Syntax

An Introduction to Minimalism

Elly van Gelderen
Arizona State University

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Abbreviations

(not mentioned are (N)P, V(P), P(P), and A(P))

ACC	accusative	NOM	nominative case
ant	anterior	NPI	Negative Polarity Item
asp	aspect, also in ASPP, Aspect Phrase	Num(P)	Number (Phrase)
C(P)	Complementizer (Phrase)	OM	Object Marker
CI	Conceptional Intentional (Interface)	P	plural
		pass	passive
CL	Classifier	perf	perfect(ive), also used in PerfP
COCA	Corpus of Contemporary American English (http://corpus.byu.edu/coca/)	phi	person and number
		pres	present
decl	declarative	pro	zero subject of finite verbs
def	definite	PRO	zero subject of non-finite verbs
D(P)	Determiner (Phrase)	progr	progressive, also used in ProgrP
E	Event	Q	Quantifier
ECM	Exceptional Case Marking	rep	repetitive
F	feminine	S	singular or Speech time
fin	finite	T(P)	Tense (Phrase)
freq	frequentative	u-	uninterpretable feature
fut	future	VPISH	VP Internal Subject Hypothesis
gen	generic	1	first person
hab	habitual	2	second person
i-	interpretable feature	3	third person
indef	indefinite	#	pragmatically marked
M(P)	Mood (Phrase)	*	ungrammatical

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Preface

This is a textbook on generative syntax. It provides general syntactic background as well as an introduction to ideas from the Minimalist Program, the most recent instantiation of generative syntax. Chapter 1 starts with the general idea behind generative grammar and should be read from a big picture perspective. Chapters 2 and 3 provide some background on lexical and grammatical categories and on basic phrase structure rules. After these introductory chapters, the book covers the clausal spine, the VP, TP, and CP in Chapters 4, 5, and 6, respectively. Chapter 7 is about the DP and Chapter 8 discusses the importance of features. Chapter 9 returns to some of the issues raised in Chapter 1 and summarizes the approach.

If students are already familiar with categories, Chapter 2 can be skipped. For students who want to know about the clausal spine and are less interested in the fine details of feature checking, Chapter 8 can be left out.

The main goal of the book is to enable students to understand the structure of sentences in English. The framework developed can then also be applied to other languages, though not much emphasis will be put on that here, except in Chapter 7. The book represents the structure by means of trees, as is common in generative grammar (although no longer in Chomsky 2013; 2015). A second aim is to explain the generative model and some of the recent updates to it, e.g. the shift from a very rich Universal Grammar to a simpler one. Because much of the material is introductory, I have not given copious references, except in Chapter 1. The information in Chapters 2 and 3 is mostly couched in traditional grammatical terminology. In the other chapters, I have only provided references to some of the major ideas, e.g. the VPISH, the VP-shell, and the DP.

I decided to write this book because most introductory textbooks lack the basic information – here included as Chapters 2 and 3 – or are too technical for the students I have in mind, e.g. Adger's 2003 *Core Syntax*, Hornstein, Nunes & Grohmann's 2005 *Understanding Minimalism,* and van Gelderen's 2013 *Clause Structure.* Carnie's 2011 *Syntax* and Radford's 2009a–b are alternatives but have different areas of focus and do not incorporate current Minimalist ideas. I have introduced a few aspects of the current phase of Minimalism (Chomsky 2015) and present a different view of theta-roles, namely as based in inner aspect. Adger's and Radford's sentences are also often judged as too British by my students. I have used a mixture of corpus examples (marked as such) and made-up ones. The corpus examples liven up the text and are also added if the construction is a little unusual.

Elly van Gelderen, Apache Junction, AZ

Chapter 1

Generative Grammar

Keywords: Universal Grammar, I-language, E-language, parameters (syntactic and lexical), merge, minimalism, recursion

In this chapter, I provide some background on the major ideas behind generative grammar and on some of the recent changes in its outlook. Generative Grammar has always emphasized the innate component to the Faculty of Language. In recent years, the focus has shifted from a rich Universal Grammar to innate mechanisms that are part of more general cognitive principles and principles of organic systems.

In Section 1, we'll look at reasons for assuming a Universal Grammar and innate cognitive structure. In Section 2, we'll discuss the 'Principles and Parameters' approach, an intuitively appealing way to account for cross-linguistic differences. Section 3 sketches the basics of a Minimalist approach, the Borer-Chomsky Conjecture, and provides a brief introduction to the 'Problems of Projection' approach to phrase/clause structure. Section 4 is a conclusion.

This chapter provides a broad picture of the aims of generative syntax. Depending on the reader's familiarity with this area, certain parts of this chapter may be somewhat (too?) abstract. Chapter 2 starts with the basics syntax and the other chapters build on that.

1.   Universal Grammar

Chomsky's (1957; 1965) generative model offers an approach to language that is focused on acquisition and the faculty of language as represented in the mind/brain. The answer as to how children acquire language so effortlessly is seen as rooted in Universal Grammar. In this model, the focus is on the mind of the language learner/user (the competence) and ceases to be on the structures present in the language produced (the performance). Thus, children do not imitate what they hear but come up with their own system; see the difficulties this leads to in Figure 1.1.
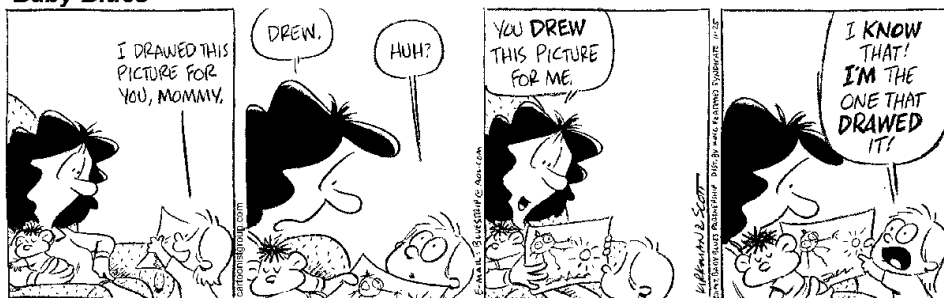
Figure 1.1 The Internal Grammar
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The input to language learning is poor, a phenomenon known as the 'poverty of the stimulus'. Children hear parts of sentences, false starts, and so on, but still end up with a grammar in their minds/brains that is not dependent on that input or on correction, as Figure 1.1 also attests to.

Speakers know so much more than what they have evidence for from the input. For instance, speakers of English have never been taught that sentences of the type in (1a) are grammatical but those in (1b) are not. Yet, they know this difference.

(1) a. Who did you say **that** you intend to invite?   (adapted COCA fiction 2014)
     b. *Who did you say **when** you intend to invite?

In (1a), *who* originates as the object of *invite* and is fronted to form the *wh*-question; in (1b), the same happens but somehow changing *that* to *when* makes the sentence ungrammatical. We'll talk about this phenomenon more in Chapter 5; the point here is that we know how to distinguish grammatical sentences from ungrammatical ones, without instruction. Note that prescriptive grammar demands *whom* in (1) but that this accusative form of the *wh*-word is in decline in both spoken and written English.

As a note on the examples sentences, I use made-up examples if they are uncontroversial and use corpus examples, e.g. from the Corpus of American English (COCA) in (1a), to convince you that they occur or to liven up the text.

When we look at c-command in Chapter 3, we encounter another example of a phenomenon that depends on principles in the internal grammar rather than on something that is necessary for communicative purposes. So, in (2), the closest antecedent to the reflexive pronoun is the feminine *Jane* but the correct form is *himself*, as in (2a), not *herself*. Why couldn't (2b) mean that 'he voted for her'?

(2) a. The husband of Jane voted for **himself**.
     b. *The husband of Jane voted for **herself**.

The parasitic gap in (3) is a construction native speakers of English have never been taught but which they have grammatical judgments on. The gaps in (3), indicated by underlined spaces, show that *which articles* is the object of both the verb *file* and the verb *reading*.

(3)   Which articles did John file __ without reading __?

The interesting property is that *which articles* in (3) is connected to two different gaps – hence the name parasitic gap – and this is usually not grammatical, as (4) shows.

(4) *Who was he sent a picture of __ to __?
    [meaning: To whom and of whom was he sent a picture?]

How do speakers know that it is grammatical to have an extra, i.e. parasitic, gap in (3) but not in (4)?

How is the acquisition of phenomena such as those in (1) to (4) possible? It is based on impoverished input since native speakers may never actually have heard (1a), (2a), or (3) and still know that they are grammatical. The answer to this problem, 'Plato's Problem' in Chomsky (1986), is Universal Grammar, the initial state of the language faculty. This biologically innate organ helps the learner make sense of the data and build an internal grammar (I-language), which then produces the sentences a speaker utters (E-language). See Figure 1.2.

Universal Grammar

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Input (e.g. English)

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I-language ──────────▶ E-language
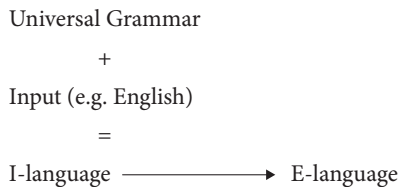
Figure 1.2 Model of language acquisition (initial version)

The innate language faculty, when "stimulated by appropriate and continuing experience, … creates a grammar that creates sentences with formal and semantic properties", according to Chomsky (1975: 36). Thus, our innate language faculty (or Universal Grammar) enables us to create a set of rules, or grammar, by being exposed to (rather chaotic) language around us. This input may be English or any other language. The set of rules that we acquire enables us to produce sentences that we have never heard before and that can be infinitely long (if we have the time and energy).

Language acquisition, in this framework, is not imitation but an interaction between Universal Grammar and exposure to a particular language. "Learning is primarily a matter of filling in detail within a structure that is innate" (Chomsky 1975: 39). "A physical organ, say the heart, may vary from one person to the next in size or strength,

but its basic structure and its function within human physiology are common to the species. Analogously, two individuals in the same speech community may acquire grammars that differ somewhat in scale and subtlety. … These variations in structure are limited …" (1975: 38).

Universal Grammar of the 1950s to 1970s has a lot of specific instructions and rules. It includes rules for antecedent-reflexive relations to account for (2) and for *wh*-movement to account for (1), (3), and (4). If humans only had 100,000 to 200,000 years – as is currently speculated – to develop the Faculty of Language, it makes sense to attribute less to it. Currently, Universal Grammar just contains a simple operation 'merge' that combines two elements into a set. Merge includes what is referred to in this book as 'move': the merging element is taken from inside the derivation and copied. If Universal Grammar is no longer so important, the pre-linguistic conceptual structure plays a much larger role, as I now show.

In Chapter 4, we'll discuss the VP which is where the information is situated on 'who does what to whom', i.e. the argument structure. Arguments are obligatory elements for verbs. For instance, the verb *arrive* has one argument, *the bus,* in (5a) and *give* has three, *they, us*, and *books*, in (6a). Adding more, as in (5b), or deleting one, as in (6b), renders an ungrammatical sentence.

(5) a. The bus arrived.
     b. *He arrived the bus.

(6) a. They gave us books.
     b. *They gave us.

There is a debate as to how much of this information is listed with the verb in the lexicon (Levin & Rappaport Hovav 1995) and how much added by the syntax (Borer 2005a–b). The big question is how children acquire this structure, which is very complex. For instance, we distinguish arguments that are Agents from those that are Themes and various researchers show that children distinguish intransitive verbs with Agents (*swim*) from those with Themes (*fall*) from the moment they start using these verbs (e.g. Snyder, Hyams & Crisma 1995; Costa & Friedmann 2012, and Ryan 2012). That implies these concepts are innate. Children also distinguish the aspectual manner from result verbs by using -*ing* in English for the former and past tense -*ed* for the latter. We'll talk about Agents, Themes, and aspect more in Chapter 4.

Bickerton (1990: 67) sees "[a]rgument structure … [a]s universal." He writes that the "universality of thematic structure suggests a deep-rooted ancestry, perhaps one lying outside language altogether" (1990: 185). All languages have verbs for eating and drinking and those verbs would have an Agent and a Theme connected with them. Arguments are also represented in the syntax in predictable ways. Jackendoff (2002), based on Bickerton, suggests that pre-linguistic primate conceptual structure

may already use symbols for basic semantic relations. If argument/thematic structure predates the emergence of language, an understanding of causation, intentionality, volition – all relevant to determining Agents, Causers, and Themes – may be part of our larger cognitive system and not restricted to the language faculty.

Chomsky's main interest is not the cognitive structure but the syntax and he devotes only a few words to the acquisition of the lexical knowledge. Early on (1965: 142), he says that "semantic features … too, are presumably drawn from a universal 'alphabet' but little is known about this today and nothing has been said about it here." This tradition of assuming innate knowledge goes back to the Greeks. A French source from the 17th century says the following about ideas:

> Ils "ne tirent en aucune sorte leur origine des sens. Notre âme a la faculté de les former de soi-même."
> They 'do not in any fashion have their origin in the senses. Our mind has the faculty to form those on its own.'   (Arnauld & Nicole 1662 [1965]: 45)

In the next section, I'll describe the Principles and Parameters approach to Universal Grammar because it was very influential in the 1980s and 1990s and is still used as a descriptive tool today. Then, I show how it is seen now, namely as restricted to the lexicon.

2.   Parameters: From syntax to lexicon

In the 1980s and 1990s, parameters are seen as choices that Universal Grammar makes available to the language learner. They have to be set as +/− on the basis of the available linguistic evidence. Early examples of parameters that Universal Grammar is seen to supply are pro-drop (Rizzi 1982), headedness (Stowell 1981), and movement of *wh*-elements (Huang 1982).

Pro-drop is the cover term for a set of related phenomena, the absence of the subject of a finite verb, the possibility to have subject-inversion, and more (see Chomsky 1981: 240). Not many linguists, however, believe that the phenomenon involves a +/− setting of an actual parameter called 'pro-drop' and now it is seen as a property of the lexicon, as I'll mention later on.

If a transitive verb has no subject or object, these arguments are nevertheless assumed to be present because otherwise the verb does not have its regular meaning. So, the meaning of *go* depends on someone going. The empty subjects are usually referred to with the first three letters of the word 'pronoun'. If the empty subject is the subject of a non-finite verb, we refer to it as PRO ('big PRO'), as in (7).

(7)   **pronounced as:**
        I want PRO to go.   I want to go. / I wanna go.

If it is the subject of a finite verb, as in (8), we refer to it as pro ('little pro'). (8) is the Spanish translation of (7) that shows Spanish has both pro and PRO.

(8)   **pronounced as:**
        pro quiero PRO venir.   Quiero venir.

Modern English has PRO but not pro, since a tensed/finite clause cannot have a null subject, as (9) shows.

(9) *Now pro am talking to myself.   Now am talking to myself.

Some criteria for distinguishing between PRO and pro are that PRO is obligatorily empty, while pro is optionally so, and that PRO is universally available if languages have the appropriate non-finite clauses but pro exists only in certain languages. When we talk about the Pro-drop parameter, we mean small pro.

In short, Modern English has null or empty subjects with infinitives, as in (7), but lacks unexpressed subjects with finite sentences, as (9) shows. Spanish has both PRO and pro and is therefore a pro-drop language. There are other kinds of empty elements or copies. Thus, if an element moves, it leaves a copy, as *who* does in (1), and all languages have these elements. (Copies are sometimes referred to as traces).

Headedness is a helpful way to characterize a language, with Arabic, Irish, and Chinese being head-initial and Japanese, Hindi/Urdu, and Korean head-final. Verbs, prepositions, and nouns precede their complements in head-initial languages but follow them in head-final ones. Examples are given in (10) and (11).

(10) a. *wo he   cha*   Chinese VO
          1s drink tea
          'I drink tea.' (tense is not marked here)
      b. *gen ta*   Chinese PO
          with 3s
          'with her/him'

(11) a. *Mē kitaab perhti hū.*   Hindi/Urdu OV
          1s book read be.1s
          'I am reading the book.' (I am ignoring the feminine on *perhti*)
      b. *mez per*   Hindi/Urdu PO
          table on
          'on the table'

Languages can also be head-initial for the P and head-final for the V, or have another combination of category-specific headedness. Kayne (1994) abandons headedness

and argues that SVO is basic; other word orders come about through movement. This position is frequently followed but one still encounters work using V-final as basic and, as we'll see in Section 3, recent work that says the syntax is unordered.

The *wh*-movement parameter describes the variation languages show in whether they move the *wh*-pronoun or not, as in (12).

(12)   *ni xiangxin ta hui shuo **shenme***   Chinese
           2s think   3s will say   what
           'What do you think s/he will say?'

Though most introductory generative syntax books (Radford 2009a–b) continue to cite this set of syntactic parameters, *pro*-drop/null subject, headedness, and *wh*-movement, these are often used in very descriptive ways, not to explain what goes on in language acquisition. Since Chomsky (1995), a major question is how these parameters would have arisen in the brain. If the shift in humans from no language to language was immediate, it makes sense that there is one crucial change in the way the brain functions and that change could have been the introduction of merge. Complex parameters of the *pro*-drop variety don't fit in this non-gradual picture of evolution.

In addition, especially since Borer (1984), parameters have come to be seen as choices of feature specifications as the child acquires a lexicon (Chomsky 2007). To account for pro-drop, we assume that the Spanish lexicon includes an item with just person and number features but no phonology. The computational system of every language is seen as the same but the parametric choices are lexical and account for the variety of languages. They also determine linear order but have no effect on the semantic component. Baker, while disagreeing with this view of parameters, calls this the Borer-Chomsky-Conjecture.

(13)   **Borer-Chomsky-Conjecture**
           "All parameters of variation are attributable to differences in the features of
           particular items (e.g., the functional heads) in the lexicon."   (Baker 2008: 156)

The conjecture in (13) describes how the lexicon is acquired. Children need to combine the various (innate) semantic features into words.

Section 2 has outlined three traditional parameters that used to be seen as part of Universal Grammar. They no longer are seen this way but nevertheless are helpful in describing differences between languages.

3.   Minimalism

In this section, I discuss what Minimalism is, how it shifted from a focus on Universal Grammar to third factor principles, and what the most recent instantiation looks like.

Minimalism is a program, not a theory, as Chomsky always emphasizes. It encourages inquiry into certain questions, such as 'why is language the way it is'? The computational system is assumed to contain only what is necessary to build representations that connect sound (or sign or writing) to meaning. It is the same for all languages. Because of this line of inquiry, derivations and structural representations have become extremely bare, as we'll see at the end of this section.

Since Chomsky (2005; 2007), as mentioned, the emphasis is on innate principles not specific to the language faculty (Universal Grammar), but to "general properties of organic systems" (Chomsky 2004: 105). Chomsky identifies the three factors that are crucial in the development of language as follows, where I have taken the most explicit formulations from different publications.

Three Factors

1. Genetic endowment, apparently nearly uniform for the species, which interprets part of the environment as linguistic experience, a nontrivial task that the infant carries out reflexively, and which determines the general course of the development of the language faculty. Among the genetic elements, some may impose computational limitations that disappear in a regular way through genetically timed maturation …;
2. Experience, which leads to variation, within a fairly narrow range, as in the case of other subsystems of the human capacity and the organism generally" (Chomsky 2005: 6);
3. Principles not specific to FL [the Faculty of Language]. Some of the third factor principles have the flavor of the constraints that enter into all facets of growth and evolution …. Among these are principles of efficient computation". (Chomsky 2007: 3)

The first factor is the traditional Universal Grammar and the second factor is the experience that we saw in Figure 1.1. The third factor is new but somewhat related to the first; it is favored above the language-specific one (for reasons of simplicity). The third factor can be divided into several types, including principles of efficient computation. Economy Principles are probably also part of more general cognitive principles, thus reducing the role of Universal Grammar even more. Figure 1.2 can therefore be adapted as Figure 1.3.
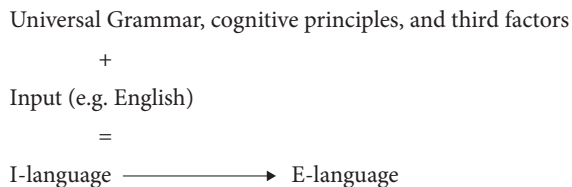
Universal Grammar, cognitive principles, and third factors

+

Input (e.g. English)

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I-language ⎯⎯⎯⎯⎯⎯→ E-language

Figure 1.3 Model of language acquisition (final version)

As mentioned, the Minimalist Program proposes syntactic models and derivations that are very minimal and the same for every language. Interfacing with the syntactic derivation are the Conceptual-Intentional and Sensory-Motor systems. The former is responsible for providing an interpretation and includes non-linguistic knowledge where the latter is responsible for externalizing the derivation i.e. providing a spoken or signed or written representation.

The minimalist model for deriving a sentence from 1995 on involves making a selection from the lexicon, as in (14), and merging these items together, as in (15), from bottom to top. The brackets indicate unordered sets that need to be ordered when they are externalized.
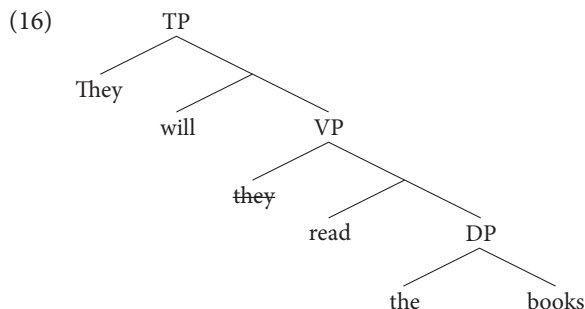
(14)   {they, read, will, the, books}

(15)   a.   {the, books}
      b.   {read, {the, books}}
      c.   {they, {read, {the, books}}}
      d.   {will, {they, {read, {the, books}}}}
      e.   {they, {will, {~~they~~, {read, {the, books}}}}}

In steps (15a–b), we are just combining the object and the verb, i.e. constructing the VP. The other steps depend on the subject of the sentence being merged immediately with the VP (15c) before the auxiliary *will* is in (15d). Sometimes the merge is 'internal', from inside the derivation, e.g. *they* in (15e). We often refer to this as the subject moving to a higher position. We'll talk about the details in Chapters 4 and 5.

In this book, as in e.g. Kayne (1994; 2013), we will not follow Chomsky in having an unordered derivation. We will argue there is a base order, SVO, with an Agent before the Verb and its Theme. The reason for this is that the externalization is not understood well if we have a derivation without order, as in (15).

Another way of representing the derivation in (15) is through a tree, as in (16), which I have only partially filled in. The TP is the Tense Phrase, where all vital information on finiteness and agreement is stored. We will assume that what appears to the left of one word in the tree will also be spoken, signed, or written first.

(16)

```
              TP
          ╱        ╲
      They      ╱      ╲
            will        VP
                   ╱       ╲
                they   ╱       ╲
                    read        DP
                            ╱       ╲
                         the        books
```

Merge as in (15) and (16) is recursive; one can continue to merge if there is enough time. This property means we can make sentences that are in principle endless, as in (17).

(17)   I thought she mentioned that they were leaving because they had to visit an uncle who was now living abroad in order to …

The current Problems of Projection (PoP) approach within Minimalism insists that the derivation in (16) isn't labelled when the tree/derivation is built. It says that syntax only combines objects and yields unordered sets {X, Y} without a label (Chomsky 2013: 42), as already shown in (15). The labeling is done when the syntax hands over its combined sets to the interfaces, as shown in Figure 1.4, which represents the current model. This labeling mechanism is a third factor principle: needed for the interfaces.
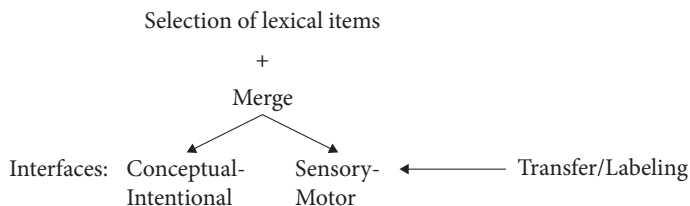
Selection of lexical items

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Merge

Interfaces: Conceptual-   Sensory-   ←——————— Transfer/Labeling
              Intentional   Motor

Figure 1.4 The Minimalist model of language generation

Attractive in this model is that movement, as we'll see is frequent in Chapters 4 and 5, is "driven by labeling failures" (Chomsky 2015: 7). For instance, if two phrases are merged together, their heads are both as accessible and could both label the result. This is a paradox that is resolved when one of the two moves and provides an explanation for the movement of the subject that we'll see in Chapter 4.

The PoP approach is still being debated and, even if it is accepted that the syntax doesn't label phrases, we still need to know the structure of sentences and the order in which the words are externalized. Therefore, we will continue to use labeled and ordered trees in the chapters that follow.

4.   Conclusion

In this chapter, I have introduced Universal Grammar, innate structure, parameters, merge, and labeling. Some of this will sound very abstract at this stage but I wanted to give an indication of where the generative syntactic model is going. Mentioning the unlabeled trees should make you worry less about all the fine details; we'll put the details in (most of the time) but that may be for descriptive purposes. Differences between languages arise through lexical choices learners make in building the lexicon of a particular language: pronouns may vary between full phrases or heads and the inflection may be elaborate or not.

At the end of this chapter, you should be able to give an example of a traditional syntactic parameter and know a little about the role of Universal Grammar in the Minimalist Program. In the exercises, we'll practice how to do glosses that we've seen in (10) to (12) and (14) and (15), and to analyze example sentences from languages other than (Modern) English.

Exercises

A.   Radford (2009b: 35) provides the following sentence from Lucy. Descriptively speaking, when Lucy produces (1), what is she doing? Which parameters have been set?

(1)   What doing? (meaning: What are you doing?)

B.   Using the list of abbreviations in the front of this book, what is the word order in (2), head-initial or head-final? How would you translate this Hopi sentence (from Kalectaca 1978)?

(2)   *Nu' kwaahu-t tuwa.*
      1s   eagle-OM saw

C.   We will use two kinds of glosses for other languages: a morpheme-by-morpheme gloss, using abbreviated symbols, and a freer translation, enclosed in single quotation marks. Both are not always provided if the meaning is clear. The glosses list morphological features such as accusative (acc) in cases where this is relevant for our discussion. Hyphens are used when we can clearly see the morphemes; periods indicate morphemes that are fused. Much stricter glosses are suggested at <www.eva.mpg.de/lingua/resources/glossing-rules.php> Knowing this, explain in words what the glosses in (3) mean.

(3)   *mē*   *kahaanii likh-tii*   *hū.*   Urdu/Hindi 20th century
      1S.NOM(F) story   write-PRES.F be.PRES.1S
      'I am writing a story.'

D.   Find a language of your own choice and explore if it has pro-drop.

E.   Which special characteristic of the faculty of language is shown in Figure 1.5?

Figure 1.5 "I'm telling on you" <http://babyblues.com/comics/march-19-2007>
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F.   To get some practice with corpus examples, find an example with a reflexive pronoun in COCA and one in the BNC <http://corpus.byu.edu/bnc>