others. In contrast, Niger-Kordofanian groups, of which Bantu is a part, have been expansionists. Over time, as these languages have extended over most of Africa, they have fragmented into new dialects and languages. Thus, the Niger-Kordofanian family contains an unusually large number of languages. As can be seen, then, the relative sizes of these families is something of an historical accident.

Another proposal for constructing a representative sample of languages is to gather languages that bear only very distant or no genetic relationship and are not from the same culture area (Bybee 1985; Perkins 1980, 1989). In this way, a sample of **independent languages** is built that includes roughly 50 languages.[6] Unlike the previous approach to sampling, this method does not represent the frequency of languages within families. It makes no difference whether a family has 30 or 1,000 members; only 1 language will be selected from each for the sample. One strength of this method is that it more accurately reflects purely linguistic preferences than the previous approach. Another is that the required sample is manageable in size. In practical terms, a single researcher can easily construct a sample of 50 languages. This is not always the case with methods that entail larger numbers of languages.

One problem with this method, however, is that it may not be possible to construct a sample of 50 languages that are distinct enough in geographic terms. There are certain regions of the world where languages, regardless of their genetic affiliation, share linguistic features. As noted previously, the languages of Eurasia have a strong tendency toward noun-adjective ordering. These regions, called **linguistic areas,** arise due to sustained contact between

languages for long periods of time. Because the linguistic areas can be extremely large, it may be impossible to construct a 50-language sample with no 2 languages from the same linguistic area.

Matthew Dryer (1992) has proposed a third sampling method that attempts to overcome some of the inherent shortcomings of the other two approaches. He employs a massive database (625 languages) but controls for genetic and areal biases by first grouping the languages into genera[7] (basically equivalent to language families that have been reconstructed to the same depth of time) and then grouping the genera into six large geographical areas. To determine whether a certain pattern is statistically significant (i.e., should be considered a universal), the pattern must be present in the genera of each of the six areas.

For a clearer idea of how this works, I will recount Dryer's (1989b) test of part of Greenberg's Universal 18, which states "If a language places the demonstrative after the noun, then it will place the adjective after the noun as well."[8] Fijian (Austronesian: Fiji) is a language that adheres to the claims of this universal:

(9) a. a cauravou *yai*
ART youth this
this youth
b. vanua *suasua*
place wet
wet place (Data from Dixon 1988)

In (9a), the demonstrative *yai* follows the noun it modifies, as does the adjective *suasua* in (9b).

Using a sample of 542 languages, Dryer (1989b) presents the relevant data to test the reliability of the universal as in the following:

(10)	*Afr*	*Eura*	*A-NG*	*NAm*	*SAm*	*Total*
NDem and NAdj	28	14	8	8	5	63
NDem and AdjN	1	2	0	1	0	4

The five areal categories in (10) are Africa (Afr), Eurasia (Eura), Australia and New Guinea (A-NG), North America (NAm), and South America (SAm). By making a distinction between these areas in accumulating statistics, there is a control for broad areal biases. The numbers in the areal columns do not represent individual languages but rather language genera. Each genus is a group of genetically related languages, which tend to be quite similar typologically. By counting genera rather than individual languages, Dryer controls for any severe genetic bias in his sample. The top row of numbers in (10) represent the number of genera in each area that conform to Greenberg's universal. The second row is the number of genera that do not.

As can be seen in (10), the predictions of Greenberg's universal hold true in all five geographic areas. For this reason, the universal has statistical validity, and one can conclude with Dryer that "there is a linguistic preference for NDem languages to be NAdj" (1989b, 272). That is, the universal does in fact tell us something about the essential nature of language. If any of the five areas failed to show the expected preference, then Dryer would conclude that the pattern was not statistically significant, and he would not accept it as a linguistic universal. In this way, Dryer's method is extremely conservative. Because in all cases he requires all regions of the world to support a universal, it is likely that his method will lead to the rejection of certain universals that others would accept.

Dryer's approach is open to two criticisms. First, one is forced to decide to which genus a language belongs. This is not always a straightforward task because the genetic affiliation of many languages is controversial. Second, for the method to be effective one must accumulate information on an extremely large number of languages. This poses pragmatic difficulties for individual researchers.

All three of the approaches to databases that have been introduced require typologists to gather information on languages that they do not know firsthand. How is such information gleaned? The most common method is to use published sources such as reference grammars and journal articles (as I have done throughout this book). By doing so, abundant data on a diverse group of languages can be accessed quickly; there are problems, however, with reference materials that can also render them unsuitable for typological research. Most important, they only offer brief and incomplete coverage of most aspects of grammar. There is an unlimited amount of information that can be supplied about the structure of a language but a limited number of pages to furnish the information, so reference grammars necessarily present only what is felt by the authors to reflect the essence of how the language is structured. Consequently, a great number of details are omitted, often without any comment. As a result, the linguist who relies on these sources can easily draw erroneous conclusions about what does or does not actually occur in a language.

A second method for collecting data on a large number of languages is to create a questionnaire on the phenomenon under investigation and send it to specialists on the languages in the database (an excellent example is Dahl 1985). Because specialists will either be native speakers or be able to consult with native speakers, questionnaire data can be quite intricate. Consequently, the typologist can gather highly specific, yet accurate, details about constructions and how these constructions are used in particular languages. Moreover, the typologist frequently uncovers information about dialect variation of the sort one rarely finds in reference grammars.

Despite these obvious advantages, there are practical problems involved with questionnaires that make them difficult to use in many cases. First, their efficacy depends on the quality of the questionnaire. It must be designed carefully to elicit the appropriate information and not bias the result. For this reason, a great deal of preliminary research on a given topic must be carried out before the questionnaire can be properly constructed.

Second, questionnaires are time-consuming and potentially expensive. Even for a moderately sized database of 50 languages, the typologist using a questionnaire must contact linguists from around the globe who are willing to invest the time it takes to complete the questionnaire. Such linguists are not uncommonly working in remote areas that are not easily accessible. Interacting with them on a project can take months. If a follow-up on the original questionnaire is required, the time frame can easily turn into years.

Finally, questionnaires are nearly impossible to use for typological research that is closely tied to a particular grammatical theory. For example, syntactic theorists who operate within the grammatical framework called Government and Binding are constantly involved in developing statements about language universals (see the discussion on Noam Chomsky in Chapter 2, Section 2.0). In principle, one way to assess the accuracy of these claims would be to test them on several hundred languages of appropriate areal and genetic diversity. The universal claims made in Government and Binding, however, are highly abstract and rely on a specialized terminology and set of formalisms. Therefore, an effective questionnaire would almost certainly require all the specialists to whom it was sent to be quite familiar with the specifics of Government and Binding. This state of affairs is not likely, especially in the case of large-scale projects.

Despite certain shortcomings, both reference materials and questionnaires can be effectively employed to gather relevant data. They are perhaps most effective when used together. By doing so, the efficiency of published information can be combined with the detail and accuracy of information gathered through personal inquiry.

In this section, we have reviewed three approaches to determining and testing universals that serve to overcome some of the biases found in samples of convenience. The methods have slightly different functions, and none of them is without difficulties, not the least of which is determining the source of the data for the sample. Each of the sampling techniques, however, serves to produce generally reliable insights into the question "What is language?" Once one arrives at such insights about patterns in language, an even bigger task remains: to explain why these patterns hold true. It is to this issue that the following section is devoted.

3.0. Explaining Universals

In the previous two chapters, I have made several references to the issue of explanation in typological work. The issue has been a divisive one and one that has received much attention (e.g., Comrie 1984, 1989; Croft 1990; Givón 1979; Hyman 1984; Newmeyer 1983). At the heart of the controversy is a debate over whether explanations should be **internal** or **external.** Internal explanations are those that are based on the system of language itself, whereas external explanations draw on considerations outside of the language system. The following example will make this distinction clearer.

Many languages exhibit a contrast between active voice (11a) and passive voice constructions (11b).

(11) a. Barry took the book.

b. The book was taken (by Barry).[9]

The English passive sentence in (11b) is typical of passive structures in a large number of languages in the following ways:[10]

1. The subject of the passive construction (*the book*) appears as an object in the active.

2. The verb in a passive construction occurs in a special form that marks it as being passive (in English, an auxiliary verb, *was*, is used in conjunction with a past participle, *taken*).

The question arises as to why these properties hold true for so many languages. An internal explanation of these facts accounts for them in terms of a set of rules or principles of syntax. For example, many grammatical theories view passive as a special mapping between an abstract level of syntax and a surface level of syntax. At the abstract level, passive and active sentences are structurally equivalent.

(12)

Level	*Active*	*Passive*
Abstract	Barry took the book	_____ was taken the book
Surface	Barry took the book	The book was taken

Notice that there is basic correspondence in meaning between actives and passives. The semantic relationship between the verb *to take* and the noun phrase *the book* remains constant. Whether in the active or passive, *the book* is understood as the entity being removed. This semantic correlation is captured in the model in (12) by virtue of actives and passives having the same structure at the abstract level; in both sentences, *the book* is the abstract object of *take*. The form of the verb, however, differs in the active and passive sentences. Crucially, *was taken* is in an intransitive form. As an intransitive, it is unable to take an object at the surface level and, as a consequence, *the book* must become a subject. Under this analysis, there is an explanation for both the properties of passives mentioned previously. The subject of a passive corresponds to the object of an active because it is itself an object at an abstract level. The motivation for the abstract object of a passive becoming a subject at the surface level is that the verb arises in a special intransitive form.

The details of an internal account of passive are much more complex than what I have outlined here. For present purposes, however, the important feature of the analysis is that there is no reference made to anything other than the system of language. Nothing is said about how passives assist the communicative process or how they are affected by it. This is, however, precisely the kind of information one usually finds in an external account of passives.

Keenan (1985a), for example, describes passive as a "foregrounding operation." By this he means that the passive construction is a device used to highlight an element in a clause that normally would not be highlighted. To understand this view, two of his assumptions must be made explicit. First, active sentences serve no specialized communicative function, and, consequently, they represent the default choice of a speaker. Conversely, passives are **pragmatically marked,** meaning that they are specifically designed to relate information in an atypical manner. The second assumption is that the subject of a sentence identifies the most topical element of that sentence. In other words, the subject is what the rest of the sentence is about. In active sentences, a subject is usually an agent—the entity that controls or initiates the event described in the sentence. In (11a), for instance, *Barry* is the agent because he carries out the action of taking.

When speakers are involved in communication, they make many choices about how to organize the information. Their choices influence how their listeners will interpret the message. The use of a passive is special in that a nonagent element appears as the subject—for example, *the book* in (11b). Because this packaging of information runs contrary to the default situation in which an agent is the topic, the subject of the passive is brought into the foreground of attention. Because there can be only one subject, the agent of a passive is either left unexpressed or it is backgrounded by putting it in a prepositional phrase (*by Barry*).

Each property of the passive is thus explained by the communicative function of the construction. A nonagent is the subject in order to foreground it. The agent is correspondingly backgrounded by appearing in a structure that is marginal to the clause, such as a prepositional phrase. The verb is in a special form to alert the listener to the fact that a pragmatically marked device is in use.[11]

This discussion on passives provides a sense for how different internal and external explanations can be; this does not, however, mean the two types of explanations are mutually exclusive, with either the internal explanation or the external explanation being the correct one. Rather, each type of explanation is designed to underscore a different truth about how language works (see Hyman 1984). On the one hand, internal explanations focus attention on the fact that language is a rule-governed system. The ways in which sounds are combined into meaningful elements and the ways meaningful elements are combined into words and phrases are conditioned by principles, which we call grammatical rules. Internal explanations appeal to these rules. On the other hand, external explanations focus attention on the fact that the grammatical rules do not generate words and phrases in a vacuum. The structures they produce are used with a particular intent and within a particular context and

are affected by such things. Through time, these communicative pressures on language structure will bring about constructions such as the passive.

There have been many calls for explanations of language phenomena that bring together both an internal and an external perspective (e.g., Dooley 1993; Everett 1994; Hawkins 1988b; Hyman 1984), and this is the tack that is taken in this book. Historically, however, typological research has based explanations on external factors. Therefore, it is necessary to review some particularly common types of external conditioning to which typologists appeal. Five of the most common sorts of external accounts of typological patterns are described in Section 4.0: discourse explanations, processing explanations, accounts based on linguistic economy, accounts based on sensory perception, and accounts based on iconicity between language structure and semantics.

4.0. Types of External Explanations

As noted previously, external explanations are those that point to factors outside of the linguistic system to account for the form of the system. These factors (or perhaps a more fitting term is "forces") exert a steady pressure on the shape of a grammar so that over time the grammar becomes molded in particular predictable ways. As you read through this section, it is important to bear in mind that external forces do not directly determine the structures that appear in language. That is, they are not grammatical principles that dictate how an utterance must be constructed in a particular instance. Rather, they subtly influence the ways in which speakers use their language so that the grammar of the language eventually takes on a specific form.

■ 4.1. Discourse

When humans relay information through language, they have means at their disposal for combining utterances into coherent messages, grouping parts of the message more compactly than others, and highlighting certain aspects of the message. In other words, they structure their speech. The discourse-structure that they impose on their messages can have an effect on the form of phrases and clauses. An example of an external explanation based on discourse was provided in the discussion on passive. There, it is observed

that three characteristic features of passive constructions arise to facilitate a communicative intent: encoding the patient nominal as the subject, placing the agent nominal in a prepositional phrase, and using a stative verb form.

This is not to say that each time a passive is used by an English speaker, for example, every part of the passive construction is selected anew to conform to the speaker's particular needs at that moment. Rather, the combination of treating the patient as a subject, putting the agent in a *by* phrase, and employing a sequence of *to be* + an auxiliary verb has become conventionalized in English. Significantly, speakers rarely stray very far from this convention. For this reason, the passive is readily formulated as a static "rule" of English.

The point of a discourse account of passive is to highlight that not just any static rule for the construction could have developed. Instead, the passive construction in English and those in all languages manifest universal features because only morphology and syntax that are well suited to carry out the discourse functions of passives ever become conventionalized.

■ 4.2. Processing

There are certain limitations on the kinds of language structures that humans can easily comprehend. For example, certain sentence types are difficult to process (and therefore are dispreferred) because they contain temporary ambiguities (13):

(13) The candidate hoped to win the election lost.

Although this sentence is well formed according to rules of English grammar, it is extremely difficult to understand at first. In fact, it is so hard to grasp that many speakers will simply reject it altogether. This is because at the point in the sentence when the word *hoped* is encountered, one expects it to serve as the main verb and not as a past participle. Therefore, when one reaches the word *lost*, the sentence seems to have a second main verb, which is not permitted. The sentence can then be reinterpreted as equivalent to "The candidate which we hoped would win lost the election." To do so, *hoped* must be reanalyzed as a modifying participle. It is easy to see why such structures are dispreferred in language: They constitute a serious obstacle to sentence comprehension and to the speed of the comprehension.

Processing constraints lead speakers to avoid structures that are hard to comprehend (or produce) and to favor structures that facilitate rapid comprehension (or production). Eventually, as speakers of a language eschew difficult constructions and utilize others in their place, the difficult constructions disappear from use because speakers come to consider them ungrammatical. At this point, the grammatical system has been structured according to an extragrammatical constraint.

To the degree that humans share similar processing constraints regardless of the language that they speak, we should expect the same kinds of restrictions to be imposed on the forms of their grammars. Consequently, certain cross-linguistic tendencies arise.

■ 4.3. Economy

Two processes in language tend to be collapsed under the rubric of *economy*. Elements in language that are highly predictable in context tend to be eliminated, and elements that are used commonly tend to be reduced (Haiman 1983). The phenomenon of **pro-drop** is an example of the former. In many languages that have agreement between the subject and the verb, a pronominal subject can be left unexpressed, as in Choctaw (Penutian: United States). The language has a pronoun, *ano*, which is equivalent to the first-person singular pronoun *I* in English; this pronoun, however, is typically not employed in clauses.

(14) Hilha-li-tok
dance-1S-PST
I danced. (Adapted from Davies 1986, 14)

Because information about the subject is found on the verb in (14), the Choctaw pronoun *ano* ("I") need not be included. In English, there is very little subject-verb agreement. The verb *danced* on its own, for instance, does not reveal whether the subject is *I, you, she,* or something else. Presumably, because information about the subject is unpredictable, subject pronouns cannot be dropped. Thus, there is a split in language types: languages such as Choctaw, which permit pro-drop, and languages such as English, which do not. This split follows from the nature of the verb agreement in language. Languages with robust agreement will be like Choctaw, whereas languages with limited agreement will pattern like English. This universal tendency can

be accounted for by appealing to economy. Because robust agreement serves the same function as overt subject pronouns, using both together in the same clause gives rise to **redundancy** in the grammar. Because redundancy is inefficient, it tends to be eliminated from grammar over time.

The other kind of economy in language—that which results from frequency—is readily seen in contractions. In spoken English, the phrases "want to" and "going to" are commonly reduced to "wanna" and "gonna." Over time, they have taken on this form because of the extreme frequency with which they occur. As speakers become accustomed to hearing and using certain words or phrases with great regularity, these expressions can arise in a slightly abbreviated form without any loss of comprehension. The same information is passed but using a reduced (more economical) form. Eventually, the abbreviated form becomes a convention of the language. This process, sometimes referred to as **automization,** is subtle. Speakers are rarely aware of what is happening to their language while the automization is under way.

Because economy can be taken as the driving force behind certain kinds of changes that occur in languages, it can also be used as an explanation for similarities among languages. For example, subject agreement affixes (such as *-li* in (14)) tend to be monosyllabic in the world's languages. This fact can be taken as an instance of economy working in language: Because subject agreement arises with extreme frequency in languages that have it, the forms used to indicate the agreement shrink in size over time.

■ 4.4. Perception-Cognition

Particularly in the realm of **lexical semantics** (i.e., the meanings of words and units smaller than words), researchers have noted the importance of human perceptual and cognitive capacities (Lee 1988). For example, work on basic color terms in language has revealed the following hierarchy (Berlin and Kay 1969):

white-black > red > green-yellow > blue > brown

It should be noted that the hierarchy here does not make claims about color expressions generally but about basic color terms. Basic color terms are, roughly speaking, those words for colors in a speech community that are commonly known and that cannot be divided further into smaller linguistic units. Using English as an example, the latter half of this definition rules out

expressions such as "light brown," "hot pink," "blood red," and "navy blue." Although they are all widely used in describing color, they are not basic color terms because they are composed of a modifier + a color term. There are also many color expressions in English that cannot be broken down in this way but are still not basic color terms: salmon, amber, indigo, azure, and so on. They are not considered basic because they are not widely known or used throughout speech communities. On the contrary, they are typically employed only by the well educated and by people who have a personal or professional expertise that requires knowledge of fine distinctions between colors.

The color terms discussed previously are arranged in an **implicational hierarchy.** The symbol, >, indicates that the entity to its left holds priority over the entity on its right. For example, blue > brown on the far right of this hierarchy denotes that the word for the concept "blue" holds priority over the word for "brown."

In the current example, the notion "priority" represents an ontological priority. In simpler terms, this means that a word to the left of a > must exist in a language for the word to the right of the same > to exist. Thus, we can interpret the color hierarchy in the following manner: A language with only three basic color terms will have white, black, and red. If there is a fourth term, it will be green or yellow, and so on.

Kay and McDaniel (1978) have found that this hierarchy is grounded in human anatomy. The way the visual system is structured causes exposure to black and white colors to produce maximally distinctive responses (i.e., measurements reveal that the way in which the visual system reacts when exposed to white and black is as different as it can be). Of all the remaining colors, red produces the most distinctive response from black and white, then green, and so on. The fact that the color vocabularies of the world's languages follow along the hierarchy is simply due to the way the neurons of the visual system work.

■ 4.5. Iconicity

The form of some linguistic expressions reflects a real-world property of what is being denoted (see Haiman 1980). Some simple cases of iconicity include the following:

(15) a. The movie was so bad that it dragged on and on and on and on.
b. The ping-pong ball went back and forth, back and forth.

In both these examples, the phrases *on and on* and *back and forth* are repeated to better capture the repetitious nature of the event they are describing. The actual form of the expression, then, is a symbol of the repetition occurring in the actual situations described by the clauses.

This fact of English also holds true as a universal tendency, at least in a general way. When languages indicate plurality or repetition, they tend to do so by adding linguistic forms. For example, languages that make a singular versus plural distinction on nouns frequently add a suffix to the nouns to indicate plurality but simply use the bare noun stems to indicate singularity.

5.0. Summary

Three major theoretical issues were addressed in this chapter: (a) What sorts of universal claims can be made about language?; (b) what constitutes a legitimate database for the formulation of universals?; and (c) how are universals to be explained? Notably, a satisfactory answer was really only provided for the first of these questions. I noted that the notion "universal" was a cover term for essential properties of language (i.e., those that necessarily hold true of all languages) as well as typical properties (i.e., those that may not hold true for every language but still represent the normative case). For typical properties, the universals can be concerned with the presence or absence of an individual linguistic feature or they can be concerned with the connection between two or more features.

In discussing the second and third questions, however, I stopped far short of arguing for definitive answers, opting instead to survey the core problems one would need to address to articulate an answer. My intention in doing this was to represent the current state of affairs within the field. There is a wealth of fascinating discussion surrounding sampling techniques and explanations for universals, but no consensus has emerged that I might present as the perspective of typologists generally.

Having laid out the conceptual basics of typology in the past three chapters, I now move on to specific phenomena of human language to probe for the unity and the diversity that underlie the linguistic system. I begin in the next chapter with universals in the ordering of words and phrases, an

area of investigation that has had a high profile within typology since the 1960s.

6.0. Key Terms

Absolute universals
Automization
Complex implicational universals
External explanation
Implicational universals
Independent languages
Internal explanation
Language genera
Language sample
Lexical semantics
Linguistic area
Nonabsolute universals
Pragmatically marked
Pro-drop
Redundancy

Notes

1. Various languages, including Nootka (Almosan-Keresiouan: Canada) and Mohave (Hokan: United States), are said to lack a clear adjective category. In these languages, adjectival meanings are typically expressed by stative verbs. In the final analysis, it may turn out that properties that do in fact identify a unique adjective class have been overlooked. If this is the case, then the nonabsolute universal in (2b) would become absolute. Alternatively, it may be the case that the notion "adjective," which is a relatively clearly defined category in languages such as English, is better analyzed as subclasses of verbs or nouns or both in other languages. In this case, the strong tendency expressed in (2b) would have to be weakened or abandoned. Word classes such as adjective are discussed in the next chapter.

2. Maddieson (1984) included both long and short varieties of [i] in this calculation.

3. This kind of universal is particularly prominent in the work of the typologist John Hawkins (1979, 1983).

4. It should be noted that the order noun-adjective is also found in Tigre, although it is apparently less common (Raz 1983, 32). Moreover, when the preposition *nay* ("of") is used in the expression of the genitive, the genitive can come before the noun (80). Raz does not offer comment on this fact.

5. One of the main points of Campbell et al. (1988) is that exceptions to otherwise absolute universals are often the result of borrowing. This appears to be true for Tigre and the universal in (5). Tigre, a Semitic language, has been influenced by Cushitic languages, particularly Bedawye (Hetzron 1972). The Cushitic languages typically have adjective-noun order and may represent the source of this characteristic in Tigre.

6. Rijkhoff, Bakker, Hengeveld, and Kahrel (1993, 171) observe, "in view of recent proposals which suggest still larger genetic groupings, resulting in fewer independent language families, it is clear that it will become increasingly difficult to design representative probability samples in which languages are not genetically related." In other words, it may not be possible to create a sample of 50 genetically independent languages, let alone a sample in which the 50 languages are independent both genetically and culturally. The authors argue, therefore, that the task in creating a sample is not to find languages that are actually independent but to find languages that are maximally diverse genetically.

7. The languages within a genus generally share most major typological characteristics (word order, morphological type, etc.).

8. Greenberg casts the universal as an absolute. Dryer (1989b), however, lists six languages that are exceptions to the claim.

9. The parentheses indicate that the prepositional phrase is optional.

10. Another notable property of the passive construction is that the agent nominal, the doer of the action (Barry in (11b)), is found in a prepositional phrase. Many languages are like English in this respect, or they mark the agent with an oblique case (see Chapters 4 and 7 for a discussion on case). Other languages suppress the agent nominal. That is, they do not allow the agent to be expressed at all in the passive. For the purposes of the discussion here, this property is ignored.

11. Givón (1984/1990) also points out that the verb in a passive commonly takes on a stative form. This is true in English in which the passive verb is a combination of the auxiliary *be* and a participle. He suggests that recasting an active, which typically denotes an agent-oriented process, as a state is another way to background the role of the agent (see Haspelmath 1990, 1994).