An Introduction to Generative Syntax: A cross-linguistic approach

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# Table of Contents

KEY TO INTERLINEAR GLOSSES............................................................................................................................................................................VII

**CHAPTER 1  FOUNDATIONS OF THE STUDY OF LANGUAGE AND SYNTAX.....................................................................................................................11**

1.1 The Science of Language ..................................................................................................................................................................................11
1.2 Prescriptivism versus Descriptivism .........................................................................................................................................................15
1.3 Linguistics and Syntax .....................................................................................................................................................................................18
1.4 Properties of Universal Grammar (UG) ....................................................................................................................................................22

Key Concepts .................................................................................................................................................................................................................24
Further Reading..............................................................................................................................................................................................................24
Exercises.......................................................................................................................................................................................................................25

**CHAPTER 2  THE LEXICON AND THETA RELATIONS.......................................................................................................................................27**

2.1 Restrictions on Lexical Items: What Words Want and Need ..................................................................................................................................27
2.2 Thematic Relations and θ-Roles .................................................................................................................................................................28
2.3 Lexical Entries ...............................................................................................................................................................................................34

Key Concepts .................................................................................................................................................................................................................35
Further Reading..............................................................................................................................................................................................................36
Exercises.......................................................................................................................................................................................................................36

**INTERCHAPTER A  NOUN-INCORPORATION...........................................................................................................................................40**

Further Reading..............................................................................................................................................................................................................42

**CHAPTER 3  PHRASE STRUCTURE AND CONSTITUENCY................................................................................................................................44**

3.1 Review of Phrase Structure ........................................................................................................................................................................44
3.2 Constituency Tests ........................................................................................................................................................................................48
3.2.1 Pro-forms ..................................................................................................................................................................................................49
3.2.2 Stand Alone ................................................................................................................................................................................................50
3.2.3 Coordination Tests ..................................................................................................................................................................................51
3.2.4 Movement Tests ....................................................................................................................................................................................52
3.3 C-command: A New Relation .................................................................................................................................................................59
3.4 From X-bar Theory to Bare Phrase Structure ........................................................................................................................................61
3.5 The Content of Lexical Categories ........................................................................................................................................................65
3.5.1 Noun Phrases ..................................................................................................................................................................................................65
3.5.2 Verb Phrases .................................................................................................................................................................................................68
3.5.3 Prepositional Phrases ...........................................................................................................................................................................69
3.5.4 Adjective Phrases ..................................................................................................................................................................................70
3.5.5 Adverbial Phrases ..................................................................................................................................................................................71
10.1 Binding Theory ................................................................................................................................................................................. 289
  10.1.1 The Distribution of Anaphors ........................................................................................................................................................................... 290
  10.1.2 The Distribution of Pronouns ........................................................................................................................................................................... 295
  10.1.3 The Distribution of R-Expressions .......................................................................................................................................................... 298
  10.1.4 Logophoricity .......................................................................................................................................................................................... 299
10.2 Wh-Movement, Raising and LF (advanced) .................................................................................................................................................. 300
10.3 Cross-linguistic Patterns of Anaphora and Binding ................................................................................................................................. 304
  10.3.1 Long-Distance Anaphora ............................................................................................................................................................................... 304
  10.3.2 Romance Pronominal Forms ........................................................................................................................................................................... 308
  10.3.3 Oceanic Reflexives/Reciprocals ............................................................................................................................................................... 311
  10.3.4 Verbal Reflexives ........................................................................................................................................................................................ 311
  10.3.5 Obviation ............................................................................................................................................................................................... 312
10.4 Reflexivity (advanced) ..................................................................................................................................................................................... 313
  Key Concepts ........................................................................................................................................................................................................... 316
  Further Reading .................................................................................................................................................................................................. 317
  Exercises .............................................................................................................................................................................................................. 318
APPENDIX ON THE CALLIGRAPHY OF TREE DRAWING ............................................................................................................................. 319
GLOSSARY .................................................................................................................................................................................................................. 322
INDEX ....................................................................................................................................................................................................................... 326
REFERENCES ............................................................................................................................................................................................................... 329
Key to Interlinear Gloses

Linguistic examples in languages other than English are shown using either three or four lines. Four lines are used when there is a significant degree of morphophonology that obscures the sequence of the underlying morphemic structure. Examples of both are given.

Fal-o  português [Portuguese]
speak-1.SG Portuguese
‘I speak Portuguese.’

Here, the Portuguese verb *falo* is broken down into its component morphemes, *fal-o*, with the corresponding morphemes given below. Thus, *fal* is the root, which means ‘speak’, and *-o* is a morpheme which means first person singular (1.SG). A key for all the abbreviations used in this text is given below. Consider now a four line example.

teythnekato:té: [Oneida]
te- yo- at- hnek- atote- :
DUC- 3.SG.N/F.PAT- SRFL- liquid- be.still- ASP
‘The water is still.’

Here, the relationship between the orthographic form (top line) and the morphological breakdown (2nd line) is obscured by a great deal of morphophonology.

Finally, note that the symbol Ø is used to denote a morphological form with no phonological content. This is shown in the following two English examples, where plural is marked with –s and singular is unmarked.

cat-s cat-Ø
‘cats’ ‘cat’

Superscript numbers are often used to indicate coreference in linguistic examples. We say that A and B corefer if they refer to each other (that is, if they refer to the same person or thing). Elements with the same index corefer. A star is used to indicate obligatory non-coreference.

A\(^1\) … B\(^1\) (A and B refer to each other) A\(^1\) … B\(^*\) (A and B do not refer to each other)

Let’s consider some real examples. In the following data set, *John* is given an index of 1. So, anything else in the sentence with a superscript 1 refers to John. If an index appears on a pronoun that does not appear on any nouns in the sentence, then that index refers to anyone possible person (or thing) not mentioned in the sentence.
John¹ saw himself¹/² in the mirror.
John¹ saw him¹/² in the mirror.
John¹ thinks that he¹/² is a genius.

In the first sentence *himself* has an index of 1, so it refers to John. The index also shows *², which means that the pronoun *himself* cannot refer to anyone else. In the second sentence, the pronoun *him* has an index of *¹, meaning it cannot refer to John. It also has an index of 2, meaning it can refer to anyone else. In the last sentence, the pronoun *he* has an index of ¹/², meaning it could refer to John, or it could refer to anyone else. As a final illustration, consider the following example.

John¹ thinks that Bill² saw him¹/²/³ in the mirror.

Here, the pronoun him could refer to John (1) or anyone not mentioned in the sentence (3), but it cannot refer to Bill (*²).

The following table lists all the abbreviations used in this textbook.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>absolutive, (p. 180)</td>
</tr>
<tr>
<td>ACC</td>
<td>accusative (p. 161)</td>
</tr>
<tr>
<td>AG</td>
<td>agent – This refers to a subject-like role in a sentence as opposed to the theta relation</td>
</tr>
<tr>
<td>ANTIPASS</td>
<td>antipassive (p. 182)</td>
</tr>
<tr>
<td>AOR</td>
<td>aorist, a kind of aspect</td>
</tr>
<tr>
<td>ASP</td>
<td>aspect – There are various kinds of aspects; however, if the precise aspect is not pertinent to the discussion, the designator ASP will appear.</td>
</tr>
<tr>
<td>AUX</td>
<td>auxiliary</td>
</tr>
<tr>
<td>BA</td>
<td>a marker found in the ba-construction in Mandarin (p. 171)</td>
</tr>
<tr>
<td>CASE</td>
<td>an unmarked Case morpheme – typically used when there is no morphological case distinction between nominative and accusative</td>
</tr>
<tr>
<td>CAUS</td>
<td>causative</td>
</tr>
<tr>
<td>CL</td>
<td>classifier (p. 86)</td>
</tr>
<tr>
<td>COMP</td>
<td>complementizer (p. 91)</td>
</tr>
<tr>
<td>CMP</td>
<td>comparative</td>
</tr>
<tr>
<td>COP</td>
<td>copula, a linking verb</td>
</tr>
<tr>
<td>DAT</td>
<td>dative, a Case primarily for indirect objects</td>
</tr>
<tr>
<td>DECL</td>
<td>declarative marker</td>
</tr>
<tr>
<td>DET</td>
<td>determiner (p. 81)</td>
</tr>
<tr>
<td>DU</td>
<td>dual number</td>
</tr>
<tr>
<td>DUC</td>
<td>dualic, a derivational morpheme in Iroquoian languages with a range of meanings</td>
</tr>
<tr>
<td>EPEN</td>
<td>epenthetic, sound inserted for phonological considerations – generally has no syntactic effect and usually can be ignored</td>
</tr>
<tr>
<td>ERG</td>
<td>ergative (p. 153)</td>
</tr>
<tr>
<td>F</td>
<td>feminine</td>
</tr>
<tr>
<td>FACT</td>
<td>factive, a modal marker</td>
</tr>
<tr>
<td>FE</td>
<td>factive enclitic, a modal marker</td>
</tr>
</tbody>
</table>
| GEN          | genetive, a Case primarily to
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPF</td>
<td>imperfective, a type of aspect</td>
</tr>
<tr>
<td>INCH</td>
<td>inchoative (p. 109)</td>
</tr>
<tr>
<td>INF</td>
<td>infinitive (Ch. 9)</td>
</tr>
<tr>
<td>INFORM</td>
<td>informal</td>
</tr>
<tr>
<td>INSTR</td>
<td>instrument</td>
</tr>
<tr>
<td>INTER</td>
<td>interrogative</td>
</tr>
<tr>
<td>INTR</td>
<td>intransitive</td>
</tr>
<tr>
<td>JOIN</td>
<td>joiner vowel</td>
</tr>
<tr>
<td>LINK</td>
<td>linker – found in some languages to attach a modifier to a noun</td>
</tr>
<tr>
<td>M</td>
<td>masculine</td>
</tr>
<tr>
<td>NC</td>
<td>noun class (p. 86)</td>
</tr>
<tr>
<td>NE</td>
<td>a particle of unclear function in nominal constructions in Iroquoian languages OR a partitive clitic in Italian</td>
</tr>
<tr>
<td>NFS</td>
<td>noun forming suffix</td>
</tr>
<tr>
<td>NOM</td>
<td>nominative (p. 153)</td>
</tr>
<tr>
<td>NONFUT</td>
<td>non-future tense (i.e., past or present)</td>
</tr>
<tr>
<td>NONPAST</td>
<td>non-past tense (i.e., present or future)</td>
</tr>
<tr>
<td>NZLR</td>
<td>nominalizer</td>
</tr>
<tr>
<td>OBJ</td>
<td>object (direct object if not specified)</td>
</tr>
<tr>
<td>OBL</td>
<td>oblique, generally marks a non-core argument of the clause</td>
</tr>
<tr>
<td>OBV</td>
<td>obviative (p. 71)</td>
</tr>
<tr>
<td>PART</td>
<td>participle</td>
</tr>
<tr>
<td>PAT</td>
<td>patient – This refers to an object-like role in a sentence as opposed to the thematic relation</td>
</tr>
<tr>
<td>PERF</td>
<td>perfective, a type of aspect</td>
</tr>
<tr>
<td>PL</td>
<td>plural</td>
</tr>
<tr>
<td>POLITE</td>
<td>politeness marker</td>
</tr>
<tr>
<td>POSS</td>
<td>possessive</td>
</tr>
<tr>
<td>PRES</td>
<td>present tense</td>
</tr>
<tr>
<td>PROG</td>
<td>progressive, an aspect</td>
</tr>
<tr>
<td>PRT</td>
<td>particle, used when exact function is unclear or not essential to the discussion</td>
</tr>
<tr>
<td>PST</td>
<td>past tense</td>
</tr>
<tr>
<td>QN</td>
<td>question particle</td>
</tr>
<tr>
<td>RECIP</td>
<td>reciprocal</td>
</tr>
<tr>
<td>REFL</td>
<td>reflexive</td>
</tr>
<tr>
<td>REL</td>
<td>relative clause marker</td>
</tr>
<tr>
<td>RL</td>
<td>realis</td>
</tr>
<tr>
<td>SBIV</td>
<td>subjunctive</td>
</tr>
<tr>
<td>SE</td>
<td>a reflexive marker in Romance languages (p. 143)</td>
</tr>
<tr>
<td>SFP</td>
<td>sentence-final particle (p. 183)</td>
</tr>
<tr>
<td>SG</td>
<td>singular</td>
</tr>
<tr>
<td>SRFL</td>
<td>semi-reflexive, a kind of reflexive marker found in Iroquoian languages</td>
</tr>
<tr>
<td>SUB</td>
<td>subordinator</td>
</tr>
<tr>
<td>SUBJ</td>
<td>subject</td>
</tr>
<tr>
<td>TNS</td>
<td>tense, used when value of tense (past, present) is unspecified (p. 74)</td>
</tr>
<tr>
<td>TOP</td>
<td>topic (p. 80)</td>
</tr>
<tr>
<td>TR</td>
<td>transitive</td>
</tr>
<tr>
<td>WH</td>
<td>question marker</td>
</tr>
</tbody>
</table>
Chapter 1 Foundations of the Study of Language and Syntax

By the end of this chapter you should be able to:

• explain the terms descriptivism and prescriptivism
• know the five core areas of theoretical linguistics
• briefly explain the notion of generative grammar
• explain the difference between competence and performance
• present arguments for universal grammar (UG)

1.1 The Science of Language

When asked what sets humans apart from the other animals, a common response is language. Language is different from mere communication, for which many species of animals have evolved elaborate forms. The much-studied waggle dance of bees is well-known example of animal communication. As the panel to the side indicates, bees are able to communicate the distance and direction of a food source over 35 m away (for discussion, see Riley et al., 2005). Their “conversations,” however, are limited to the topic of food, and can only make reference to the present. Bees cannot discuss the location of a food source from yesterday, last week or “when I was a young worker bee….” Later, we will discuss some properties of human language, and what sets it apart from animal communication. For now, let us consider the following contrast and see what it has to do with syntax and the study of language. The superscript numbers show coreference. Thus, in sentence (1), John and him both refer to the same person, namely John. The asterisk, *, in front the last two sentences means that they are ungrammatical. We will discuss this concept in more detail in a bit, but for now, it just means that these sentences are unacceptable to a native speaker of English. (1)

a. John¹ thinks that Mary likes him¹.
b. John thinks that Mary² likes herself².
c. * John¹ thinks that Mary likes himself³.
d. * John thinks that Mary² likes her².

Remember, in (1)d, her is refers to Mary. This sentence is fine, of course, where the pronoun her refers to someone other than Mary. Our job as a syntactician is to try to come to an understanding of the pattern found in these sentences. Why can’t we say the last two sentences, even though the words should be able to tell us what they mean? Looking at the reflexive pronouns, himself and herself, it looks as though the reflexive pronoun and its antecedent must be in the same clause.
(2)  
   a. John thinks [that Mary likes herself.]
   b. * John thinks [that Mary likes himself.]

In the first sentence, Mary and herself are in the same clause and the sentence is grammatical, or acceptable to a native speaker of English. In the second sentence, John and himself are in different clauses and the sentence is ungrammatical. So far, it seems that our hypothesis works:

**Principle of Reflexive Pronouns:**
A reflexive pronoun and its antecedent must be in the same clause.

We have just formulated our first syntactic principle! Our principle tells us about the distribution of reflexive pronouns in English by predicting which sentences are grammatical and which are ungrammatical. We will have much more to say about this topic in Chapter 10. For now, let’s take a closer look at the notion of grammaticality and ungrammaticality. In order to formulate principles of grammar, we first have to know which sentences are grammatical and which are ungrammatical. Roughly speaking, a grammatical sentence is one that sounds acceptable to a native speaker of the language. Linguists usually make use of the following symbols to indicate grammaticality and acceptability judgments of sentences:

* - ungrammatical
? - awkward or odd
?* - very awkward or odd
% - acceptable to some, but not to others – dialect variation
# - unacceptable, but grammatical – pragmatically odd
& - ungrammatical under the intended interpretation

Here are some examples.

(3)  
   a. I like carrots.
   b. * I carrots like.

The first sentence is a perfectly grammatical sentence of English, but the second sentence is not. In fact, we can informally use the term “word salad” to describe it, highlighting the fact that it’s nothing but a jumble of words that makes no sense. Now consider the following sentence.

   c. % I likes carrots.
You may find this sentence completely ungrammatical; however, it is perfectly acceptable in some dialects of English, including many varieties of Newfoundland English, spoken in Canada’s East Coast. The percentage sign at the beginning on the sentence indicates that there is dialect variation. This symbol is usually reserved for situations in which the source of variation is not clear. In the example above, it is clear – this sentence is grammatical in Newfoundland English, and typically appears as follows in the linguistic literature.

\[\text{(4)} \quad \text{I likes carrots.} \quad [\text{Newfoundland English}]\]

Another example of the use of this symbol is in the following sentence:

\[\text{(5)} \quad \% \text{Jasper promised Louisa to wash the dishes.} \]

For those native speakers of English for whom this sentence is grammatical, it is usually identical in meaning to \textit{Jasper promised Louisa that he would wash the dishes.} Many speakers find this sentence ungrammatical, but others are perfectly happy with it. No one has ever pointed a source of variation for this type of sentence. You may find this sentence perfectly fine, but you next-door neighbour may find it terrible. The variation appears to be random, so the % symbol is used. Finally, consider the last example.

\[\text{(6)} \quad \# \text{Carrots like me.}\]

This sentence of course makes no sense, but most speakers feel quite a bit different about this sentence than they do about (3)b. Whereas (3)b is word salad, this sentence is just weird, since carrots don’t have the capacity to like things. We would not want to say that this sentence is syntactically ill-formed – that is, there’s nothing really wrong with the word order. It’s just that what the sentence means is absurd. We say that the sentence is \textit{pragmatically ill-formed} (marked by the # sign) because it violates certain facts we know about the world. We might imagine a make-believe world where carrots come to life as in a cartoon and start expressing their feelings towards human beings. Finally, we cover the difference between grammaticality and acceptability. In practice, many linguists get sloppy and use these terms interchangeably in speech with a tacit understanding of the difference; however, we should be careful to use the appropriate form, especially in writing. A \textit{grammatical} sentence is one which does not violate any principles of grammar. In the examples at the beginning of this section, we can say that (2)a is grammatical and that (2)b is ungrammatical, because they violate the Principle of Reflexive Pronouns we developed above. An \textit{acceptable} sentence is one which is deemed acceptable by a native speaker of the language under inquiry. The reason, of course, that these terms are often used interchangeably is that the set of grammatical sentences and acceptable sentences should be one and the same. That is, we are trying to develop a grammar that tells us what the acceptable sentences of a language are, all acceptable sentences should be grammatical, and all grammatical sentences should be acceptable. This is the goal of \textit{generative grammar} – to develop a grammar that generates all and only the acceptable sentences of a language. Eliciting native speaker judgements is not an easy task, however. A given sentence might be acceptable only in a given situation. If a speaker does not have that situation in mind, she may initially judge the sentence as unacceptable. Field Linguistics is a burgeoning field of study in its own right where these difficulties are scrutinized, and many textbooks have been developed (ex., Bowern, 2008).

There are some odd exceptions to the preceding discussion, however. Consider the following sentences:
a. I couldn’t possibly fail to disagree with you less.
b. The mouse that the cat that the dog chased bit died.

Both of these sentences are, strictly speaking, grammatical, but neither one is very acceptable to any speaker of English. The first sentence is just too logically complex for anyone to be able to understand, and the second is too complex structurally. Here it is again, but with brackets to help us understand the structure better:

(8) The mouse [that the cat [that the dog chased] bit] died.

Sentences such as these are interesting from a psycholinguistic point of view where people study processing. For our purposes we will not worry about the unacceptability of these sentences. We can say that these sentences are grammatical, but that they suffer from processing problems. In fact, many people intuitively feel that there is nothing wrong with the syntax of these sentences – just that they are too complex to follow. Can there be such a thing as a sentence that’s acceptable but not grammatical? It seems like this shouldn’t be possible, but consider the following sentence:

(9) More people have been to Chicago than I have.

At first sight, this sentence might seem fine. But what does it mean? You may conclude that it is meaningless, or that it means something like other people go to Chicago more often than you do, or something else. Interestingly, to many people it sounds like a perfectly acceptable sentence, but it turns out that it’s probably not grammatical. That is, it violates some principle of grammar. To understand this, we must observe part of the sentence is missing in (9). Consider the following example, where the part of the sentence in brackets can be dropped, or elided.

(10) Alexis has never been to Chicago, but Rudy has (been to Chicago).

Although it would be unusual to include the elided material when speaking, it wouldn’t sound wrong to put it in…just somewhat redundant. If we try to replace the elided material in (9), however, the result is totally unacceptable:

(11) * More people have been to Chicago than I have been to Chicago.

This sentence makes no sense at all. In fact, it is not even clear it is syntactically or semantically well-formed. We won’t get into the details of the ungrammaticality here, but we will assume that the strong unacceptability of this sentence tells us that both it and (9) are ungrammatical, regardless of how well (9) may sound on its own. As a final example, consider the following sentence:

(12) This book, Peter read yesterday.
In an out-of-the-blue context, most speakers of English usually consider this sentence unacceptable. Considered in the following context, it sounds much more natural.

(13) A: Did Peter read this book on Saturday?
    B: No, this book, Peter read yesterday, and that book, he read yesterday.

This discussion, I hope, has served as a caveat for the novice syntactician. Although acceptability and grammaticality normally can be assumed to make no difference, this isn’t always the case, and care must be taken when assigning grammaticality judgments based on acceptability judgments in an out-of-the-blue context. If you find yourself in disagreement with someone about a judgment on a particular sentence, it may be due to true dialect variation, or it may be due to a difference in contexts you and the other person are assuming. This is something to watch out for as we begin our journey on the syntax of the world’s languages.

1.2 Prescriptivism versus Descriptivism

Prescriptivism is the practice of dictating, by virtue of some authority, acceptable standards of language use. Prescriptivist attitudes are most often applied to written language, but are often applied to spoken language. Examples of prescriptive authorities (with varying degrees of qualifications) include the Académie Française, Oxford English Dictionary, Chicago Manual of Style, Ann Landers, your high-school English teacher and so forth. A prescriptive grammar is a collection of the prescribed rules of a given language, and usually includes some common proscribed structures (i.e., sentences). Almost always are the proscribed examples in prescriptive grammars those that are found in common use. A prescribed structure is one which is deemed acceptable by some authority and a proscribed structure is one which is deemed unacceptable. A prescribed sentence is given in example (14), followed by a proscribed sentence.

(14) To whom do you wish to speak?
    Who do you wish to speak to?

Many “rules” of English grammar are actually not strongly proscribed by reputable grammars. For instance, you may have heard that split infinitives are to be avoided like the plague; however, since 1983 the Chicago Manual of Style has ceased frowning on constructions like to boldly go where no one has gone before. Many grammar mavens also decry the practice of stranding prepositions, even though these too are tolerated by contemporary style guides, especially in informal settings. Despite the fact that speakers
of English have been standing prepositions for over 700 years, the myth still persists that these are to be avoided at all costs.

Let’s consider a specific example or a prescriptive rule in more detail. We will undertake the deconstruction of a common prescriptive rule starting with an examination of the following sentences.

(15)  
a. Everyone forgot their homework yesterday.  
b. Someone left their dirty dishes on the table.  
c. Who remembered to bring their sleeping bag?

All of these sentences are proscribed in English because of the putatively faulty agreement between the subject and the possessive pronoun modifying the object. *Everyone, someone, and who* are singular, and thus require singular pronouns.

(16)  
a. Everyone forgot his homework yesterday.  
b. Someone left his dirty dishes on the table.  
c. Who remembered to bring his sleeping bag?

Recently (since about the 1960s, actually) the use of *his* in these sentences has been considered sexist. Various alternatives have been suggested such as *his or her, s/he, etc.* Only *he or she* has ever really caught on...and when it does appear, it is found only in written English. People generally revert to generic *they*. Nevertheless, generic *they* is proscribed. The current justification for this is that it is more “logical” if elements in a sentence agree for number, person, etc. There are several counter-examples to this, however. English ‘royal we’ referring to a 1st person singular referent is probably one of the better known examples. French *on* is third person singular, however, it can agree with first person singular elements.

(17) On a oublié notre musique. [French]  
‘We forgot our music.’

Similarly, German *Sie* is third person plural, but can be used to refer to second person singular referents in formal situations. Consider also the following French example.

(18) Vous êtes intelligent. [French]  
‘You are intelligent.’

The polite form of ‘you’ in French is *vous*. It is a second person plural pronoun and refers to a singular referent. It triggers plural agreement on the verb, but singular agreement on the adjective. All of these forms are considered standard use of the language and are sanctioned by the Académie Française (the governing authority on the prescribed

Examples of generic *they* from literature:

But to expose the former faults of any person, without knowing what their present feelings were, seemed unjustifiable. [Austen, Pride and Prejudice]

There’s not a man I meet but doth salute me, As if I were their well acquainted friend. [Shakespeare, Comedy of Errors, Act IV Scene 3]
use of the French language). Thus, the argument based on the logic of agreement is flawed at best, since there exist numerous examples that violate this principle.

Let’s look at the history of the word they (and its derivatives them, their, etc) briefly. They was borrowed from Scandanavian into English in the 14th century. Before that, there were separate plural forms for he and she. Almost immediately upon its introduction into English, they was used as a generic pronoun as in the sentences at the beginning of this section. In fact, generic they with a singular antecedent can be found in the works of Austen, Shakespeare and many other writers. It was not until the end of the 18th century until a prescriptive rule against generic they was formulated, and was codified into British law in 1850. The following timeline of arguments shows the development towards the proscription of generic they:

Some will set the Carte before the horse, as thus … yet in speaking at the least, let us kepe a natura l order, and set the man before the woman for maners Sake. (Wilson 1560)

This rule dictates that Mary and John is incorrect. The correct form is John and Mary.

The Relative shall agree in gender with the Antecedent of the more worthy gender…The Masculine gender is more worthy than the Feminine. (Poole 1646)

The masculine Person answers to the general Name, which comprehends both Male and Female; as Any Person, who knows what he says. (Kirkby 1746)

This rule advocated the use of gender-neutral he.

Pronouns must always agree with their antecedents, and the nouns for which they stand, in gender, number, and person; … Of this rule there are many violations … (Murray 1795)

and in the United States:

… the fact remains that his is the representative pronoun, as mankind includes both men and women… (White 1880)

It is clear, then, that overtly sexist attitudes were the driving force behind the proscription against generic they and the prescription of gender-neutral he. Furthermore, many proscribed sentences are difficult to make prescriptively correct while still maintaining the given structure of the sentence:

(19) a. Everyone forgot their homework, but they remembered their lunch.
   b. ?* Everyone forgot his homework, but he remembered his lunch.
**Descriptivism** is the approach that linguists take in the study of language. We do not prescribe how language is to be used (although we are often asked to). Rather, we describe, record and analyze the way language is actually used. This includes language in all its forms, including its dialects (the form of a language used in a geographically determined area), sociolects (the form of a language used by a given socio-economic class) and even idiolects (the particular form of a language used by a specific person). Consider the following examples.

(20)

a. Who are you speaking to?
b. To whom are you speaking?
c. *Speaking to whom are you?

(20)c. is clearly ungrammatical. (20)a. and b. are acceptable in standard colloquial English, although (20)b. is usually restricted to formal contexts. This is quite a different approach from the prescriptivist attitude, which would deny that (20)a. is an acceptable form. As syntacticians, our job is first to describe the data accurately and then to understand why. (20)a. and b. are acceptable and why (20)c. is not.

### 1.3 Linguistics and Syntax

**Linguistics**, simply put, is the study of language. There are five core theoretical areas to the study of language:

- **phonetics** – the study of sounds
- **phonology** – the study of sound patterns
- **morphology** – the study of how words are put together
- **syntax** – the study of word order
- **semantics** – the study of meaning

What is **syntax**? According to the Oxford English Dictionary, syntax is defined as follows:

The arrangement of words (in their appropriate forms) by which their connexion and relation in a sentence are shown.

And according to the Cambridge Encyclopedia of Language:

Syntax is the way in which words are arranged to show relationships of meaning within (and sometimes between) sentences.

For now, we will assume that syntax is the study of word order. This begs the question, as to what a ‘word’ is. Unfortunately, there is no single, clear answer to this question. The task of answering this question is made difficult by the following conceptions of the term ‘word’: semantic word, syntactic word, morphological word, phonological word, orthographical word. Although most of the time, the different conceptions listed
above will all agree on what is and is not a word, this is not always the case. The box in the margin lists various problematic cases, such as the form *I’d’ve as in *I’d’ve gone to the beach if it hadn’t’ve rained. We will not answer the question as how to define precisely what a word is; rather, we will use an “intuitive” definition of the term word, and deal with individual problems as they arise.

The next question we ask is how exactly do linguists study syntax? We examine the syntactic patterns found in natural language, and – just as importantly, the syntactic patterns that are not possible in natural language. Consider the following examples.

(21) Why did John say that Peter was fired?

There are two possible answers to this question depending on how it is interpreted. The sentence in (21) could be asking for the reason why John said what he did, so a possible answer is the following:

(22) John said that Peter was fired because he likes to spread rumours about Peter.

Or, the sentence in (21) could be asking for the reason why Peter was fired:

(23) John said that Peter was fired because he’s always late for work.

Now, if we negate the verb say, we notice something interesting:

(24) Why didn’t John say that Peter was fired?

(24) can only be asking for the reason why John didn’t say that Peter was fired.

(25) John didn’t say Peter was fired because he thought Peter didn’t want anyone to know.

The sentence in (24) cannot be asking for the reason Peter was fired:

(26) *John didn’t say Peter was fired because he’s always late for work. (* as answer to (21))

Note that there’s nothing wrong with pragmatically with asking such a question:

(27) John didn’t say that Peter was fired because he’s always late for work. He said Peter was fired because he stole money from the cash register.
The fact that (26) is not a possible answer to (24) is just as important to the study of syntax as the fact that (25) is a possible answer is.

How do linguists analyze syntax? There are two major camps: functional linguistics and formal linguistics. Functional linguistics is primarily concerned with the relationship between language and function (gathering information – question formation; introducing a new topic into conversation; highlighting topics of conversation, etc.) Role and Reference Grammar is one of the main theories of functional syntax. We will not be dealing with functional syntax in this textbook. Historically, formal linguistics is concerned with the structural properties of language and was concerned only with the automata for piecing words together to form sentences (in the case of formal syntax). Today, formal linguistics does take meaning into account. Here’s an example of where the two approaches diverge.

(28) Can you close the window?

This sentence is usually taken as a polite request to close the window, although this is not part of the literal meaning of the sentence. Functional linguistics are interested in this communicative feature of the sentence, whereas a formal linguist is traditionally only interested in the literal meaning and the structure (although a branch of linguistics known as formal pragmatics does address the communicative features as well). Formal linguistics is concerned with the hierarchical properties of language. This textbook will deal exclusively with formal syntax. Specifically, we will deal with Generative Syntax or Generative Grammar. What do we mean by ‘generative grammar’? To answer this, we must know what we mean by ‘grammar’. Grammar is the tacit knowledge that each speaker has that tells him or her whether a sentence is acceptable or not:

(29) * Who do you wonder whether Peter likes?

Each one of us has an innate ability to acquire whatever language we are surrounded with as we grow up. If you grew up in an English-speaking environment, you will know that (29) is an ill-formed sentence of English without ever having had any explicit instruction indicating that (29) is ungrammatical. (Recall that *=ungrammatical.) Indeed, most people would be hard-pressed to explain why (29) is bad…they just know that it is. Likewise, a speaker of French knows that (30) is ungrammatical.

(30) * Qui crois-tu que viendra?

The grammatical version is in (31).

(31) Qui crois-tu qui viendra?

And speakers of Cantonese know that (32)a and b are grammatical, whereas (32)c and d are ungrammatical.
Note that explicit instruction in these matters during language acquisition is usually non-existent. In cases where there is explicit instruction, it is usually scant, incomplete and ineffective:

From Pinker (Pinker, 1995) – attributed to Martin Braine

Child: Want other one spoon, Daddy.
Adult: You mean, you want the other spoon.
Child: Yes, I want other one spoon, please Daddy.
Adult: Can you say, “the other spoon”?
Child: Other…one…spoon.
Adult: Say, “other”.
Child: other
Adult: “spoon”
Child: spoon
Adult: “other…spoon”
Child: other…spoon. Now give me other one spoon.

Thus, by grammar we mean the mental system by which speakers of a language have an ability to produce and understand sentences of that language. We refer to this mental system as the Faculty of Language. Thus a grammatical sentence is one that can be computed/processed by the speaker’s Faculty of Language. In simple terms, when we say a sentence is ‘grammatical’ in a given language, we normally mean it is acceptable to a native speaker of that language. By generative grammar, then, we mean a system that produces all and only the grammatical sentences of a language. Thus, we are trying to construct a model of language that produces (generates) all possible grammatical sentences – and only the grammatical sentences.

Although generative grammar is considered to have been born with Syntactic Structures in 1957 (Chomsky, 1957), it had as its precursor structuralist linguistics, which emerged slowly over the course of the late 1800’s until the 20th century. Of the more famous contributions of structuralist linguistics is Saussure’s concept of the signifier (the word we use to refer to a concept) and the signified (the actual concept itself), and the arbitrariness of the relation between them.
Before concluding this section, we mention a final word about speaker knowledge. There are two kinds of knowledge about language that a speaker has.

- **competence**: the ability to discern grammatical sentences from ungrammatical ones
- **performance**: the ability to use language appropriately in the appropriate contexts

Syntax and the other core areas of theoretical linguistics deal with language competence. Consider the following sentence, made famous by Chomsky (1957).

(33) “Colourless, green ideas sleep furiously.”

Although this sentence is virtually completely meaningless, speakers of English intuitively feel that there is nothing structurally wrong with this sentence. This is an example of how a speaker’s **linguistic competence** allows him or her to discern grammatical sentences from ungrammatical ones. Of course if you ask a friend out of the blue whether this sentence is ok or not, your friend is likely to say it’s not simply because of sheer weirdness of this sentence. This is an example of how a speaker’s **linguistic performance** can interfere with his or her competence. Studies of performance issues are very important to the field of linguistics. Sociolinguistics and psycholinguistics is concerned more with the study of language performance, while syntax on its own is concerned purely with linguistic competence.

### 1.4 Properties of Universal Grammar (UG)

Language is acquired, not learned. People are sometimes puzzled upon hearing this statement, but consider this. People must learn various things – math, chemistry, phone numbers, how to get to a new job by public transit, etc. We can all recall having learned these things. They may have caused us grief (on difficulty with learning them) or joy (on success of learning them). For instance, we have to make a conscious mental effort to acquire the ability to integrate an equation:

\[
\int_{0}^{\pi} \sin(x) = 1
\]

Language is not acquired in this manner. There is no specific instruction. Can you recall the steps you went through in learning to speak? Compare learning a second language in high school or as an adult to having learned your first language! As we have seen, when there is specific instruction, it is fruitless. It hasn’t always been believed that UG is responsible for acquisition. An early alternative, now (largely) abandoned, held that language is a learned behaviour. This view was put forth mostly by B. F. Skinner in the 1950s within the framework of Behavioural Psychology. Chomsky published a scathing review of Skinner’s theory in 1959 in the Journal *Language* in which he argued that verbal behaviour...
essentially boils down to rat behaviour under Skinner’s approach. Language is innate. The acquisition of language is innate – it is an instinct. It will happen to all normal human individuals (much like puberty). This innate ability to acquire language is encoded by Universal Grammar (UG). UG is that part of the grammar of language that is invariant – it is the minimal set of principles that the child brings into the world when they set about the task of acquiring language. That which does vary from language to language must be filled in by the child, during the acquisition process. Why do we assume UG? After all, since languages differ on the surface in drastic ways, why do we assume UG?

There are several reasons. The first argument we will consider is referred to as the Poverty of the stimulus. This principle states that there is not enough linguistic input in the child’s environment to learn the principles of the language in such a short period of time. Consider, for example, the following sentences.

Which files did you put away without reading __ ?  
(compare: Which files did you put away without reading them?)

The first sentence contains a ‘parasitic gap’ – the precise details are unimportant. What is important is that this sentence is grammatical. Consider now the following sentences.

* Which teacher punished you for hitting __ in the face?  
(compare: Which teacher punished you for hitting them in the face?)

The first sentence here is ungrammatical. The technical explanation for this contrast is beyond our ability at the moment. What is important is that no one ever gets any instruction as to when parasitic gaps are grammatical. Furthermore, parasitic gaps are exceedingly rare, so much so that the child doesn’t hear them often enough to generalize when they are grammatical and when they aren’t. There is a principle that is part of UG that tells us where we can use parasitic gaps. Another fact about language that leads us to believe in UG is the presence of linguistic universals. Although it was mentioned that languages differ in drastic ways, they are also similar in very many ways. Over the duration of this course, you will learn some of the ways in which languages are, at some deeper level, very similar. An example of the universality of language is witnessed in its structural dependency. All languages exhibit structural dependence – that is language is structured hierarchically rather than linearly. This is exemplified by the use of syntactic trees to represent language, as we will see in today’s lecture.

Finally, unlike other learned behaviours, all humans acquire language. All non-pathogenic humans and no animals acquire language. In rare, tragic cases where people are sheltered from all forms of human language until after the onset of puberty, language acquisition ceases to be an effortless activity, and proceeds slowly. In these situations, the individual never acquires an adult level of fluency in any language. An often discussed example is “Genie.” Also, there have been many attempts to teach language to higher primates. None of these attempts has ever resulted been successful.

Before ending this chapter we will discuss one other theory of language acquisition and some of the problems that have been noted for it. The proposal we discuss is learning by analogy. It has been suggested that children learn language by analogy. This seems like a reasonable possibility given the large variety of generalizations that can be made about grammar. For instance, the first analogy the child could draw is that direct objects are always place after verbs. This would account for the two-word stage during language acquisition, which consists usually of
sequences of a verb and a direct object. Under this approach, there is no underlying universal grammar. The child simply learns language the same way he or she learns any other aspect of life. Consider, however, the following examples (Gleitman, 1994).

(34)  
  a. Susan painted the red barn.
  b. Susan painted the barn red.
  c. Susan saw the red barn.
  d. *Susan saw the barn red.

Under the analogy approach it is expected that children would produce speech errors during acquisition along the lines of the last example — however, children never seem to produce errors of this kind. This is unexpected assuming that children make use of analogies during language acquisition, but is compatible with an approach that assumes UG. In short, UG doesn’t make structures available that could produce the last sentence, which is why children never make errors of this kind.

Key Concepts

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>prescriptivism</td>
<td>The practice by some means of authority of dictating proper or standard usage of language.</td>
</tr>
<tr>
<td>descriptivism</td>
<td>The practice of describing, analyzing and understanding how language is used.</td>
</tr>
<tr>
<td>grammatical</td>
<td>A sentence is grammatical if it acceptable to a native speaker.</td>
</tr>
<tr>
<td>generative grammar</td>
<td>A grammar that generates all and only the grammatical sentences of a language.</td>
</tr>
<tr>
<td>Universal Grammar (UG)</td>
<td>That part of the grammar that is universal to all languages. That part of human language that the child is endowed with at birth.</td>
</tr>
<tr>
<td>Poverty of the Stimulus</td>
<td>The notion that the child is not exposed to enough primary linguistic data in order to reconstruct all the principles of grammar necessary to acquire language. This is one of the arguments in favour of Universal Grammar.</td>
</tr>
</tbody>
</table>

Further Reading

Bodine, A. (1975) A study on androcentric phenomena in the English language, focusing on he, she and singular they.


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**Exercises**

1. Consider the properties of communication and human language. What sets language apart from communication? Do you think you can make a case for higher primates possessing language, or just a more complex form of communication?

2. Consider the following sentences. Do they break any prescriptive rules of English grammar? Are they acceptable to you as a native speaker? If not, try to determine the source of the unacceptability. If you are not a native speaker of English, try to find someone who is.
   
   a. Who did you give the book to?
   b. Who do you wonder whether Peter gave a book to?
   c. John persuaded Mary to go to the opera.
   d. John promised Mary to go to the opera.
   e. Me and John went to the movies.

3. How do the following two short dialogues argue *against* the hypothesis that language is learned by positive reinforcement (first dialog from Uriagereka, 1998:7)?
Child (4 yrs): Eat shit!
Father: *(shouting angrily)* Go to your room!

***

Child (2 yrs): Me eated it.
Mother: You certainly did, cutie-pie. *(hands child another cookie)*

4. The following Logudorese Sardinian data might provide against the hypothesis that language is learned by analogy. How would you see if analogy plays a role in the acquisition of adverb placement in Logudorese Sardinian?

   a. Apo mandigadu tottu
      I have eaten everything
      ‘I have eaten everything.’
   b. Apo tottu mandigadu
      I have everything eaten
      ‘I have eaten everything.’
   c. Apo mandigadu bene
      I have eaten well
      ‘I have eaten well.’
   d. *Apo bene mandigadu
      I have well eaten
      (‘I have eaten well.’)

Logudorese Sardinian is a dialect of Sardinian, which is closely related to Italian. It is spoken in central eastern Sardinia. In total, there are about 1,500,000 speakers of all Sardinian dialects.
Chapter 2 The Lexicon and Theta Relations

By the end of this chapter you should be able to:

• understand the terms c-selection and s-selection,
• have a firm grasp of the various θ-relations and the θ-Criterion,
• understand the components of the lexical entry for a lexical item.

2.1 Restrictions on lexical items: What words want and need

As discussed in chapter 1, lexical items have various restrictions on what kind of arguments they can take. The first type of restriction we deal with concerns restrictions on the categorial type of the argument (Grimshaw, 1979). For instance, the verb push can’t exist by itself. You have to push something (push the car, push the couch, push a box). So we say the verb push takes a noun phrase as a complement. We refer to this type of restriction as a subcategorizational restriction. For convenience, we also refer to this type of selection as c-selection, where c stands for category. For example, the lexical item ask subcategorizes for or c/selects either a noun phrase (NP) or a clause (S), whereas the lexical item inquire subcategorizes for or c-selects only a clause.

(1)

a. I asked [NP the time]  e. I ate [NP an apple]
b. I asked [S what time it was]  f. * I ate [S that the apple was gone]c. * I inquired [NP the time]  g. *I think [NP an apple]d. I inquired [S what time it was]  h. I think [S that the apple was eaten]

This information is recorded as follows in c-selectional frames. Note that ask can take either an NP or an S as a complement, so the options appear inside curly brackets to show that either option can fulfill the c-selectional requirements of this lexical item.

(2)

ask:   __ {NP, S}  inquire: __ S

When a lexical item c-selects a prepositional phrase (PP), it is often the case that the preposition must be specified. Consider the following adjectives, which optionally c/select a PP.

(3)

Proud  proud of John  % proud for John  __ PP_of
happy  *happy of John  happy for John  __ PP_for

The second type of restriction to be aware of concerns restrictions on the semantic type of the argument. Such semantic features most commonly referred to include whether the entity is human or not, whether it is animate or not, whether it is concrete or not, etc. In our
discussions, we will often use the notation [+human], [-animate], etc. for convenience. We refer to these restrictions as selectional restrictions. Such restrictions are also referred to generally as s-selection, where s stands for semantic. For instance, the lexical item kill selects an animate, living direct object, while the lexical item assassinate selects an animate, living, famous direct object. Notice that we are marking violations of s-selection as pragmatically ill-formed rather than grammatically ill-formed. Whether s-selectional restrictions are simply part of our pragmatic knowledge or an actual part of grammar is an open question.

(4)  
a. John killed the mouse.  
b. # John killed the house.  
c. John assassinated the President.  
d. # John assassinated his neighbour.

Another property that a lexical item can s-select is concreteness. For example, the verb ponder doesn’t place any restrictions on concreteness, but the verb touch requires a concrete object.

(5)  
a. Mary pondered the table/the book.  
b. Mary pondered calculus/injustice.  
c. Mary touched the table/the book.  
d. # Mary touched calculus/injustice.

<table>
<thead>
<tr>
<th>c-selection:</th>
<th>category-selection – Does the lexical item require a noun phrase, prepositional phrase or a clause (or nothing) as a complement?</th>
</tr>
</thead>
<tbody>
<tr>
<td>s-selection:</td>
<td>semantic-selection – Does the lexical item require something of a specific semantic class, such as [+human], [+animate], [+concrete] as a complement?</td>
</tr>
</tbody>
</table>

2.2 Thematic Relations and θ-Roles

We have seen that predicates place various selectional restrictions on their arguments. These restrictions are related to the kind of role the arguments play in the event depicted by the predicate. For instance, in the sentence, John washed the dishes, John is purposefully bringing about the action of washing the dishes. However, in the sentence, John cried in the basement, John did not purposefully bring about the event of crying. Unless John is a actor in a play, we would normally understand John to have experienced the event of crying, rather than bringing it about. It turns out that these differences in interpretation are important linguistically. First we will discuss the various possible roles that have been identified, then we will look at some examples.

First, let’s note the following distinction. A predicate assigns particular theta-roles (or θ-roles), to its arguments. Each θ-role will correspond to one or more thematic relations. For example, in the sentence John gave Mary a book, John carries the θ-role corresponding to the role as a giver. This θ-role bears two thematic relations. One relation, which we will see is called <agent>, refers to the fact that John purposefully executed the event. The other relations, which we will see is called <source>, refers to the fact that John is the source of the book. Right now, we will go over the various thematic relations and then cover various examples to see how they combine into θ-roles. Thematic
relations are given in triangular brackets as we just saw for <agent> and <source>. For each entry below, the thematic relation will be given in bold-face, followed by a brief description, and then some examples.

The <agent> is the initiator or doer of the action and must be capable of volition or deliberate action. As such, only sentient beings can be agents. Note in the following example that the verb *hit* optionally assigns a θ-role of <agent> to its subject.

(6) a. Kenji hit Arsalan. (*Kenji* is an agent)
   b. A falling rock hit Kenji. (*A falling rock* is not an agent)

Note that only the potential for volition is required. If someone accidentally does something that could otherwise have been done intentionally, a thematic relation of <agent> still holds.

(7) Will accidentally spilled the sesame oil.

(8) Without realizing it, Richard had insulted the cashier.

An general exception to this is with several verbs of movement, which we will discuss under the thematic relation <theme>. We will see evidence later on that these verbs should be treated differently.

The <experiencer> relation holds of the individual who feels or perceives the event denoted by the predicate. In this case, the individual isn’t doing anything to bring about the event or state; rather, it is merely something that he or she experiences.

(9) a. Alan likes cookies.
   b. It seems to me that the words are mixed up.
   c. Jeremy saw the eclipse.

There is an important set of verbs that are similar in meaning, but that contrast with respect to the <agent> / <experiencer> distinction. Consider the following pairs of sentences.

(10) a. John looked at Mary.  
    b. John listened to the opera.  
    c. John tasted the stew to see if it needed more pepper.

In the first member of each pair of sentences, *John* bears an <agent> θ-role; whereas in the second member, *John* bears an <experiencer> θ-role. While you can look at something on purpose or not, you have no choice as to what you see. Once the light rays reflecting off an object hit your retina and send the appropriate nervous signal to your brain, you see the object whether you like it or not. Looking at something, on the other hand, requires a conscious decision. The same argument can be made for *listen to* and *hear*. *Taste*, on the other hand (as with *smell* and *feel*) is
ambiguous between the agentive and experiential readings. English simply does not have two lexical entries for these forms as it does for the verbs in (10)a and (10)b.

Experiencer verbs often have different case markings on the subject and object. We will discuss Case more in Chapter 6; however, we will briefly mention a few core concepts here. Typically, a subject is marked with nominative case and an object is marked with accusative case. Consider the following Icelandic and Hindi data, however (see p. 288 for more information on Hindi).

(11) a. Eirík-iðlikar þetta hús
   Eric-DAT likes this house
   ‘Erik likes this house.’

   b. Siitaa-ko laRke pasand the.
      Sita-DAT boys.NOM.M like be.PST.M.PL
      ‘Sita liked the boys.’

Notice that the subject in these examples is dative rather than nominative, and that the object is nominative rather than accusative. This change in case morphology is typical in experiencer constructions.

We move on, now, to the thematic relation <theme>. A <theme> is any entity that moves, stays still, or changes possession. Sometimes this thematic relation is used inconsistently, but strictly speaking, it should only be used in the situations described here.

(12) a. Peter moved the TV into the living room.
    b. Sue kept the book
    c. The children gave a book to Sue.
    d. The man stole a car

As mentioned above, some verbs that assign a θ-role of <agent> can, in some cases assign a θ-role of <theme> to the subject. Consider the following examples.

(13) Contrast with <agent> and <theme>

   a. Susan rolled the log down the hill.
   b. The log rolled down the hill.
   c. Susan rolled down the hill.
   d. Susan rolled herself down the hill.
In (13)a, Susan is an <agent> and the log is the <theme>. Many verbs of motion, such as roll in this set of examples, can appear without an <agent>, and the <theme> is the subject. This is the case in (13)b. The sentence in (13)c is ambiguous. Susan is either purely a <theme> or both a <theme> and an <agent>. If Susan is lying on a steep hill and falls asleep, she may start to roll down the hill. This is exactly the same as the situation in (13)b. However, Susan might make herself roll down the hill on purpose, in which case she is also an <agent>. This has the same meaning as in (13)d.

Next, the <patient> is the entity which undergoes an action or is affected by it. There must be some sort of effect on the entity to qualify as a <patient>. The following examples contain a <patient> in bold face. Linguistically, there is very little difference between themes and patients. So many people do not make the distinction. Nevertheless, we should be aware of the distinction.

(14)  
a. The dog bit the child.  
b. The arrow hit the apple.  
c. The president fired the treasurer.  
d. Alice shattered the mirror.  
e. The mirror shattered.

In a sentence such as John saw Mary, Mary is not a <patient> because she is unaffected by the fact that John saw her. In fact, she may be entirely unaware that she was even seen.

The <goal> is the entity toward which motion takes place. This movement may be concrete, and in (15)a or abstract as in (15)b. A subtype of <goal> is a recipient, which is discussed below.

(15)  
a. Bettina went from Montreal to Toronto.  
b. Bettina gave the highest mark to Mary.

The <source> is the entity from which motion takes place. Again, this movement may be concrete or abstract. Note in the second example that John is also an <agent>.

(16)  
a. John went from Montreal to Toronto  
b. John gave the highest mark to Daniel.

The <location> is the place (concrete or abstract) where something is, or where a particular action takes place.

(17)  
a. Annie stayed in New Orleans.  
b. Sara kept the old radio.  
c. Sara kept the old radio in her room.  
d. Miss Scarlet killed the victim in the kitchen with the lead pipe.
The <recipient> is a subtype of the <goal> thematic relation. It occurs with verbs denoting change in possession. The <recipient> is the entity that receives the <theme>. Whereas the <goal> is associated with any verb of motion and refers to the entity to which movement is directed, the <recipient> appears only with verbs of change of possession.

(18)  

a.  They gave Bettina a new book.  
b.  Melanie received flowers from Ken.  
c.  Milan stole the chocolates from the kitchen.

An <instrument> is an object with which an action is performed. Note that an instrument can be the subject of a sentence in English, but some languages do not allow instruments to appear as subjects.

(19)  

a.  We cut the bread with a knife  
b.  This key opens that door.

Note that while many verbs can have either an <agent> or an <instrument> as a subject in English, if both are present, the <agent> must be the subject. Consider the following data.

(20)  

a.  John broke the vase.  
b.  The hammer broke the vase.  
c.  The vase was broken by John.  
d.  The vase was broken with a hammer.  
e.  John broke the hammer with a vase.  
f.  * The hammer broke the vase by John.  

In the last two sentences, both an <agent> and an <instrument> are present. Note, though, that only the version in which the <agent> is the subject is grammatical.

The <benefactive> is the one for whose benefit the event took place. It is usually introduced by the preposition for. Note that the <benefactive> requires an agentive subject. Note the contrast in the last two examples.

(21)  

a.  Matt washed the dishes for Eric.  
b.  Alice fixed the toaster for Bill.  
c.  Susan rolled down the hill for Johnny. (ex, to make him laugh)  
d.  * The log rolled down the hill for Johnny.

Sometimes we speak metaphorically and say things like the bottle opened for me. We don’t really mean that the bottle did us a favour and opened itself for the speaker’s benefit. What we mean is that the speaker managed to open the bottle. As a general rule, we will not worry about metaphorical or poetic uses of language such as this.
Consider next the following ambiguous example. In (22)a. Sue could be the intended recipient of the flowers (because it’s her birthday, perhaps), in which case Sue bears a <recipient> thematic relation. In this case, we have two options for the placement of Sue. Sue can appear inside a prepositional phrase (for Sue) as in example (22)b, or it can appear next to the verb, as in example (22)c.

(22)  
   a. I bought these flowers for Sue.
   b. I bought these flowers for Sue because it was her birthday.
   c. I bought Sue these flowers because it was her birthday.

There is another reading available for (22), however. Say Sue is in charge of buying flowers to decorate the office where she works. In this case, Sue is not the intended recipient of the flowers; she is a true benefactive. True benefactives typically must appear in a prepositional phrase for most English speakers.

(23)  
   a. I bought these flowers for Sue because she didn’t have time, and it needed to get done today.
   b. * I bought Sue these flowers because she didn’t have time, and it needed to get done today.

If we consider example (21)a again, we see that Eric can only be analyzed as a <benefactive> and, hence, cannot appear directly adjacent to the verb.

(24)  
   a. Matt washed the dishes for Eric.
   b. * Matt washed Eric the dishes.

Finally, the <percept> is the entity which is experienced or perceived.

(25)  
   a. Suzie saw the monster.
   b. The stories frightened the children.

Recall that an argument may possess more than one thematic relation. In the following example, the subject is both an <agent> and a <goal>.

(26)  
      Sue stole a book from Ellen.
      <agent> <theme> <source>
      <recipient>

We say that the θ-role for Sue contains two thematic relations: <agent> and <recipient>. 
Note also that verbs have thematic grids that state how θ-roles are assigned. These thematic grids form part of the lexical entry of the verb.

(27)  
a. John chopped the wood  
b. * John chopped

CHOP  
1  2
<agent> <patient>

This is the thematic grid for ‘chop’. It states that the subject (1) is an agent and that the direct object (2) is a patient. Let’s look at a thematic grid for a ditransitive verb, where some of the θ-roles consist of more than one thematic relation.

(28) Manami handed the book to Midori.

Here, Manami is the <agent> since she acted volitionally, but she is also the <source> since she is the one who is giving the book to someone. The book is the <theme>, since it is the entity that is undergoing movement. Midori is the <recipient> since she is the goal of movement and we are dealing with a transfer of possession verb. Thus, the thematic grid for hand, as it is used here, is as follows:

HAND  
1  2  3
<agent> <theme> <recipient>
<source>

2.3 Lexical Entries

What do we mean when a child learns a new word, or when a second language learner learns a new word? First off, let us say that the word is stored in something called the mental lexicon with some sort of phonological matrix that tells us what the pronunciation is and something that tells us what the word means. The information stored with a lexical item in the mental lexicon is called its lexical entry. Let’s consider the word chop from above.

Lexical Entry for “chop”: /tʃɑp/  
to cut into or sever usually by repeated blows with a sharp instrument
Certainly a lexical entry contains at least this much information. However, there is additional syntactic information contained in a lexical entry. Consider the difference in subcategorization frames as discussed at the beginning of this chapter.

(29) Contrast with question verbs

a. I asked [S what time it was].

b. I asked [PP (for) [NP the time]].

c. I inquired [S what time it was].

d. * I inquired [PP (for) [NP the time]].

We observe that ask can take either a full sentence as a complement or noun phrase. Some speakers prefer a prepositional phrase instead. The verb wonder is different, however. It can take only a full sentence as a complement. Both of these verbs have roughly the same meaning. The salient difference, of course, is in the subcategorization frames. So, this information must be included as part of the lexical entry. Likewise, the selectional restrictions must be included in the lexical entry, too. Finally, we must include the theta grid. The theta-grid tell us what arguments the lexical entry projects and what their theta roles are. Let’s look at the full lexical entry for the verb chop now.

(30) Lexical Entry for “chop”:

\[
/\text{tʃɒp}/
\]
to cut into pieces or sever usually by repeated blows of a sharp instrument
c-selects a noun phrase: \_ NP
s-selects an NP with the features [+solid] and [+concrete]
\[
\begin{array}{ll}
1 & \text{<agent>}
2 & \text{<patient>}
\end{array}
\]

Key Concepts

c-selection Category selection. States the grammatical category of the arguments a lexical item takes.

s-selection Semantic selection. States the semantic features of the arguments a lexical item takes.

thematic relation The kind of role an argument plays with respect to its predicate. <agent>, <patient>, <theme>, <recipient>, etc.

θ-role The set of thematic relations assigned to an argument of a predicate. For example, the subject of buy is assigned the θ-role that contains the two thematic relations <agent> and <recipient>.

theta grid The set of θ-roles assigned by a lexical item.
mental lexicon

The mind’s dictionary. This is where all the information of lexical items is stored in the mind.

lexical entry

The collection of idiosyncratic information about a lexical item that must be stored in the mental lexicon.

Further Reading


This book is a wonderful layperson’s introduction to current research on the mental lexicon. It presupposes no specialized knowledge of linguistics and offers suggestions for more advanced reading.


Baker proposes that thematic roles are assigned on a universal hierarchy. For instance, <theme> is assigned before <agent>. This captures the generalization that there are many verbs with <agent> as subject and <theme> as object, but not the other way around.

Chomsky, N. (1957; 1965)

Two of Chomsky’s early works on generative grammar. Aspects (1965) lays down much of the ground work of modern generative grammar and includes a discussion on lexical entries.

Grimshaw, J. (1990)

This monograph proposes one of the more influential theories of argument structure. It proposes that arguments (subjects, direct objects, indirect objects) are ordered.


This titanic dissertation discusses the role of c-selection (as distinct from s-selection) in grammar. It focuses chiefly on Russian syntax, but makes universal claims about grammar.


This paper discusses several foundational issues of thematic roles and some problems contained therein. The discussion is complex at times, but some of the concepts should be accessible at this point.

Exercises

1. What are the c-selection and s-selection frames of the following lexical items? Some example sentences are provided for the first three words.

Oneida is an Iroquoian language spoken in Southwestern Ontario and in Wisconsin. It is a highly endangered language and has only about 300 speakers left. Word order is generally quite free in Oneida since both subject and object agreement are marked morphologically on the verb. Oneida also exhibits a phenomenon known as noun incorporation which you can read about in Chapter A.
**eat**  The children are eating some apples.
The children are eating.

**devour**  The children devoured some apples.
  * The children devoured.

**dine**  The children are dining.
The children are dining on some apples.
  * The children are dining apples.

**sleep**  marry  kiss  jealous  melt  know  read  demand  examine

2. What are the theta grids for the lexical items in the exercise above?

3. Consider the following data from Oneida.

wakéshwas
wak-  e-  shw-  as
1SG.PAT-  EPEN-  smell-  PROG
‘I smell it.’ (non-volitional)

wakahyáshwas
wak-  ahy-  a-  shw-  as
1SG.PAT-  fruit-  EPEN-  smell-  PROG
‘I smell fruit.’ (non-volitional)

lateshwátha?
l-  ate-  shw-  a-  ht-  ha?
3M.SG.AG-  SRFL-  smell-  EPEN-  CAUS-  PROG
‘He's smelling it.’ (volitional)

Discuss how θ-roles are correlated with the morphology in these Oneida data? (Note: The difference between first and third person does not play a roll here.)
4. Consider the following sentences.

a. Mary sent a letter to John.
b. Mary sent John a letter.
c. Mary sent a letter to Paris.
e. * Mary sent John.

The first two sentences represent a phenomenon called dative shift, which we will discuss later. What θ-roles are assigned to the three arguments in a. and c.? Give the θ-grids for these two uses of the verb send. According to the data here, what does the availability of dative shift depend on?

5. Consider the following (slightly simplified) Japanese data and determine what restrictions on the linear order of arguments there are based on thematic roles. In trying to determine what θ-roles are involved here, consider prove and suggest to be transfer of possession verbs, where a certain type of knowledge is the thing being transferred. Do not worry about the Case and topic markers for this problem.

a. sono deeta-ga wareni [kare-no riron-ga machigatteiru-tono] shoomeio shiteiru.
   this data-NOM us-DAT [he-GEN theory-NOM mistaken-that] prove AUX
   ‘This data proves to us that his theory is mistaken.’

   this data-NOM [he-GEN theory-NOM mistaken-that] us-DAT prove AUX
   (‘This data proves to us that his theory is mistaken.’)

c. sono hookokusho-wa Mary-ni [[kaiketsu-no hookoo]-no shisao shiteiru.
   this report-TOP Mary-to [[direction of the solution]-GEN suggest AUX
   ‘This report suggests to Mary the direction of the solution.’

d. * sono hookokusho-wa [[kaiketsu-no hookoo]-no Mary-ni shisao shiteiru.
   this report-TOP [[direction of the solution]-GEN Mary-to suggest AUX
   (‘This report suggests to Mary the direction of the solution.’)
6. Consider the following Blackfoot data (taken from Frantz, 1991). Blackfoot has a rather complex verbal morphology that is not fully shown here. The ‘3’ indicates that the verb agrees with a 3rd person subject that is known or otherwise specified. An unspecified subject has different agreement, which is not vital to this problem. What thematic restriction appears to hold in Blackfoot based on this small set of examples? How is this restriction handled?

a. anná John ikahksínima annistsi ikkstíksiistsi
   DEM John 3.cut.off DEM branches
   ‘John cut off those branches.

b. * oma isttoána ikahksínima annistsi ikkstíksiistsi
   dem knife 3.cut.off those branches
   (‘That knife cut off those branches.’)

c. oma isttoána iiht-sikahksínii’pi annistsi ikkstíksiistsi
   DEM knife INSTR-UNSPECIFIED.SUBJECT.cut.off DEM branches
   ‘Those branches were cut off with a knife (by someone).’/ ‘Someone cut those branches off with a knife.’

Blackfoot is an Algonquian language spoken in Alberta (Canada) and in Montana (USA) by about 3000 people. Verbs in Blackfoot agree with both subjects and objects, which is a common property of non-configurational languages (see Interchapter C). You can read more about Algonquian languages in section 10.3.5.
**Interchapter A Noun-Incorporation**

Noun-incorporation is a phenomenon in which a noun that is an argument of a verb is tightly attached to the verb, rather than appearing in the canonical object position. The following examples from Yucatec Mayan (spoken in Mexico and Belize) illustrate this phenomenon:

(1) a. tinč’akah če’
   b. č’akč’e’nahan
   t/- in- č’ak- O- ah če’ č’ak- če’- n- ah- en
   COMP- 1.SG- chop- it- ASP tree chop- tree- APASS- ASP- 1.SG.ABS
   ‘I chopped a tree.’
   ‘I chopped wood.’

   In (1a), the verb and the direct object are separate words. In (1b), the noun has incorporated into the verb, forming a single word. Notice the meaning of the sentence changes slightly from (1a) to (1b). Changes in meaning like this happen often, but not always, as we will see later. Another example from Lahu illustrates the same point.

(2) a. jɨ̀ thà’ dɔ̀
   b. jɨ̀ dɔ̀
   liquor ACC drink liquor- drink
   ‘to drink the liquor’
   ‘to drink liquor’

   In (2a), where the NP is an independent word, there is some specific liquor to be drunk. The action in (2b), where noun-incorporation has taken place, refers to the generic act of drinking liquor.

   There are two kinds of noun-incorporation: **Classifier noun-incorporation** and **compound noun-incorporation**.

**Classifier noun-incorporation** does not affect the transitivity of the verb. In other words, if a verb has a subject and a direct object as in (3), then the presence of an incorporated noun does not alter that (4). Examples (3) and (4) are drawn from Oneida (an Iroquoian language, see p. 37).

(3) waʔkhnih nú: ne: kaʔi:k ̌a ̌ kóskos
   waʔ-k-hnihn-u ne: kaʔi:k ̌a ̌ kóskos
   FACT-1.SG.SUBJ-buy-ASP this pig
   ‘I bought this pig.’

(4) waʔkneskwahnih nú: ne: kaʔi:k ̌a ̌ kóskos
   waʔ- k- neskwa- hnihn- u ne: kaʔi:k ̌a ̌ kóskos
   FACT-1.SG.SUBJ-animal-buy-ASP this pig
   ‘I bought this pig.’

   Notice that the independent NP (*this pig* in (4)) must be a type of the incorporated noun (*animal* in (4)). For obvious reasons, one cannot replace *pig* in (4) with something that is not an animal.

Yucatec Mayan is a Mayan language spoken by about 700,000 people in Mexico and to a small extent in Belize. It is an SVO language.

Lahu is a Tibeto-Burman language spoken in China, Burma, Thailand, and Laos by just over half a million people. Lahu is an SOV language.
**Compound noun-incorporation** does affect the transitivity of the verb. Specifically, when a noun incorporates, the argument it represents can no longer appear in the sentence. For example, a direct object can appear either as a separate noun phrase (5)a or can be incorporated (5)b. However, (unlike Oneida and other classifier noun-incorporating languages) the incorporated noun and the full direct object noun phrase cannot appear together (5)c. These examples are from Ponapean, an Austronesian language spoken in the south Pacific.

(5)  
   a. I pahn ihkos-e kikou ehu  
      I will pleat-TR dress a  
      ‘I will pleat a dress.’  
   b. I pahn ihkos-likou  
      I will pleat-INTR-dress  
      ‘I will dress-pleat.’ (= ‘I will pleat a dress.’)  
   c. * I pahn ihkos-e-likou likou ehu

In Ponapean, the effect of noun-incorporation on transitivity is seen in the morphology. Once the noun incorporates into the verb, the transitive marker (/e/- in (5)a) is lost.

Some languages have a process known as *pseudo noun incorporation*. Consider the following Niuean data from (Massam, 2001). (You can read more about Niuean on page 311.)

(6)  
   a. Ko e *fanogonogo* *lologo* a lautolu  
      PRES listen song ABS they  
      ‘They were listening to songs.’  
   [Massam, 2001, ex. (18b)]  
   b. Ko e *fanogonogo* a lautolu *ke he tau lologo*  
      PRES listen ABS they to PL song  
      ‘They were listening to songs.’  
   [ibid. ex. (18a)]  

Here, the verb is *italicized* and the nouns are in *bold-face*. Niuean is VSO, so we can easily see the incorporated noun order in (6)a above. Since in the basic order the subject appears between the verb and the object, we can tell the verb and the object form a unit in (6)a since the subject no longer intervenes. Massam argues that the verb and object don’t fuse morphologically as in the other examples of noun incorporation above, which is why she uses the label ‘pseudo noun incorporation’ to describe this phenomenon. We will not concern ourselves with the technical details, however.

As with all the examples we have seen until now, the incorporated noun is a bare noun without any additional morphology or modifiers. Now consider the following examples (The first two examples are Niuean and the third example is Māori).
Here, we see that the “incorporated” noun encompasses much more than a single bare noun, it can contain an adjective, relative clause, or an adverb. The fact that something larger than a bare noun can appear in these constructions is another reason why these are referred to as pseudo noun incorporation.

Does English have noun-incorporation? Not exactly as described here. However, a similar phenomenon is found in gerunds. A gerund in English is a nominalized form of a verb with an -ing suffix. Compare the following examples.

(8)  

a. John enjoys collecting stamps. 

b. John enjoys stamp-collecting.

Note that the nominal part of the gerund in (8)b must be singular – i.e., there is no plural morpheme. This is like the other examples of noun incorporation above where the incorporated noun appears with less morphology. These forms cannot be used as standard verbs, though. Thus, there is no verb *to stamp-collect in English. There are a few lexical exceptions that are backformations such as to babysit, but these are rare.

**Further Reading**

This is a full-scale generative account of incorporation. This book takes the stance that noun incorporation is purely syntactic rather than morphological. Students should complete at least Chapter 3, 6 and 7 before consulting this reference.

Barrie, M. (2011)  
This is a large-scale, cross-linguistic analysis of noun incorporation and similar phenomena (including English gerunds) in a wide variety of languages. This study adopts the theory of Antisymmetry, which we do not discuss thoroughly here, but is mentioned on page 142.
<table>
<thead>
<tr>
<th>Author</th>
<th>Year(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gerdts, D.</td>
<td>1998</td>
<td>This overview contains a detailed discussion of the topics raised here and includes some other phenomena related to noun incorporation that were not mentioned. The discussion is not too highly technical and should be accessible to the reader at this point.</td>
</tr>
<tr>
<td>Massam, D.</td>
<td>2001</td>
<td>This is a rather technical article that offers an account of pseudo noun incorporation. Students are urged to complete Chapters 4 and 7 before tackling this paper; however, the description of the data at the beginning of the article is largely accessible at this point.</td>
</tr>
<tr>
<td>Massam, D.</td>
<td>2009</td>
<td>This is a more recent overview that incorporates newer research on a wide variety of kinds of noun incorporation and various theoretical approaches to it. For the most part, this paper should be accessible at this point, however the technical details may be out of reach.</td>
</tr>
<tr>
<td>Mithun, M.</td>
<td>1984, 1986</td>
<td>These two papers in the journal <em>Language</em> provide a thorough description of the typology of noun incorporation in the world’s languages. Much of the theoretical discussion will be accessible after completing Chapter 7; however, much of the description will be accessible after completing Chapter 3.</td>
</tr>
</tbody>
</table>
Chapter 3 Phrase Structure and Constituency

By the end of this chapter you should:

- be familiar with the following structural relations of syntax trees: dominance, sisterhood, immediate dominance, exhaustive dominance, c-command
- be able to explain why the underlying structure of language is hierarchical rather than flat
- understand basic concepts of constituency and be able to execute various tests for constituency
- have a firm grasp of Bare Phrase Structure (and, if relevant, how it differs from X-Bar Theory).
- understand the basic structure of NP, VP, AdvP, AdjP and PP.

3.1 Review of Phrase Structure

Although syntactic inquiry in the 20th century has generated tremendous insight into the hierarchical organization of language, the idea that language is organized hierarchically, rather than as a linear string of words can be traced back to at least Aristotle and Pāṇini. In this chapter, we will motivate the structures that we assume for sentences so that we can understand why we draw trees the way we do.

Before we begin, let’s review some basic terminology. Consider the following syntactic tree:

(1)

\[
\begin{array}{c}
\text{X} \\
\text{A} \hspace{1cm} \text{B} \hspace{1cm} \text{C} \\
\text{D} \hspace{1cm} \text{E}
\end{array}
\]

Note the following definitions. The points, X, A, B, C, D and E are nodes on the tree. X dominates A (as well as B and C). Domination is marked by the line starting from the bottom of X and going down to the top of A. X exhaustively dominates A, B, D and E. (We don’t need to include C, since D and E are contained in C, although it would not be incorrect to say the X exhaustively dominates A, B, C, D and E.) X immediately dominates A, B and C, but X does not immediately dominate D and E – it only dominates them. The relation of immediate domination holds between two elements only if there are no elements intervening between the two elements. A, B and C are sisters, as are D and E. C is the mother of D. D is the daughter of C. This structure also indicates hierarchical relationships among the elements. For instance, it shows that D and E behave as a unit that is called C here. It also shows that A, B, D, and E behave as an even larger unit, which is labelled X here. A string of words that behave as a unit is called a constituent. In our hypothetical tree above, D and E form a constituent labelled C. Here are formal definitions of these relations. We assume an the relation of dominance is an axiom. Although these definitions may be
tricky to follow at first pass, you should try to work through them to convince yourself that they work. (Note: iff = if and only if.)

**α immediately dominates β iff α dominates β and there is no γ such that α dominates γ and γ dominates β.**

**α exhaustively dominates a set of terminals A iff for all β, β ⊂⊂ A, α dominates β and there is no γ such that α dominates γ and γ ⊄⊄ A.**

Constituency is an important concept in any theory of syntax. So, what exactly do we mean by ‘constituent’? A constituent is an isolable syntactic unit, which behaves as an independent entity. Before we consider some actual data, let’s be sure how we will represent the notion of constituency in terms of phrase structure. In the syntactic trees we are considering, a constituent is all and only the material dominated by a single node. Recall that a node, X, exhaustively dominates a string, xyz, if xyz are all dominated by X and X dominates nothing else.

---

**Constituency**

A string, xyz, is a constituent if it is exhaustively dominated by a single node.

---

Here is some practice. Consider the following tree:

(2)

```
A
 /  \\  \\
B C
|   |
D E   e
|   |
F G  H I J
|   |
f g  h i  j
```

Which of the following strings are constituents?

- fg – yes, the string fg is exhaustively dominated by D
- hij – yes, the string hij is exhaustively dominated by E
- ijc – no, the string ijc is dominated by A, but A dominates other material as well
- fgh – no, the string fgh is dominated by B, but B dominates other material as well
- fghij – yes, the string fghij is exhaustively dominated by B
- ghij – no, the string ghij is dominated by B, but B dominates other material as well
hi – no, the string hi is dominated by E, but E dominates other material as well
f – yes, the string f is dominated by F.

These are most of the basic structural relations, although we will require one more later. For now, let’s start by considering the following sentence, and how we can understand the hierarchical structures contained within it.

(3) The smart student is writing a tough exam.

We’ll start our analysis of this sentence by assuming it consists of a linear string of words, not grouped together into phrases of any kind. We can represent this analysis as follows. We can consider this our null hypothesis since it has the least amount of structure.

(4) S
   Det    Adj   N  Aux    V   Det    Adj  N
       g     g    g  g  g  g  g
The smart student is writing a tough exam.

This analysis shows the linear order of the lexical items, but nothing more. According to this tree, there are no constituents inside the sentence, although it indicates that the entire sentence is a constituent labelled S (for sentence). Just thinking about the sentence intuitively for a moment, we suspect that the noun phrases the bright student and a tough exam are constituents. The tests for constituency will be presented in the next section; however, pre-empting this discussion, we note that the bright student can be replaced by a pronoun such as she, and a tough exam can be replaced by another pronoun, it. This behaviour shows us that we want to represent these two noun phrases as units in our tree. So we revise the tree as follows:

(5) S
   NP    Aux   V   NP
   The bright student is writing a tough exam

The node, NP, stands for ‘noun phrase’ and dominates the respective string of words. Are there any other levels of hierarchy we can observe in this sentence? Looking at the tree, we see that the subject NP and the object NP are sisters. This structure suggests that the subject and the object are symmetric. There are many subject-object asymmetries found in natural language, however. Let’s consider some of these.

In the sentence John and Mary like each other the reference of the object each other is determined by the subject John and Mary. Thus, when the object is a reciprocal pronoun, it can take its reference from the subject. We will discuss pronouns such as each other in considerable detail in Chapter 10. Consider, now the sentence *Each other like John and Mary. We see that the opposite scenario doesn’t hold. Namely, when
the subject is a reciprocal pronoun, it cannot take its reference from the object. This is our first subject-object asymmetry. That is, subjects can determine the reference of an object pronoun, but objects cannot determine the reference of a subject pronoun.

The next asymmetry involves the various thematic roles we discussed from Chapter 2. There, theta grids were presented as part of the lexical entry of the verb, in which the verb assigned specific theta roles to their arguments. The picture isn’t quite as simple as that, though. It turns out that the theta-role of subject often depends on verb and object together. In other words, the subject exhibits a thematic dependency on the verb and the direct object together as a unit. Consider the following examples:

(6)  
    a. John caught the ball. John caught a cold.  
    b. Mary threw a ball. Mary threw a fit.

In example (6)a, *John* is the <agent> in the first sentence and an <experiencer> (or perhaps metaphorically a <goal>) in the second. In example (6)b, *Mary* is the <agent> in the first sentence and the <experiencer> in the second. There are no examples, however, where the theta-role of object depends on verb and subject together. Thus, the verb and the object function together as a unit to the exclusion of the subject.

The final subject-object asymmetry we will look at concerns idioms. There are many idioms are composed of a verb and an object together. Table 3-1 lists several idioms from different languages.

<table>
<thead>
<tr>
<th>English</th>
<th>Portuguese</th>
<th>Cantonese (see p. 19)</th>
<th>Persian (see p. 126)</th>
<th>Mohawk</th>
</tr>
</thead>
<tbody>
<tr>
<td>kick the bucket</td>
<td>lavar a égua</td>
<td>doei3 ngau4 taan4 kam4</td>
<td>pol-a-ro shekastan</td>
<td>tusayutháahkwé’</td>
</tr>
<tr>
<td>chew the fat</td>
<td>to wash the mare</td>
<td></td>
<td>break bridges</td>
<td>someone picked up the road</td>
</tr>
<tr>
<td>spill the beans</td>
<td>burn the midnight oil</td>
<td></td>
<td>break off ties (ie,</td>
<td>someone led the way</td>
</tr>
<tr>
<td>burn the midnight oil</td>
<td></td>
<td></td>
<td>burn bridges)</td>
<td></td>
</tr>
<tr>
<td>die</td>
<td>have a conversation</td>
<td></td>
<td>say something people can’t understand or appreciate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>tell a secret</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>work late into the night</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 3-1 Idioms from different languages**

There are no idioms, however, that are composed of a subject and verb together to the exclusion of the object. Be careful not to become confused by idioms that are complete sentences such as *The cat’s out of the bag* or *The horse has left the barn*. Although these idioms include the subject
and the verb, they do not do so to the exclusion of the object. Idioms like *the cat’s out of the bag* tell us that the whole sentence (S) is a constituent.

There are many other subject-object asymmetries. Some we will see in later discussions and others you will see if you undertake further studies of syntax. Taken together, these asymmetries suggest that the verb and the object form a constituent to exclusion of the subject.

![Tree diagram](image)

We will now turn to some specific diagnostics or tests for constituency. In particular, we will adduce more evidence for the VP node.

### 3.2 Constituency Tests

Recall example (7) from above. In this tree, the entire sentence is a constituent and so are the NP *the bright student* and the VP *writing a tough exam*. Although we will cover the concepts more thoroughly in the next section, let’s take a brief preview of some of the properties of the NP and VP that would lead us to conclude that they are indeed constituents. First, we intuitively feel the NP *the dog* is a constituent, since it is a participant in the sentence. When asked, *who is devouring the bone?* an appropriate response would be *the dog*. Also, this NP can be replaced by a pronoun: *It is devouring a bone*. As for the VP, it might feel less intuitive that it forms a constituent; however, when asked the question, *what is the dog doing?* an appropriate response would be, *devouring a bone*. These preliminary observations lead us to suspect that the NP and VP are constituents, as the tree structure indicates. Remember, since *the dog* is exhaustively dominated by NP and *devouring a bone* is exhaustively dominated by VP, these two strings of words are constituents, and should behave as such. On the other hand, the string *the dog is devouring* is not exhaustively dominated by a single node, so we do not expect this string of words to behave as a constituent in this example. If we are asked, *what’s happening to the bone?* a response such as *the dog is devouring* (with the intended meaning of *the dog is devouring it*) would not be an appropriate response. Thus we are led to believe that the string of words *the dog is devouring* is not a constituent, which is consistent with the structure in (7).

This discussion has illustrated an important point that students often miss. As generative syntacticians, we are trying to develop a model of syntax that predicts how language behaves. Our model is the tree structures and the notion of representing constituency with exhaustive domination. We test the model against observed data and the results of the constituency diagnostics (which are given in detail below). If our model is accurate, then those strings of words that are acting as constituents according to the diagnostics should be exhaustively dominated by a single node. In turn, we can look at our model to see which strings of words it predicts to behave as constituents. The tree in (7) predicts that the following are constituents:
The dog is devouring a bone
the dog
devouring a bone
but not the following:
the dog is devouring

So far, our model appears to represent the data faithfully. We will continue to assume this basic model and adjust it from time to time to account for additional data that we uncover. We will now continue with various tests for constituency.

### 3.2.1 Pro-forms

The first test is often called the replacement test. Many constituents can be replaced by pro-forms. The notion that a constituent can be replaced by a proform is called the Proform Criterion. Not all XP’s have appropriate pro-forms available to them, so, as with all tests for constituency, care must be taken in interpreting the results of this test. If this test reveals no appropriate pro-form for the string of words being tested for constituency, you may wish to try some other tests, first. So, while it is true that if a given string of words can be replaced by a proform it is a constituent, the converse is not necessarily true. That is, it is not necessarily the case that if a given string of words cannot be replaced by a proform it is not a constituent.

<table>
<thead>
<tr>
<th>Common Pro-Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP</td>
</tr>
<tr>
<td>VP</td>
</tr>
<tr>
<td>PP</td>
</tr>
<tr>
<td>AdvP</td>
</tr>
<tr>
<td>AdjP</td>
</tr>
</tbody>
</table>

NPs can be replaced by pronouns as in the following examples. *The King of France* is replaced by *he* and *chocolate mousse* is replaced by *it.*

(8) The King of France likes chocolate mousse.

He likes chocolate mousse.

He likes it.
VPs can be replaced by the proform so. as in the following example.

(9) John is writing a tough exam, and so is Mary.

Here, so replaces the string of words writing a tough exam, which means that this string of words must be a constituent and, thus, exhaustively dominated by a single node. This provides further evidence for the structure in (7) above – namely where the string writing a tough exam, the verb and the object, form a constituent labelled VP, which does not include the subject (or the auxiliary).

PPs can often be replaced with the adverbs there or then. Note that with is a tricky preposition, but PPs formed with with can sometimes be replaced by thus. This is illustrated in the following examples.

(10) a. Terry peeled the potatoes in the kitchen. Terry peeled the potatoes there.
b. Terry peeled the potatoes in the morning. Terry peeled the potatoes then.
c. Terry peeled the potatoes with a knife. Terry peeled the potatoes thus.

AdvPs can sometimes be replaced by thus, while AdjPs can sometimes be replaced by such (for attributive AdjPs) or thus (for predicative AdjPs). Here are some examples.

(11) a. Maria sings rather beautifully. Maria sings thus.
b. a very tall man such a man.
c. Mr. Jones is very tall ...and so is Mrs. Smith.

We are now ready to practice with a few sentences. What are the appropriate pro-forms for the italicized strings of words in the following sentences? Answers are at the bottom of the next page.

(12) a. The linguist from Calcutta discussed ergativity in Hindi.
b. The linguist from Calcutta discussed ergativity in Hindi.
c. Arsalan crept into the basement.
d. Jila looked up the phone number.
e. Richard reads novels in the afternoon.

3.2.2 Stand Alone

If a string of words can stand alone as a single utterance, then it is a constituent. Many (but not all) constituents are well-formed utterances by themselves. Consider the following question/answer pairs.

(13) a. Who is writing a tough exam? the bright student
Observe that all but one of the constituents shown in (7) satisfies the stand alone test. The auxiliary is technically speaking a constituent, but cannot stand alone. Again, we must stress that not all constituents can stand alone, but all strings of words that can stand alone are constituents.

3.2.3 Coordination Tests

Only constituents can be coordinated. This test works well for virtually all types of constituents, unlike some of the other diagnostics, which only work well for certain types of constituents. Consider the following examples.

(14)  
  a. John ate \([\text{NP a cake}]\) and \([\text{NP an apple pie}]\).  
  b. Mary went \([\text{PP into the living-room}]\) and \([\text{PP onto the couch}]\).  
  c. Minjoon \([\text{VP ate an apple}]\) and \([\text{VP drank some tea}]\).

In (14)a the two NPs are conjoined into one large NP, and in (14)b the two PPs are likewise conjoined. (14)c show more evidence that a verb and an object together form a constituent. A further property of coordination is that only constituents of the same category can be coordinated. Consider the following data.  

(15)  
  a. Minsóo is a doctor.  
  c. Minsóo is reading a book.  
  b. Minsóo is a singer.  
  d. Minsóo is drinking some tea.  
  i. Minsóo is a doctor and a singer.  
  ii. Minsóo is reading a book and drinking some tea.  
  iii. * Minsóo is a doctor and drinking some tea.  
  iv. * Minsóo is reading a book and a singer.

Observe that the coordination of two constituents of the same category is possible in (15)i. and ii., but that coordination of two constituents of different categories as in (15)iii. and iv. is impossible. Note in passing that (15)iv. has a bizarre reading in which Minsóo is reading two things. The first is a book, and the second is a singer. This is strange, of course, because one doesn’t normally read people, unless perhaps they’re wearing clothes with lots of writing on them. Even so, it’s an odd way to express such a state of affairs. See if you can convince yourself that this odd reading is grammatical.

Until now, we have just been assuming that a verb and an object together form a verb phrase or VP, but why do we assume this? Using the coordination test, we are in a better position to answer this question. Since only constituents of the same category can be conjoined, we can
test to see what kinds of things can be conjoined with a phrase such as *reading a book*. Here is the test sentence. Substitute X for other phrases whose categories are not in question.

(16)  

a. Carlos is [[X] and [reading a book]].  

b. * Carlos is [[a magazine] and [reading a book]].  → attempted conjunction with an NP  
c. Carlos is [[laughing] and [reading a book]].  → attempted conjunction with a VP

Since the phrase *laughing* contains only one word, there is no doubt that it is a verb phrase. Since the phrase *reading a book* can be conjoined with a VP and not with an NP, it must be a VP, too.

3.2.4  Movement Tests

In this section, we consider diagnostics in which a string of words is placed in different locations within a sentence. We will start by analyzing some actual data. Consider two possible structures for the sentence *John put the cake in the oven*. Note that the structures shown in this chapter will be revised in forthcoming chapters. For now, they will serve to illustrate how the movement tests work.

(17)  

\[
\begin{array}{ccc}
\text{a.} & \text{S} & \text{b.} \\
\text{NP} & \text{VP} & \text{NP} \\
\text{JP} & \text{V} & \text{NP} & \text{PP} \\
\text{John} & \text{put} & \text{the cake} & \text{in the oven} \\
\end{array}
\]

How do we choose between a. and b.? We see that the NP *the cake* and the PP *in the oven* do not form a single constituent in the a. example because there is no one single node that exhaustively dominates the string *the cake in the oven*. In the b. example, however, this same string does form a constituent because it is exhaustively dominated by NP node shown. We will use the movement tests described below to determine the correct structure for this sentence.

I  Clefting

The first type of movement test we explore is called *clefting*. A clefted sentence has the following form, such that X is always a constituent. There are some examples to the side in which the constituent in the X position is underlined. As you can see from the examples, NPs and PPs can be clefted in English.

(18)  

It was X that Y  

It was the apple that Mary ate.
It was the magazine that Minsoo read.
It was into the kitchen that Makiko walked.

Let us use this test in the following two sentences to see if the underlined string of words are constituents or not.

(19)  a. John likes the lamp in the living-room.
b. John put the cake in the oven.

To execute this test, we put the underlined string of words in the X position in the cleft. This gives us the following results, showing us that the underlined string of words in the first sentence is a constituent, but not the underlined string of words in the second sentence. This results of this test lead us to conclude that (17)a is the correct structure for the sentence in (19)b.

(20)  a. It was the lamp in the living-room that John likes.
b. * It was the cake in the oven that John put.

Now, let us consider the following ambiguous sentence, with the two paraphrases given below.

(21) Mary saw the child with binoculars.
    a. The child had the binoculars, and Mary saw him.
b. Mary used binoculars to see the child.

To understand these two readings a bit better, consider the following two questions.

(22)  a. Which child did Mary see?
b. Who did Mary use the binoculars to see?

Both of these questions can be answered by the statement in (21), with the appropriate meanings as given. Now, let us consider the structures for this sentence that distinguish between these two meanings. First let us see what happens when we try to cleft the relevant parts of the sentence.

(23)  a. It was the child with binoculars that Mary saw.
b. It was the child that Mary saw with binoculars.

Here, we see that the range of possible meanings has changed. In (23)a, we only get the reading in (21)a; however, in (23)b, we only get the reading in (21)b. Thus, in order to get the reading in (21)a, the string of words the child with binoculars must be a constituent. To get the reading in (21)b, we see that this string cannot form a constituent, otherwise (23)a would still be ambiguous. (23)b shows us that the child is a constituent, of course. Now we are in a position to draw the appropriate structures for the two readings of this sentence.
Here, *with binoculars* modifies the VP, not the NP *the child*. So we get the meaning where Mary is using the binoculars to see the child. This is made clear in the following unambiguous paraphrases.

*It was with binoculars that Mary saw the child.* or *It was the child that Mary saw with binoculars.*

To get the meaning where the child has the binoculars (as in the paraphrase, *It was the child with binoculars that Mary saw*), the sequence *the child with binoculars* must be a constituent. This is shown in the following structure, where *the child with binoculars* is exhaustively dominated by a single node, NP.

Here, *the child with binoculars* is a constituent, so it is available for clefting. Note that *the child* by itself is no longer a constituent, so it is not available for clefting. (*with binoculars* is a constituent – but there are independent reasons why it cannot cleft).
II  **Pseudoclefting**

Pseudoclefting is another reliable test for constituenthood. A pseudoclefted sentence has the following form, again such that X is always a constituent. There are some examples to the side in which the constituent in the X position is underlined. As you can see from the examples, NPs and PPs can be clefted in English. A pseudocleft must select the appropriate *wh*-word (question word – what for things, who for people, etc.). Not only can NPs and PPs be pseudoclefted, but VPs can be pseudoclefted, too. When a VP is pseudoclefted some form of the verb *do* is required.

(26)  

X is what/who/when/where Y (did)  

*The apple* is what Mary ate.  

*The boy* is who Mary saw.  

*Into the kitchen* is where Makiko walked.  

*Eat the apple* is what Joshua did.

Now let’s consider another example with a larger constituent. The following sentence strongly favours the reading in which the string of words *in the blue teapot* is a single NP constituent. (For now, ignore the alternative, rather bizarre reading in which Sandy was *inside* the teapot drinking tea.)

(27)  

*Sandy sipped on the tea in the blue teapot. → [The tea in the blue teapot] is what Sandy sipped on.*

Returning to the examples we were discussing above, again we have evidence that favours the structure in (17)a over that of of (17)b for the sentence in (19)b.

(28)  

a. *The cake in the oven is what John put.*  

b.  

*The cake* is what John put in the oven.

Again, this test shows that the string of words *the cake in the oven* is not a constituent, while the shorter string *the cake* is. Now for the ambiguous sentence we had above let us apply the pseudocleft test. In (29)a, the string of words *the child* has been pseudoclefted. This is possible with the structure in (24), but not with the structure in (25). This is because only in (24) is *the child* a constituent. As a consequence, (29)a can only mean that the binoculars were used to see the child. Conversely, in (29)b, *the child with binoculars* must be a constituent, which consistent only with the structure in (25). These are the same results we saw with the clefting diagnostics above.

(29)  

a.  

*The child is what Mary saw with binoculars*  

b.  

*The child with binoculars is what Mary saw*
III Passive

We will look at passivization in more detail in Chapter 6. For now, let us concentrate on the main characteristics of passive constructions and how we can use them as constituency diagnostics. A passive construction is one in which what we conceptually understand to be the direct object of the sentence appears in the position of the subject. Now, observe that only NPs can be passivized. Thus, if a string of words can be passivized, it is a constituent. But, if string of words cannot undergo passivization, it may still be a constituent, just not an NP.

(30) a. John bought *a radio. b. A radio was bought. c. Susan wrote *on the paper. d. *On the paper was written.

In (30)a, the string of words *a radio is the direct object of buy. It is also an NP, and so can undergo passivization as in (30)b, where it appears as the subject of the sentence. The string of words on the paper is a constituent, too; however, it is a prepositional phrase (discussed later) not an NP and therefore cannot undergo passivization.

Let’s return to the first piece of data we were discussing above, in (19)b. The structure in (17)a predicts that the string of words the cake can undergo passivization, while the structure in (17)b predicts that the string of words the cake in the oven can undergo this process. The results should be obvious now.

(31) a. The cake was put in the oven. b. *The cake in the oven was put.

As expected, the passivization test converges with the clefting and pseudoclefting test indicating that (17)a is the correct structure for this sentence. Let’s consider another ambiguous sentence.

(32) Mary ate the cookies in the kitchen.

This sentence can mean that the kitchen is the place where Mary ate the cookies, or it can mean that it was the cookies in the kitchen that Mary ate (and not the cookies in the living-room, say). Consider, now, whether the following passivized sentence is ambiguous.

(33) The cookies in the kitchen were eaten.

Here, we only get the reading where in the kitchen modifies the cookies, not the eating. That is, we get the reading that it was the cookies in the kitchen that Mary ate (and not the cookies in the living-room). Thus, the string the cookies in the kitchen must be a constituent. With this much in mind, we can sketch a rough tree for this reading of the sentence.
In this structure the NP *the cookies in the kitchen* is a constituent and so is available for passivization. Convince yourself that this is the correct phrase structure for this reading by applying the other constituency tests above. Now, let us consider the reading where the kitchen is the location in which Mary ate the cookies. The passivized sentence above cannot have this reading. This tells us that the string of words *the cookies in the kitchen* does not form a constituent under this reading. The following tree captures this fact.

The string *the cookies in the kitchen* is not a single NP constituent. As such, this string of words cannot undergo passivization. The NP *the cookies*, of course, is available for passivization. At this point, you should be able to explain to someone why the passivized sentences above are not ambiguous, while the active sentence *Mary ate the cookies in the kitchen* is.
Let us now apply some of our constituency tests to a more complex sentence. Again, we will discuss the exact structures in more detail shortly. The following discussion is intended more to illustrate how to apply the constituency diagnostics to a new situation. Consider the following example.

(36) John will eat dessert in the garden on Tuesday.

Up until now, we assumed a flat structure to represent the verb phrase in a sentence such as this.

(37)

```
VP
  /
V  NP  PP  PP
  eat  dessert  in the garden  on Tuesday
```

Let’s see if this structure is predicted by the constituency tests described above. We will start with a VP proform test in which we replace various strings within the VP with the proform so. Consider the following test sentence.

(38) John ate dessert in the garden on Tuesday, and so did Mary on Wednesday.

Here, so refers to eat dessert in the garden. Furthermore, we can also say the following.

(39) John ate dessert in the garden on Tuesday, and so did Mary on the terrace on Wednesday.

Here, so refers only to eat dessert. Let us now work through the stand alone test. Consider the following examples.

(40) a. What did John do? - eat dessert in the garden on Tuesday
    b. What did John do on Tuesday? - eat dessert in the garden
    c. What did John do in the garden on Tuesday? - eat dessert

This test shows us that the strings of words in the right hand column above are all constituents. This is not reflected in the flat structure for the VP in (37). Clearly, we need a more articulated structure to capture these facts. Furthermore, recall from the previous chapter that verbs have a pre-specified number of arguments. This is listed in the lexical entry for each verb. Eat, requires a subject and an option direct object. The prepositional phrases in the garden and on Tuesday are adjuncts not arguments of the verb. We use the following articulated structure to capture the results of the proform test above and to capture the fact that these PPs are not arguments of the verb.
The most striking feature about the structure in (41) as compared to the flat structure in (37) is pervasiveness of binary branching in (41). We will see that binary branching is a defining feature of current theories of structure building.

3.3 **C-Command: A New Relation**

In addition to relations such as *mother, daughter, dominate,* etc. there is a relation called *c-command* that is the cornerstone of many syntactic properties. It is defined as follows.

**C-command:**

A node $\alpha$ c-commands a node $\beta$, iff every branching node that dominates $\alpha$ also dominates $\beta$, and $\alpha$ does not dominate $\beta$.

Consider the following tree. What does each node in this hypothetical tree c-command (answer at top of next page)?
One application of c-command that we will take a much closer look at in Chapter 10 is the distribution of reflexive pronouns (words like *himself*, *herself*, *myself*, *themselves*, *ourselves*, etc.), which are usually called *anaphors* in the syntactic literature. We will take a brief look at the phenomena now to see how c-command works, but we will wait until Chapter 10 to really delve into the issues. Anaphors must be c-commanded by their antecedent. This restriction doesn’t hold for non-anaphoric pronouns, however (regular pronouns such as *her*, *me*, *him*, *you*, etc.). Consider the following data. Again, recall that the superscript numbers mean that *John* and *himself* refer to the same person.

(43) a. John¹ likes himself¹.
    b. *John¹’s mother likes himself¹.

To understand why the anaphor is okay in (43)a but not in (43)b, consider the trees for these sentences to see the c-command relations between the elements in question. Note that we will consider the structure of possessives in more detail later, but the structure below will suffice for now.

(44) a.

```
          S
         /   \
NP¹    VP
   /     \  
John   NP¹
      /   \
  likes himself
```

b.

```
          S
         /   \
 NP    VP
   /     \  
NP¹   's N  V  NP¹
   /     /   \  
John mother likes himself
```
3.4  *From X-bar Theory to Bare Phrase Structure*

If you review the trees above, you will notice a certain degree of uniformity in their structure. At the moment, however, we have no principled reason why trees are structured the way they are. We could just as easily draw the tree in (45) as we could the one in (46). What we need is a general theory of phrase structure that constrains how trees are built. This theory of phrase structure is known as **Bare Phrase Structure**.

(45)

```
S
   /\  \\
NP  VP
   |  /
   V NP PP
```

(46)

```
NP
   |
S  V
   W VP PP
```

Before introducing Bare Phrase Structure, we need a bit of historical perspective. Bare Phrase Structure grew out of an earlier theory of phrase structure called **X-Bar Theory**. Under this theory, all phrases take the shape in (47). Note the abbreviations Spec = specifier and Compl = complementizer. The important details this schema are that the complement is the sister to the head (X) and that the specifier is immediate daughter of the maximal projection (the XP).

(47)

```
XP
   /\  \\
Spec  X'
   |  /
   X  Compl
```

The **specifier** and **complement** are themselves phrases.
Looking at this schema, we can deduce the principle of *Endocentricity*. The principle of endocentricity holds that the head of a phrase is located inside the phrase itself (endo = inside).

**Endocentricity:**

1. Every X must project an XP.
2. Every XP must be headed by an X.

Bare Phrase Structure employs many of the same concepts as X-Bar Theory, so familiarity with the discussion above is useful. In Bare Phrase Structure, phrases are built up by an operation called **Merge**, which takes two objects and merges them together into a single object. In the following example, X and YP are merged together. We have to give the output of Merge a label. That is, once we merge X and YP together, we have to determine what kind of phrase this is. We will get into these details shortly, but for now, let’s call the label XP. What this means is that the XP has the fundamental properties of X. So, a noun phrase, NP, has the fundamental properties of a noun, N, for example.

(48)  
```
   XP
   X   YP
```

We immediately see one difference between the Bare Phrase Structure in (48) and the X-Bar structure in (47). Note there is no intermediate XP projection…yet! Remember, in Bare Phrase Structure, the tree is built up from the bottom to the top. In X-Bar Theory, the whole tree just appears as is. Now, if X needs a specifier, say, ZP, then we merge ZP with XP. This gives us the structure in (49). Note that the intermediate XP projection is now written as X’ for clarity.

(49)  
```
   XP
   X'   ZP
   YP   Z'
   AP   Z   UP
   X   WP
```

Note a maximal projection is one that does not project further. A minimal projection is the lowest projection – thus a head. All other projections are intermediate projections.
At this point, it is instructive to see an actual example. Let’s see the tree for the sentence *John cut the cake with a knife*. We start with just the NP, *the cake*. We form this NP by merging the determiner, *the*, with the noun *cake*.

(50)  
```
NP
|---|---|
    Det   N
    the   cake
```

Then, we merge the verb with this NP. Now, we assume that since the verb selects the noun phrase, then V projects forming a VP. Another way to think of this is as follows. The verb *cut* requires a direct object in order to be a complete verb phrase (VP). So the verb *merges* with an NP, and can now call itself a VP, because it has the object it needs. (We will worry about where the subject goes later.) Recall also the coordination test above. We can coordinate the string *cut the cake* with something that is uncontroversially a VP such as *smiled*. This gives us *John cut the cake and smiled*.

(51)  
```
VP
|---|
    V    NP
    cut   Det   N
    the   cake
```

Continuing on, now, we form the PP, *with a knife*, by merging the P, *with*, with the NP, *a knife*. 

Note carefully that the operation Merge always results in **binary** branching. This is not the case with X-Bar Theory or older models of phrase structure, but we adhere to it strictly in Bare Phrase Structure. We will refer to binary branching again throughout the rest of this chapter.
Now, we merge the VP in (51) with the PP in (52). This gives us the structure in (53). Note that the PP, *with a knife*, is extra information about the sentence – The rest of the sentence could stand alone without it: *John cut the cake*. We call these phrases that are extra information *adjuncts*. Adjuncts can appear on either the left side or the right side of the head. In the structure below it is on the right side, so we call it a *right adjunct*. Crucially, adjuncts are attached to maximal projections (XPs). Adjunction involves splitting the XP into more than one segment. The adjunct attaches to the higher segment. We will talk much more about adjuncts later. For now, just try to familiarize yourself with the basic structure.

**Phrase Structure:**

i. Specifiers and complements are attached inside the XP.

ii. The complement is the sister of its head, X.

iii. The Specifier is the sister of X’ (or the daughter of the lowest segment of XP)

iv. Adjuncts are attached outside the XP.

The following structure, then, shows the configuration for specifiers, complements and adjuncts.
As we learned from Chapter 2, many lexical items take arguments, which are obligatory. The verb, *cut*, takes a direct object as an argument (as well as a subject, which we’ll get to later). In this case, the direct object is a *patient*. The direct object argument of the verb is the *complement* to the verb. Unlike adjuncts, arguments cannot be omitted in neutral contexts: *John cut with a knife*. We will build the rest of this sentence later when we discuss how subjects are introduced into the sentence.

### 3.5 The Content of Lexical Categories

#### 3.5.1 Noun Phrases

The specifier of an NP has long been considered to host things like determiners (*the, a*), demonstratives (*this*), question words (*which book*), etc. We will take a critical look at this later and reconsider the structure of noun phrases.
NPs occasionally take complements. They are often difficult to tell apart from adjuncts, though. The difficulty lies in the fact that nominal complements (unlike verbal complements) are typically optional. The complement of an NP can be thought of as its object. It is usually a PP. The complement is seen as an integral part or specification of the head noun. Here are some examples of nouns with complements.

(56) book of poetry teacher of history box of chocolates love for syntax
fear of mice the destruction of the city fondness for Matt the creation of Rome

In many of these constructions there is a thematic relation between the head noun and its complement that is consistent between the nominal and the verbal constructions. Consider the following examples.

(57) a. Joe fears mice. Joe’s fear of mice. mice is a <percept>
b. The enemy destroyed the city. the enemy’s destruction of the city the city is a <patient>
c. We love syntax. Our love for syntax. syntax is a <percept>
d. Mary teaches calculus. Mary is a teacher of calculus. calculus is a <theme>

Unlike complements, adjuncts are extra information about a noun that is not seen as integral. Consider the following examples in which the adjuncts are underlined. A tree for the first example is shown below. Recall that we will discuss determiners later.

(59) the book in the kitchen a box with handles the dog in the backyard
the green book the teacher from Russia

Note: We will NOT use this representation in this textbook. We take up noun phrases shortly.
It can be tricky to determine whether a phrase is a complement or an adjunct to the noun. Complements must be adjacent to the noun; while adjuncts can often be freely ordered after the complement. In the following example, the complement, *of poetry*, must be adjacent to the noun, whereas the adjuncts, *on the table* and *in the kitchen* must appear after the complement and are freely ordered. See if you can relate this restriction to the properties of phrase structure discussed above.

(61) a. a book of poetry on the table in the kitchen c. *a book in the kitchen of poetry
b. a book of poetry in the kitchen on the table d. *a book on the table of poetry

Recall the schema in (54) above. The complement is merged directly with the head, and the adjuncts are merged after the NP is put together. There is no restriction on the order in which the adjuncts are merged in, however. Thus, either order in (61)a and b is possible. Neither order in (61)c or d is possible if the complement is merged before the adjuncts, though. So far, the schema in (54) captures our observations on the behaviour of complements and adjuncts in NPs in English.

The *one*-replacement test is also useful for distinguishing complements from adjuncts in the NP. *One* is used as a proform to replace a noun and its complement. In the following examples, the proform, *one*, can appear with an adjunct such as *in the bathroom*, but cannot appear with a complement such as *of linguistics*. Note that the ungrammaticality of the second example is felt weakly, so care must be exercised with this diagnostic. Because proforms are language specific, you should try to come up with a similar diagnostic in your own language.

(63) a. The book in the kitchen and the one in the bathroom.
b. The book of poetry and the one of linguistics.

Finally, adjuncts can be coordinated with other adjuncts; and complements with other complements. However, an adjunct cannot be coordinated with a complement.

(64) a. a book of poetry and of short stories
b. the books in the kitchen and in the bedroom
c. * the book of poetry and on the table

These three diagnostics taken together should help distinguish complements from adjuncts in the NP.

3.5.2 Verb Phrases

The specifier and complement positions of a VP are reserved for arguments. Direct objects appear in the complement position of a verb. As mentioned above, we will deal with subjects later on. We will also deal with indirect objects later on. Here are some examples of a verb and a complement.

\[
\text{eat a turkey} \quad \text{pass an exam} \quad \text{paint a picture}
\]

Adjuncts to the VP express concepts such as manner, location and instruments, etc, and usually take the form of a PP or AdvP. As with all adjuncts, they are considered extra information that is not vital to the rest of the sentence. The adjuncts in the following examples are underlined.

\[
\text{eat a turkey on Tuesday} \quad \text{pass an exam with ease}
\]
\[
\text{paint a picture quickly} \quad \text{always use a napkin}
\]
\[
\text{sweep the floor with a broom} \quad \text{read a book on the couch}
\]
We now have a small conundrum regarding the merger of adjuncts and complements. Consider the following VPs:

(67)  
   a. eat a sandwich in the bedroom  
   b. eat a sandwich  
   c. sleep in the bedroom

The first two VPs are easy to derive. The verb eat merges with a direct object and forms a VP in both cases. In the first case, the PP in the bedroom adjoins to the VP, giving rise to a structure identical to that of (66)a, the contents of the PP notwithstanding. What about (67)c, though? The verb cannot merge with the PP, otherwise the PP will be in the complement position. Let’s assume that the PP in the bedroom must adjoin to the VP like any other adjunct. Consider, for a moment, what it means to be a VP. A VP is a verb plus all its internal arguments as dictated by the verbs subcategorization frame as discussed in Chapter 2. Thus the VP eat a sandwich has all its internal arguments satisfied. What about sleep? As an intransitive verb, sleep does not take any internal arguments (i.e., it does not have any objects). For now, let us assume that the verb sleep becomes a VP by virtue of the fact that its thematic grid is already satisfied (putting aside the subject for now). In other words, sleep is a full VP by itself since it doesn’t take an object. We notate this as follows for now until we take up this issue again later.

(68)  

3.5.3 Prepositional Phrases
Prepositions generally locate their complement in either time or space. Sometimes a preposition marks a special role on the complement such as benefactive or source. Consider the following examples.

\[
\text{on Tuesday} \quad \text{in the kitchen} \quad \text{to Montreal} \quad \text{for Peter} \quad \text{from the bank}
\]

As its name indicates, a preposition always precedes its complement. In many languages, however, this element appears after its nominal complements and are called postpositions. We will see more about the difference between prepositions and postpositions in Chapter 5, section 5.4.

\[
\text{kuruma to [Japanese (see p. 38)] babar kache [Bengali]}
\]

\[
\text{car with father near 'with a car' 'near father'}
\]

The generic term for prepositions and postpositions is adpositions. Conveniently, postpositional phrases can also be notated as PPs. Thus ‘PP’ can refer either to a prepositional phrase or a postpositional phrase. Nothing appears in the specifier of a PP. The complement of the PP is the argument of the preposition. PPs can appear with optional degree words, which appear in adjunct position. Here are some examples.

\[
\text{almost at the finish line} \quad \text{just around the corner} \quad \text{nearly on time}
\]

3.5.4 Adjective Phrases

A number of adjectives can take complements in English. As with nominal complements above, there is a lexically encoded thematic relation between the adjective and its complement.

\[
proud of one’s daughter \quad \text{afraid of mice} \quad \text{jealous of the neighbours} \quad \text{cf. fearful of mice; fear of mice; John fears mice.}
\]
Like PPs, AdjPs can take degree phrases as an adjunct.

\[
\text{way easy} \quad \text{totally ridiculous} \quad \text{so awesome} \quad \text{very tall}
\]

\[
\text{almost asleep} \quad \text{quite happy} \quad \text{rather tired} \quad \text{frightfully cold}
\]

Here is an example.

(71)

\[\text{AdjP} \quad \text{Deg} \quad \text{AdjP} \quad \text{really} \quad \text{Adj} \quad \text{PP} \quad \text{proud} \quad \text{P} \quad \text{N} \quad \text{of} \quad \text{Mary}\]

### 3.5.5 Adverbial Phrases

Not all adverbs are created alike. There is actually quite a large diversity in the type of adverbials found in language. We will focus on two major types here. These are sentence-level adverbs and VP-level adverbs. Sentence-level adverbs modify the entire sentence. They often depict the speaker’s attitude towards the event or state described by the sentence or otherwise modify the event as a whole, including the subject’s participation in it. VP-level adverbs, on the other hand, modify only the predicate – that is the verb and its object. They usually describe the manner in which the event is carried out or the frequency with which it happens. In the following examples, \textit{happily} is used as a sentence-level adverb and a VP-level adverb. In the first sentence, the speaker is asserting that John’s having left the building is a happy event. In the second sentence, the adverb describes the manner in which the leaving of the building took place.

(72) a. Happily, John left the building (sentence-level adverb)
    b. John left the building happily (VP-level adverb)

Other common sentence level adverbs include \textit{(un)fortunately, presumably} and \textit{typically}. AdvPs can also contain degree phrases, which appear as adjuncts.
The structure for adverbial phrases poses the same challenge as VPs and NPs with an adjunct but no complement. Specifically, it appears there is no AdvP projection for the degree word to adjoin to. Again, we will use the unary branch to get around this; however, unlike the problem with VP’s we won’t solve the problem in this textbook.

(73)

```
AdvP
/  
Deg  AdvP
   /   
quite  Adv
   /    
happily
```

Key Concepts

- **phrase structure**: A representation of natural language that shows hierarchical relations and constituency.
- **phrase structure relations**: The various relations between nodes in a syntactic tree: dominate, mother of, daughter of, sister of, exhaustively dominate, immediately dominate, c-command.
- **constituency**: The notion that certain phrases that behave as a unit syntactically should be represented as a unit by being exhaustively dominated by a single node.
- **X-Bar Theory**: A theory of phrase structure from which we inherited the notions of Specifier and Complement.
- **Bare Phrase Structure**: A theory of phrase structure in which syntactic objects are built up by merging two elements together. This operation ensures consistent binary branching.

Further Reading

Carnie, A. (2008) This monograph discusses in detail advanced techniques and discussions of constituency diagnostics. It should be accessible after a full understanding of this chapter and chapter 4.
Chomsky, N. (1970)  This paper is where Chomsky first proposes the X-Bar theory of phrase structure.

Chomsky, N. (1994)  This paper is where Chomsky outlines Bare Phrase Structure. This reference should only be tackled after covering the fundamentals of a more advanced syntax textbook such as Adger (2003).

Reinhart, T. (1981)  This is one of the earliest discussions on c-command.

Speas, M. (1990)  This volume discusses adjuncts in detail and draws a distinction between adjuncts adjoined to XP (as done in this textbook) and adjuncts adjoined to intermediate X-bar projections (as done in X-Bar Theory). This source should only be tackled once the fundamentals covered in this book have been acquired.

Stowell, T. (1981)  This dissertation first proposes the basic architecture of sentence structure covered in this chapter.

**Exercises**

1. Determine whether the italicized strings of words in the following sentences are constituents or not. You should try a variety of tests, both movement and non-movement if possible, to assure yourself. Some sentences may be ambiguous.

   a. John washed *the dishes in the sink*.
   b. John placed *the dishes in the sink*.
   c. Alice *ate those apples quickly*.
   d. Alice *ate those apples quickly*.
   e. Alice *ate those apples quickly*.
   f. Susan *went to Halifax on Monday*.
   g. Susan *went to Halifax on Monday*.
   h. Susan *went to Halifax on Monday*.
   i. Fred washed the dishes *very quickly*.
   j. Dexter gave the book *to Sally*.
   k. Dexter gave *the book to Sally*.
   l. Mary saw *the boy with binoculars yesterday*.
   m. Mary *saw the boy with binoculars yesterday*.
   n. Mary *saw the boy with binoculars yesterday*.
   o. Mary *saw the boy with binoculars yesterday*.
   p. Mary saw the boy *with binoculars yesterday*.

2. Draw trees for the VPs for each unique VP in the sentences in the question above. If any of the sentences is structurally ambiguous, draw all the relevant trees and give appropriate paraphrases.

3. Consider the following sentence.

   John ate the cake in the garden with a fork.
This sentence is multiply ambiguous. Try to figure out all the possible meanings and draw the relevant VPs. You will notice that the reading in which ‘with a fork’ modifies the cake and the eating took place in the garden is not possible. That is this sentence cannot be paraphrased as follows:

≠ It was the cake with a fork that John ate in the garden.

Why is this reading not possible?

4. The sentence below contains a resultative phrase (‘flat’). It means is that the metal became flat as a result of Peter hammering it.

Peter hammered the metal flat in the basement.

Using the constituency diagnostics in this chapter, work out what you think the structure of the VP is in this sentence. Do you run into any problems or contradictory results?

5. Consider the following Oneida data (Mithun, 2000). What kinds of morphological markers distinguish verbs from nouns in this language?

\[
\begin{array}{lll}
\text{wakatolishəʔ} & \text{akwáhta} \\
\text{wak-} & \text{akw-} & \text{at-} \\
\text{1.SG.PAT-} & \text{1.SG.POS-} & \text{olishəʔ} \quad \text{aht} \quad \text{-ʔ} \\
\text{SRFL-} & \text{shoe} & \text{-PERF} \\
\text{rest} & \text{-NFS} & \text{PERF} \\
\text{I'm resting.} & \text{my shoe}' \\
\end{array}
\]

\[
\begin{array}{lll}
\text{kaʔtä:ęks} & \text{wakkályas} \\
\text{k-} & \text{wak-} & \text{aʔtäʔek} \quad \text{-s} \\
\text{1.SG.AG-} & \text{1.SG.PAT-} & \text{pound} \quad \text{-PROG} \\
\text{‘I am pounding it.’} & \text{‘It bites me.’} \\
\end{array}
\]

\[
\begin{array}{lll}
\text{akehsi:sáht} & \text{*wakáhta} \\
\text{akw-} & \text{wak-} & \text{hsisah} \quad \text{-t} \\
\text{1.SG.POS-} & \text{1.SG.PAT-} & \text{pestle} \quad \text{-NFS} \\
\text{‘my pestle’} & \text{‘my shoe.’} & \text{-NSF} \\
\end{array}
\]
| *akwáhts                  *akwatoklisha? |
|--------------------------|------------------------------------------|
| akw- aht -s              | wak- aht -a?                             |
| 1.SG.POSS- shoe -PROG    | 1.SG.PAT- bite -NSF                       |
| (‘my show’)              | (‘my shoe.’)                             |
Interchapter B Typology

In this book we have been studying the relationship between structure and meaning in language. This approach to the study of syntax has proved to be fruitful in uncovering many universals and points of variation in human language and in understanding why language is structured the way it is. This is not the only approach to the study of language, however; typological studies acknowledge correlations among several structural properties among hundreds of languages. The results of countless typological studies are now available on the WALS website (http://wals.info).

We begin with a brief discussion on some core notions in typological studies. Universal properties of language can be divided into those that are implicational and those that are non-implicational, which take the following forms.

(1)  
   a. If a language has property X, then it also has property Y     implicational universal  
   b. All languages have property Z     non-implicational universal

Universals can also be absolute (no exceptions) or tendencies (some exceptions). We will see various examples of these below; however, let us look at four examples.

(2)  
   a. All languages have verbs.     absolute non-implicational universal  
   b. If a language has dual number, then it also has plural number. absolute implicational universal  
   c. Tense and aspects morphemes are usually suffixes. non-implicational tendency  
   d. If a language is SOV, it probably has post-positions implicational tendency

We move next to a discussion on basic word order, which we take up again in Chapter 5. There are six logically possible word orders in terms of subject (S), object (O) and verb (V). The following list shows the relative frequency of these six possible word orders, with examples given below. (See Interchapter D Verb Initial Language for more information on VSO and VOS order. See also Derbyshire & Pullum (1981) for object initial languages.)

<table>
<thead>
<tr>
<th>Word Order</th>
<th>Examples</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVO</td>
<td>English, Mandarin, Cantonese, Swahili</td>
<td>42%</td>
</tr>
<tr>
<td>SOV</td>
<td>Turkish, Japanese, Persian, German</td>
<td>45%</td>
</tr>
<tr>
<td>VSO</td>
<td>Irish, Tagalog, Lushootseed, Welsh</td>
<td>9%</td>
</tr>
<tr>
<td>VOS</td>
<td>Niuean, Tongan, Malagasy</td>
<td>3%</td>
</tr>
<tr>
<td>OVS</td>
<td>Hixkaryana, Pari, (Klingon)</td>
<td>0.9%</td>
</tr>
<tr>
<td>OSV</td>
<td>Nadëb, Kxoe, Tobati</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

Turkish is a Turkic language spoken by about 65 000 00 people. It is hypothesized to belong to the larger Altaic family (see Japanese box on p. 38). Since the fall of the Ottoman Empire, it is written with the Latin alphabet.

Malagasy is an Austronesian language spoken in Madagascar. Note that it is not related to any of the neighbouring African languages.

Hixkaryana is spoken in the Amazon in Brazil. Derbyshire devoted his life to the study of this language (and the assistance of the Hixkaryana people) after they saved his life when he was lost in the jungle.

Kxoe is a Khoisan language spoken in Angola and Namibia. There are approximately 10 000 speakers of Kxoe. Kxoe is one of a number of so-called ‘click’ languages.
(3)  
a. Zhāngsān chī-le yī ge júzi  
Zhangsan eat-PERF one CL orange  
‘Zhangsan ate an orange.’

b. Hasan öküz-ü aldı  
Hasan ox-ACC bought  
‘Hasan bought an ox.’

c. Lladdodd y ddraig y dyn  
killed the dragon the man  
‘The dragon killed the man.’

d. Nahita ny mpianatra ny vehivavy  
saw the student the woman  
‘The woman saw the student.’

e. Toto yahosiye kamara  
man it.grabbed.him jaguar  
‘The jaguar grabbed the man.’

f. Anana nota apa  
pineapple I fetch  
‘I fetch pineapple.’

Furthermore, there are languages that are described as having no basic word order (or free word order). These are discussed in Interchapter C. Determining basic word order is not a straightforward task as most languages have more than one possible word order depending on various factors. Consider the following English example.

(4)  
A: Did John read that book on Tuesday?  
B: No, that book he read on Wednesday.

Basic word order is usually described as the dominant word order used in neutral situations. In the second English sentence above the phrase *that book* is the topic of the sentence. It refers to a previously established topic in the discourse. A useful way to test for neutral word order is to answer the question, “What happened?” Consider the following anomalous dialogue.
In a completely neutral context, the OSV order sounds quite strange in English. The SVO order in B’ sounds much more natural. Thus care must be taken when determining word order, especially in field work situations.

The typological properties of word order in SVO and SOV languages are among the most well known. We will look at three properties of these languages. First, SVO languages typically have prepositions, while SOV languages have postpositions. We’ve seen this already with English and Japanese in Chapter 3 on p. 69. SVO languages typically form yes/no questions moving the auxiliary to the left of the subject (subject-aux inversion), while SOV languages typically form yes/no questions with sentence-final question particles. Note that these properties are tendencies, and not absolutes. So you will come across exceptions to these. In fact, we will see below that German is one such exception. Consider the following yes/no question from Japanese. Note the question marker *ka* at the end of the sentence.

(6) Gakusei-ga hon-o yon-da ka
    student-NOM book-ACC read-PST QN
    ‘Did the student read the book?’

Compare this with a declarative sentence in English with its yes/no counterpart.

(7) John is eating an apple.       Is John eating an apple?

Finally, SVO languages tend to have pre-nominal relative clauses, while SOV languages have post-nominal relative clauses. We will deal with relative clauses in more detail in Chapter 8, but for now, consider the following examples, where the relative clause is enclosed in bracket, and the head noun is underlined.

(8) a. the book [that Peter read]

b. [Peter-ga yon-da ] hon [Japanese]
Peter-NOM read-PST book
    ‘the book that Peter read.’
Correlates of SVO and SOV word order (implicational tendencies):

<table>
<thead>
<tr>
<th>SVO</th>
<th>SOV</th>
</tr>
</thead>
<tbody>
<tr>
<td>prepositions</td>
<td>postpositions</td>
</tr>
<tr>
<td>Subject/Aux inversion for yes/no questions</td>
<td>sentence-final question particles</td>
</tr>
<tr>
<td>post-nominal relative clauses</td>
<td>pre-nominal relative clauses</td>
</tr>
</tbody>
</table>

We will come back to these word order properties again in Chapter 5.

Further Reading

Comrie, B. (1989)  
This textbook (first published in 1981) is an excellent introduction to the study of linguistic typology. It should be accessible after covering the first few chapters of this book.

Greenberg, J. (1963)  
This monograph is one of the first full scale, cross-linguistic studies of language universals. It is still cited as the standard reference for many universals we know today.

Linguistic Typology (1997)  
This journal is dedicated to disseminating current research in the field of linguistic typology.

Nichols, J. (1992)  
This ground-breaking work uses linguistic typology to map human migrations throughout antiquity.
Chapter 4 Developments of Phrase Structure

By the end of this chapter you should:

- understand the arguments in favour of representing nominals phrases as DPs
- understand the arguments in favour of the projections TP and CP
- understand the structure of ditransitive verbs
- understand the use and function of light verbs
- be familiar with light verb constructions in other languages
- be familiar with the variety of ditransitive constructions in English

In this chapter, we will refine many of the concepts of phrase structure that we learned in the previous chapter. The goal of this chapter is to expand our theory of phrase structure to be able to account for a broader range of data. In the first few sections of the chapter, we will re-evaluate the core structure of the clauses and see that additional functional categories are required to account for the properties of clauses we look at. In the second half of the chapter, much of the discussion will centre around ditransitive verbs, which are difficult to account for given the state of phrase structure that we left off with in the previous chapter. In this chapter we will see how to use various diagnostics to argue for a particular structure.

4.1 DP Theory

Recall that the specifier of a phrase is itself another phrase. Consider now, the structure for noun phrases we have been assuming up until now. We have placed the determiner in the specifier of the NP.

\[
(1) \quad \begin{array}{c}
\text{NP} \\
\text{Det} & \text{N} \\
\text{the} & \text{cow}
\end{array}
\]

The determiner can be a single word such as the, a, this, that etc. Since the determiner is a single word, it looks more like a head than a phrasal projection. Building on the parallel between determiners and verbal inflection, Abney (1987) proposed the following structure for nominal projections. Here, the D head takes an N as a complement.

Most of the ideas concerning double object constructions were worked out in the late 1980’s. This period in the development of generative syntax was filled with fierce debates on this topic. These debates and many others are chronicled in Harris’ (1995) book, The Linguistics Wars.
Let’s review several lines of evidence in favour of this structure. Consider the following paradigm. Observe how the morphemes *the* and *’s* (the possessive marker) are in complementary distribution. That is, only one can be present in the same DP. Let’s assume, for the moment, that both *the* and *’s* are D heads. If there is only one D head per DP, then only one of these lexical items can be present in a given DP.

(3)  
\[
\begin{array}{l}
\text{a. the hat} \\
\text{b. John’s hat} \\
\text{c. *John’s the hat}
\end{array}
\]

Before we continue, let us take a brief digression on possessives. We note that the possessor can be quite complex. In the following example, the possessor is *the man I saw yesterday*. Let us assume that the possessor appears in the specifier of DP.

(4)  
\[
\begin{array}{l}
\text{the man I saw yesterday’s hat}
\end{array}
\]

Furthermore, note that both D heads require a complement. Thus *the* by itself is not an acceptable utterance. Below we will see that *John’s* is acceptable, but only if the complement is understood from the discourse. In an out-of-the-blue context it is not acceptable. We assume, then, the following lexical entries.

\[
\begin{array}{l}
\text{the} & \text{D, c-selects __ NP} \\
\text{’s} & \text{D, c-selects __ NP, __ DP}
\end{array}
\]

The next discussion on the structure of DPs requires an additional constituency diagnostic. *Gapping* is a common phenomenon that is also available only to constituents. Consider the following examples.
Recall that *so* is a proform that identifies the VP constituent. In the second example, there is no proform—just a gap where the VP would normally appear. Here, the gap identifies the VP constituent in this case. Consider the following data in light of the structures below. Which of the two structures is supported by the data given?

I liked Fred’s picture of the Pearl Tower, but I didn’t like Joe’s __.

In example (6), the gap replaces the sequence *picture of the Pearl Tower*. Which of the two structures in (7) best captures this observation? Since the string of words in question can be gapped, we conclude it is a constituent. It is only in (7)b that this string is a constituent—the NP node. So far, the data considered point to (7)b as the correct analysis for nominal phrases. Recall from the previous chapter that subject/object asymmetries were captured by positing a structure in which the subject asymmetrically c/commands the object. The possessor in (7)b also asymmetrically c-commands the the PP complement of the noun. Because of this, possessors are sometimes thought of as ‘subjects’. It has been noticed that there are similarities between nominal constructions and verbal constructions that justify this “possessor as subject” point of view. Here, we will consider some ways in which the possessor acts as a subject. Consider the following data.

John is an agent in both the full sentence and the nominal phrase. Now consider the following data.

*John* is an agent in both the full sentence and the nominal phrase. Now consider the following data.
In both the sentential and nominal forms, *himself* must refer to Matt Damon and *him* must refer to someone else. Note the use of the coreference numbers here. The asterisk in front of the 2 in the a examples indicates the coreference with anything other than 1 (where 1=Matt Damon in our example) is ungrammatical. The asterisk in front of the 1 in the b examples indicates that coreference with Matt Damon is ungrammatical and that *him* must corefer to someone else. Thus, in many ways, the possessor of a nominal expression acts like the subject of a sentence. Try drawing the tree for the DP, *the cat’s toy*.

Next, we review some cross-linguistic evidence for determiners acting like verbal inflection. Some of the argumentation here is somewhat advanced, so don’t be surprised if you don’t understand all the concepts on your first go through. Consider the following Yup’ik example. The subject of a transitive verb in Yup’ik appears with *ergative* Case (ERG, see p. 180). In possessed nominals, the possessor also appears with ergative Case. Thus, possessors and subject have something in common – they both appear with the same Case morphology. In this way, possessors are the “subjects” of nouns.

Consider, too, the following example from Cree. In Cree, roughly speaking, if both the subject and the object of the sentence is 3rd person, then the direct object typically appears with an *obviative* marker (OBV, see p. 312). This marker is absent in a sentence such as *I saw Mary* because there is only one 3rd person. Since possessors are subjects, too, then a noun with a 3rd person possessor triggers obviative marking on the noun.
We have seen, then, considerable cross-linguistic evidence that possessors function like “subjects” of nouns. Keep this in mind for the discussion on clausal subjects below.

4.1.1 The Structure of Pronouns

In this section we take a closer look at the structure of pronouns. First, we can ask ourselves what category pronouns are—N or D? Pronouns replace full nominal phrases, which we have shown above are DPs. They do not replace part of the noun phrase. They also cannot co-occur with determiners. Consider the following data. The nominal phrase and the pronoun that replaces it are in italics.

(14) a. I saw the doctor  b. I saw him  c. * I saw the him
d. books about linguistics  e. * them about linguistics

These facts can be replicated in several languages. The French pronoun, il, replaces the entire DP, *le professeur intelligent, and not a portion thereof. The ungrammatical example, *le il, shows that il cannot replace just professeur intelligent, and the ungrammatical example, *il intelligent, shows that il cannot replace just le professeur.

(15) a. Le professeur intelligent est arrivé. [French]
the teacher intelligent is arrived
‘The intelligent teacher arrived.’

a’. Il est arrivé. * le il * il intelligent
he is arrived the he he intelligent
‘He arrived.’

b. nà ge xuèshēng chī le fàn [Mandarin]
that CL student eat PERF rice
‘That student has eaten.’

Mandarin is a Sino-Tibetan language and the most widely spoken language in the world. It is the official language of China and many other Chinese-speaking areas. It is spoken as a first language by much of the population of northern China. In southern China, many people typically speak a different Chinese language at home such as Cantonese (p. 19), Hakka, or Wu, and learn Mandarin at school. Contrary to popular belief, there is more to the difference between Mandarin and the other Chinese languages than the pronunciation of Chinese characters. Cheng & Sybesma (2005) provides an excellent example of the differences in the grammar between four varieties of Chinese.
b’. tā chī le fàn *nà tā *nà ge tā
he eat PERF rice that he that CL he
‘He has eaten.’

Likewise, in the Mandarin examples, the pronoun, tā, replaces the entire DP, nà ge xuéshēng. The ungrammatical examples show that it cannot replace just a portion of the DP.

These facts lead us to suspect that pronouns are D heads (Postal, 1969). Unlike determiners, which require an NP complement, pronouns do not. In many languages, however, pronouns can optionally appear with NP complements. Here are some examples from English, German and Cantonese (see p. 19 for more information on Cantonese).

(16) we linguists wir Sprachwissenschaftler [German]
    we linguists ‘We linguists’

我哋語言學家 [Cantonese]
ngo5/ dei6 yu5.yin4/ hok6/ gaa1
1/ PL language/ study/ NZLR
‘We linguists’

The pronouns we, wir and ngo5dei6 can all appear with a noun following them. Based on these facts, we assume the following structure for pronouns.

(17) a. D
    |   b. DP
    we D N
    |   we linguists

4.1.2 Classifiers (advanced)

Many languages of the world divide nouns up into various classes. In Romance and Germanic languages (except English), these classes are based on gender and include feminine, masculine and (sometimes) neuter. In Algonquian languages such as Cree, these classes are based on animacy, and include animate and inanimate as classes. Languages with classifiers are similar, and may have several noun classes. Furthermore, nouns in
these languages must always appear with a classifier in most cases. Some nouns in English appear with something that looks like a classifier (*a head of cabbage, a clove of garlic*), but most nouns do not require such classifiers (*a dog, a pencil*).

We will consider two languages in detail here. The first is Cantonese. Like virtually all Sino-Tibetan languages (including Mandarin, Wu, Hakka, etc.), nouns must appear with a classifier. The various classifiers are provided with several examples of nouns with which they appear. See if you can figure out what the defining characteristic is in each case.

(18)  
**Cantonese Classifiers** (data from Matthews & Yip, 1994)

<table>
<thead>
<tr>
<th>Classifier</th>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>zoeng¹</td>
<td>yat1 zoeng¹ toi2 ‘a table’</td>
<td>yat1 zoeng¹ zi2 ‘a sheet of paper’</td>
</tr>
<tr>
<td></td>
<td>yat1 zoeng¹ dang3 ‘a seat, bench’</td>
<td></td>
</tr>
<tr>
<td>zil¹</td>
<td>yat1 zil bat1 ‘a pen’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>yat1 zil dek2 ‘a flute’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>yat1 zil fa1 ‘a stem of a flower’</td>
<td></td>
</tr>
<tr>
<td>lap¹</td>
<td>yat1 lap¹ lau2 ‘a button’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>yat1 lap¹ tong2 ‘a candy’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>yat1 lap¹ dau2 ‘a bean’</td>
<td></td>
</tr>
</tbody>
</table>

The classifier zoeng¹ is used for horizontal, flat surfaces, zil¹ is used for long cylindrical objects, and lap¹ is used for small objects. In all, there are about 40 classifiers in Cantonese. Classifiers appear as the head of a classifier phrase (ClP). Example (19) shows the tree for the DP `ni1 bun2 syu1` ‘this book’, where `bun2` is the classifier for books, magazines, newspapers and other printed matter.

(19)  
```
DP
  |      | CIP
  |      |   | N
  ni1 cl
  |      |   | bun2 syu1
  |      | cl | book
```

Another language with classifiers is Chichewa (data from Mchombo, 2004). Like most Bantu languages, Chichewa exhibits a large number of noun classes – 17 in particular, which includes a division between singular and plural as follows. Classes 1 and 2 are for animate
objects (for the most part). Class 1 is for singular nouns and class 2 is for plural nouns. Examples from these two classes as well as classes 7 (singular) and 8 (plural) are shown here.

<table>
<thead>
<tr>
<th>(20)</th>
<th>m-lenje</th>
<th>m-kázi</th>
<th>a-lenje</th>
<th>a-kázi</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-hunter</td>
<td>1-woman</td>
<td>2-hunter</td>
<td>2-woman</td>
<td></td>
</tr>
<tr>
<td>‘hunter’</td>
<td>‘woman’</td>
<td>‘hunters’</td>
<td>‘women’</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(21)</th>
<th>chi-sa</th>
<th>chi-tōsi</th>
<th>zi-sa</th>
<th>zi-tōsi</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-nest</td>
<td>7-chicken dropping</td>
<td>8-nest</td>
<td>8-chicken dropping</td>
<td></td>
</tr>
<tr>
<td>‘nest’</td>
<td>‘chicken dropping’</td>
<td>‘nests’</td>
<td>‘chicken droppings’</td>
<td></td>
</tr>
</tbody>
</table>

As in most Bantu languages, the classifier triggers agreement throughout the noun phrase and on the verb in Chichewa (gloss simplified).

4.2 Tense Phrases (TP)

Let’s consider, now, the structure of the sentence as a whole. We have seen that subject-object asymmetries, found in several of the world’s languages, suggests the following structure, where the subject DP is outside of the VP predicate.

(22)

```
S
   --
  /   \
DP   VP
```

This structure, however, is inconsistent with the principles of Bare Phrase Structure since the label of the merger of DP and VP is something completely different. Recall that when two elements are merged it is one of those two elements that projects. We’ve seen that the head of an NP is N, the head of DP is D, and the head of VP is V. What is the head of a sentence? Let’s recall the VP proform tests. Consider the following short dialogue.

(23) A: Susan watered the flowers and so did Paul.
    B: So did Paul what?
    A: water the flowers
       * watered the flowers
       * waters the flowers
We see that the proform *so* replaces only the verb and its arguments. Note in particular that the verb is stripped of tense and agreement. Thus, it looks like the VP alone doesn’t contain any tense or agreement morphology, and that, in fact, tense and agreement are outside the VP. Consider now the following example, where the phrase *watered the flowers* is conjoined with *must weed the garden*.

(24) I [bought some champagne] and [must wash the glasses].

Recall that only constituents of the same type can be conjoined. However, the second bracketed element isn’t even a constituent under the model for sentence structure we’ve been using so far.

(25)

```
S
  D       Mod              VP
   I       must   wash the glasses
```

Let’s look at the first constituent, *bought some champagne*. We know this must be larger than a VP since it contains tense. The second constituent, *must wash the glasses* contains a VP plus a modal. Thus, let’s propose that tense/agreement and modals are of the same category. Note also that phrases headed with *must* do not pass the VP proform test, as the following dialogue illustrates (recall only the VP is replaced by the proform *so*).

(26) A: * I must buy an orange, and so does Mary.

   A: I must buy an orange, and so must Mary.

   B: So must Mary what?

   A: Buy an orange.

So, it is clear that the modal *must* and the tense and agreement on verbs are separate from the VP. Furthermore, we know that *must wash the glasses* is a constituent of the same type as *bought the champagne*. That is VP+tense. Let’s look at what we’ve determined so far. Both the strings in the circles below are correctly represented as constituents.
Now, we will look at the labels here and identify what the ? is. Recall that a sentence consists of a subject and a predicate, and it is tense/agreement that establishes a relationship between these two elements. In many languages, the verb in the VP must agree with the subject. Let’s posit, then, that tense is the head of a sentence, which takes the subject in its specifier and the VP predicate as its complement. We will call the head of the sentence T, which stands for ‘tense’, and we will call the entire projection a TP (tense phrase). TP, then, replaces S in the earlier tree, and brings the structure in line with Bare Phrase Structure. We adopt, then, the following structure for sentences. We notate tense as [+PST] and agreement as [1.SG] for first person singular, [2.PL] for second person plural, etc. We must remember, then, that T hosts auxiliaries (be, have, do) and modals (can, could, may, might, shall, should, will, would).

Note that the tense marking appears on the verb rather than as the head T (though buy/bought exhibits suppletion). We will deal with this issue in the next chapter. For now, let’s just write verbs with tense and agreement morphology as a single word under V for convenience, keeping in mind that the tense morphology really belongs under T. Here is the tree for the second sentence.
4.3 **CPs – the Complementizer Phrase**

You may have come across an S' projection in earlier studies as a place-holder for the complementizer. As with S, S' violates endocentricity. In the following example, there is no “head” for the S' node and, furthermore, there is no maximal projection for Comp.

Using the same line of reasoning as in the previous section, we postulate a CP (complementizer phrase), which has C as its head – just as we posited that Aux, or T, is the head of S.
Recall that V hosts the verb and the $\theta$-roles that the verb assigns. T hosts tense and agreement properties (later, we will see that Case is also an important property of T). What properties does C encode? We assume that C encodes *illocutionary force*, which includes declaratives (statements), interrogatives (questions), and imperatives (commands). We will be dealing mostly with declaratives and interrogatives in this book. We assume that all sentences have a CP, although the matrix (or highest) C is usually covert (unpronounced) in English. Consider the tree for: “I know that Susan likes coffee.” In this sentence, *that Susan likes coffee* is the direct object is the verb *know*. In traditional grammar it is called an object complement clause. Like any direct object it is the complement of the V head. Compare the object complement clause with a DP object as in the sentence “I know Aaron.”

<table>
<thead>
<tr>
<th>Illocutionary Force</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>declarative</td>
<td>I know that Susan is intelligent.</td>
</tr>
<tr>
<td>interrogative</td>
<td>John asked where Mary went.</td>
</tr>
<tr>
<td>imperative</td>
<td>Wash the dishes!</td>
</tr>
</tbody>
</table>

Why do we assume all sentences have CP, even if C isn’t overt? For one, we observe that all sentences are either declarative, interrogative or imperative, so a C must be present to tell us whether a sentence is a statement or a question. To appreciate this argument, consider the following data.
In (33)a, there is an overt plural morpheme on *glass*, which gives rise to an obligatory plural interpretation. In the following three examples, there is no number morphology present; however, the word *glass* has a singular interpretation in (33)b, and a mass (or material) interpretation in (33)c. In (33)d, though, the interpretation is vague. It can have any of the three interpretations above. So, we posit some kind of place holder for singular number, even though there’s no overt morpheme for it. This empty morpheme is present in (33)b, giving rise to an obligatory singular interpretation, but is absent in (33)d. The absence of any number morpheme allows *glass* in (33)d to have any interpretation. Now, if we look at a sentence such as *John ate an apple*, there is no overt complementizer. There is nothing to indicate whether this is a statement or a question. Nevertheless, this sentence can only be interpreted as a statement. Thus, we assume that there is an empty C in this sentence indicating that it is declarative.

More evidence can be found by looking at conjoined constructions. Recall that only like constituents can be conjoined. VP and VP (John will [eat the stew] and [drink the wine].) DP and DP ([The doctor] and [the nurse] went into the operating room.) and so forth. With this in mind, consider the following sentences.

(34)  

a. [Olivia will perform at the poetry reading tonight], but [will she read any e. e. cummings]?

b. [Olivia will perform at the poetry reading tonight], but [which poem will she read]?

The two bracketed constituents in each sentence must be of the same type. We know the second constituent must be a CP, since it is a yes/no question in the first sentence and a *why* question in the second; therefore, the first constituent in each sentence must also be a CP.

Note that in some languages, the complementizers are overt in matrix clauses. Consider the following Korean data (Bhatt & Yoon, 1992). Note that Korean has a subordinating morpheme (SUB) that is separate from the morpheme that indicates illocutionary force.

(35)  

a. John-i wa-ss-ta  
   John-NOM come-PST-DECL
   ‘John came.’

   Bill-TOP John-NOM come-PST-INTER-SUB ask-PST-DECL
   ‘Bill asked if John came.’
Notice that all clauses are marked for illocutionary force. In the second example, the matrix clause is a statement, so it is marked with declarative force (DECL). The embedded clause is a question, so it is marked with interrogative force (INTER).

To sum up, then, the main components of a sentence are as follows.

To sum up, then, the main components of a sentence are as follows.

This is the skeleton of every sentence – other projections, of course, may be present, and often, they must be present. In discussing this structure, we often refer to the CP-layer, TP-layer and VP-layer.

4.3.1 Topics and Embedded Topics (advanced)

Although English is an SVO language, often we observe other word orders:

A: Did you read this book on Friday?
B: No, this book I read on Saturday.

In this short dialogue, B’s response exhibits the order OSV. We say that the phrase this book is a topic. Topics in English typically appear at the front of the clause. A topic is something that is already part of the discourse.
That is, it is old information, not new information. In addition to encoding illocutionary force, CP also encodes what's called information structure, which includes old versus new information. Thus, topics appear in the specifier of CP. Consider the tree for the sentence *Beans I like.* The DP *beans* appears in the specifier of CP. We must remember that the DP *beans* is semantically the direct object of the verb *like* and still bears a $<\text{percept}>\theta$-role. To record this fact about the topicalized DP, we put a trace (represented by an italicized $t$) in the position of the direct object. Then, to remember that the DP in the specifier of VP is related to the trace ($t$) in object position, we co-index them with a subscript $<<,>>$.

We also know that complementizers appear in C. What happens if we have a topic in an embedded clause? The model above predicts that the topic appears before the complementizer, since the topic is in SpecCP. If we look at the following sentence, however, we see that the prediction fails.

*You know that, this behaviour, we will not tolerate.*

There is no way to place the topic in the specifier of CP and still have it appear to the right of the complementizer. On the basis of this fact (and more complicated data in Italian that we will not discuss here), it has been proposed that the CP layer must be more finely articulated. We call this articulated CP a split CP, following work by Rizzi (1997, 1999).

Before covering the structure of the sentence above, let's consider each of the functional projections in the split CP in detail, starting with the Force Phrase (ForceP). This is where illocutionary force is encoded (interrogative, declarative, imperative). Certain verbs $s$-select interrogative CPs and certain verbs select declarative CPs.
The Finiteness Phrase (FinP) is where the finite/non-finite distinction is encoded. It is realized in English as the prepositional complementizer for in some non-finite contexts. Since we deal with non-finite constructions later, we put off our discussion of these constructions until then.

For always selects a non-finite TP. Romance languages also have Finiteness heads. They are often the equivalents of the prepositions to or of.

The non-finite marker de selects an infinitive. [+Finite] Fin selects a tensed T. The topic phrase, TopP, is optional and appears only when there is a topic in the sentence. The topicalized XP appears in SpecTopP. The focus phrase, FocP, will be discussed in a later chapter. We are now ready to draw the tree for the following sentence:

(43) We decided that, this book, we will read tomorrow.
4.4 Ditransitive Verbs

Recall that an intransitive verb is one which takes only a subject (John laughed), and a transitive verb is one which takes a subject and an object (John saw Mary). A ditransitive verb takes a subject, direct object, and an indirect object (John gave Mary a book), with the partial lexical entry as indicated. Until now, we haven’t discussed ditransitive verbs in any great detail. The traditional structure assumed for ditransitive verbs is the ternary branching structure shown in the following example. Although we have adopted a framework which does not admit ternary branching, let us start with this model anyway to see what kinds of predictions it makes.

(45) John will give the book to Mary  
    give, V, DP, PP/DP

(46)  
    give, V, DP, PP/DP

We are going to look at these structures in more detail to see if maintaining a ternary branching structure captures the empirical facts concerning these constructions, or if some other structure does better a better job. Why was a ternary branching structure as in (46) first adopted? At first, it looks like this structure has some intuitive appeal since both the DP the book and the PP to Mary are arguments of the verb, thus they should have...
equal status in the tree structure. In other words, the PP to Mary should not be an adjunct attached to an intermediate VP node the same way the PP on Tuesday would.

(47)  

As mentioned, one of the immediate concerns with the structure in (46) was the lack of binary branching. Since both DP and PP are considered arguments of the verb, it seems natural to maintain this structure to reflect the argumental status of both XPs. But, there are problems with this approach. Specifically, the ternary structure predicts symmetric behaviour between the two complements. We will see shortly that there are several asymmetries between the two complements. For now, we restrict ourselves to double object constructions (DOC) – ditransitives with 2 DPs.

(48)  

a. I showed John himself (in the mirror)  
   b. * I showed himself John (in the mirror)  
   c. I showed the two professors each other’s students.  
   d. * I showed each other’s students the two professors.

We see here that the first complement can refer to a reflexive pronoun in the second complement, but not vice versa. Recall from the first chapter that an antecedent must c-command the reflexive pronoun which refers to it. Thus, in the sentences in example (48) the first object c-commands the second object, but not vice-versa.

The next set of data concerns bound variable pronouns. A variable is any element whose value changes with the context. We will look at variable pronouns in this discussion. All variables must be bound by some element that helps to define its value. We will discuss the notion of binding in much more detail later, but for now we will just use a simple definition. We say that the quantifier must bind the pronoun in order to get the reading that matches up each student with his or her missing book. In order for a quantifier to bind a pronoun, the quantifier must c-command it. Consider the following examples.
(49) Every student forgot their book.

This quantifier binds this pronoun

In (49), the interpretation of *their* varies with the DP *every student*, which contains a quantifier *every*. For the mathematically inclined, you may think of the interpretation of this sentence as follows. For all x, x a student, x forgot x’s book. In this form, the relationship between the quantifier and the variable is spelled out more clearly. Consider, now, the following data.

(50) a. I denied each worker their paycheque.
    b. * I denied its recipient each paycheque.
    c. I showed every trainer their lion.
    d. * I showed its trainer every lion.

Observe that one of the objects is a quantified phrase (*each X*) and the other object contains a variable. Again, the quantifier in the first DP successfully binds the variable in the second DP, but not vice versa. This observation can be explained if we assume the first DP c-commands the second DP, but the second DP does not c-command the first DP. In other words, the first DP *asymmetrically* c-commands the second DP.

The next set of data we will look at makes use of negative polarity items (NPIs), such as *anyone*, in the upcoming example. NPIs have the interesting property that they must be c-commanded by negation or a yes/no question operator.

(51) a. I didn’t see anyone.
    b. Did you see anyone?
    c. * I saw anyone. (≠ I saw no one/someone)

When we apply these facts to the data at hand, we observe the following:

(52) a. I gave no one anything.      a’ I sent no presents to any of the children.
    b. * I gave anyone nothing.      b’. * I sent any of the presents to none of the children.

Observe that in examples (52)a and a’, the NPIs *anything* and *any* are acceptable as shown; however, in the b and b’ examples they are not. Again, this leads us to conclude that the first DP asymmetrically c-commands the second DP.

From these three sets of data we see that the first DP must c-command the second DP, but not vice versa. Clearly the ternary branching structure will not do. Do any of the other following structures work?
The first two representations are clearly unavailable, since both DPs symmetrically c-command each other. The third representation is also unavailable, since the c-command relations are the reverse of what is expected. Believe it or not, the following representation was briefly considered (very briefly). This structure gets the c-command relations right, but it wreaks havoc on our notion of constituency. (Why?)

Obviously, this won’t do… Let us, then, consider the following structure. Here, the two arguments of the verb (the direct object and the indirect object) occupy the specifier and the complement positions of the verb. This is in line with our concept of specifiers and complements that they are reserved for arguments of heads. Thus, if a verb has only one argument, it has a complement. If it has two arguments, it has a complement and a specifier. Thus, it is never the case that a verb has only a specifier and no complement.

This structure possesses the correct c-command relations and word order for the DPs, but the verb is in the wrong spot. Let us assume that there is a light verb, that takes VP as a complement, and that it is actually that hosts the actual verb.
In the next section we look at the $v$ in detail to determine exactly what it is.

---

**Ditransitive Verbs**

Evidence against ternary branching: reflexive pronouns
variable binding
NPIs

---

### 4.5 Light Verbs

$v$ is a **light verb**. It appears with transitive and most intransitive verbs. We will discuss in Chapter 7 the set of intransitive verbs where light verbs are absent. Light verbs are also absent from passive constructions, but we will also take this up in Chapter 6. The following example shows two typical $v$Ps.

(57) | transitive verb | intransitive verb |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$vP$</td>
<td>$vP$</td>
<td>$vP$</td>
</tr>
<tr>
<td>$v'$</td>
<td>$v'$</td>
<td>$v'$</td>
</tr>
<tr>
<td>$v$</td>
<td>$v$</td>
<td>$v$</td>
</tr>
<tr>
<td>$VP$</td>
<td>$VP$</td>
<td>$V$</td>
</tr>
<tr>
<td>$V$</td>
<td>$V$</td>
<td>sneezed</td>
</tr>
<tr>
<td>$DP$</td>
<td>$DP$</td>
<td>ate an apple</td>
</tr>
</tbody>
</table>

---
Until now, we have been assuming that subjects are merged into the specifier position of TPs. We must ask ourselves, though, how the subject is assigned a θ-role.

(58)  

\[\begin{align*}
\text{<agent>} & \quad \text{John kicked the wall.} \\
\text{<theme>} & \quad \text{John kicked the bucket}
\end{align*}\]

Consider the following data, first discussed in detail by Marantz (1984).

(59)  

\[\begin{align*}
\text{Mary threw the ball.} & \quad \text{Alice caught the thief} \\
\text{Mary threw a fit.} & \quad \text{Alice caught the flu}
\end{align*}\]

Thus the verb and object together assign a θ-role “compositionally” to the subject outside of the VP (Kratzer, 1996). Languages don’t work the other way around – that is, there is no language in which the θ-role of the object is determined by the verb and subject together. Note also the idiomatic relation between the verb and the object doesn’t hold between the verb and the subject. Consider the following examples.

(60)  

a.  
John killed the tree.

b.  
John killed the evening. (=John wasted the evening)

c.  
John killed the conversation. (=John dampened the conversation)

The lexical meaning of *kill* varies with the object. Thus, if the object is a living organism, *kill* means roughly ‘cause to die’. If the direct object is a time span, it means ‘waste’. And if the direct object is a social activity, it means ‘dampen’. Again, this never happens between a verb and its subject. So, while the subject must receive a θ-role, it doesn’t depend on the verb so much. We say the subject is ‘severed’ from the verb. To capture these facts, we can say the vP is responsible for assigning the external θ-role, that is the θ-role to the subject. Below we will see more arguments in favour of merging the subject below the Specifier of TP. Below, then, are the lexical entries for *v* and for *see*.

\[\begin{align*}
v, \_\_\_\_\_\text{VP} & \quad 1 \\
\_\_\_\_\text{agent} / \_\_\_\_\text{experiencer} & \\
\text{see, V, \_\_\_\_\_\_\_\_\_\text{DP}} & \quad 1 \\
\_\_\_\_\_\_\text{percept}&
\end{align*}\]

Let us now examine our results. Consider the tree for a simple sentence such as *The girl saw a dog.*
Recall from the discussion on ditransitive verbs that the verb must move up to $v$. We call any kind of upward movement like this raising. We say $V$ raises to $v$. When any kind of movement operation takes place, we must record in the tree where the object moved from. This is done by leaving a trace, $t$, in the original position of the moved object. The trace and the moved object must be labelled with an index to identify which entity moved where. By convention, the first trace of movement is labelled with a subscript $i$. Additional traces are labelled $j$, $k$, $l$, etc.

Now we look at an actual double-object construction to remind ourselves that the verb does indeed raise to $v$. 

(61)

(62)

(63)
The subject then raises to the specifier of TP. Try to think for a moment how we know that the subject raises. What evidence is there that it does not remain in the Specifier of vP, given the model we have adopted so far? Consider first the tree in (64) and try to answer this question.

(64)

One line of evidence that the subject has raised comes from its interaction with modals and auxiliaries. Recall that auxiliaries and modals appear in T. Consider the following sentence and try to visualize the structure for it first, paying attention to the interaction between the subject and the auxiliary.

(65) The girl has seen a dog.
From now on, we will draw all trees with the subject originating in the specifier of vP, aside from an exception noted in Chapter 7.

Let us now examine some empirical evidence in favour of merging the subject low in the Specifier of vP. Consider the following examples (based on Sportiche, 1988).

(67)  
(a) [All the boys] have t_i tasted the chocolates.
(b) [The boys] have all t_i tasted the chocolates.

In (67)a, the subject all the boys has raised from the specifier of vP to the specifier of TP. (67)b contains an example of a floated quantifier. Here, the quantifier all has remained in situ (that is, in the position where it was originally merged) and the DP the boys has raised to subject position. Let us assume the following structure for quantified DPs.

(68)  
QP (=quantifier phrase)
   Q  DP
      all the boys
If this QP is merged into the specifier of vP, then it is possible for only the DP to raise to the specifier of TP, leaving the quantifier below.

(69)  

Finally, we address the issue of adverbs adjoined to intransitive verbs. Recall that this was a problem under the bare phrase structure approach, since an intransitive verb doesn’t seem to project a VP for the adverb to adjoin to. We had to resort to a unary branching structure to account for this.

(70)  

The vP structure avoids this problem by automatically creating an XP structure for adverbs to adjoin to. Thus, the phrase *sneeze quietly* appears as follows.
This concludes our discussion of the structure of the vP for now. We will look at some other constructions in later chapters. In the next section we will consider some variations on double object constructions in English.

4.6 Transitivity Alternations

In this section, we will explore further some of the empirical facts about ditransitive shifted constructions and transitivity alternations in English. We will consider the structure of dative shift constructions, but we will not worry about the precise structures of the other constructions in this textbook.

4.6.1 Dative Shift Constructions

First, we look at some of the ways in which ditransitive verbs can shift their arguments around in English. The first construction we look at is dative shift, which is found in many ditransitive verbs. In dative shift constructions, the indirect object appears adjacent to the verb and does not have a preposition. Observe in the examples below that give and send can undergo dative shift, while donate cannot.

(72) Non Dative Shift                        Dative Shift
    c. John showed the painting to me.    c'. John showed me the painting.
    d. John donated $500 to UNICEF.        d'. *John donated UNICEF $500.
    e. John exhibited his paintings to us. e'. *John exhibited us his paintings.

One traditional explanation for this difference which still persists in some grammars is that verbs of Germanic origin allow dative shift while verbs of Latinate origin do not. There is good reason to believe that the historical roots of dative shift are tied to the Germanic/Latinate
distinction; however, there are counterexamples to this distinction. The following dative shift constructions all contain Latinate verbs. The proper characterization of which verbs allow dative shift and why is still a matter of ongoing research.

(73)
a. John offered me some coffee. b. She bequeathed me her entire estate.
c. Alice promised me $20 for washing the dishes. d. The teacher assigned us too much homework.

To represent the structures for these sentences, we simply move the arguments around within the Larsonian shell.

(74)
a. \[
\begin{array}{c}
\text{CP} \\
\text{C} \\
\text{DP, } T \\
\text{John} \\
\text{TP} \\
\text{vP} \\
\text{gave} \\
\text{t} \\
\text{a book} \\
\text{to Mary} \\
\text{tj} \\
\text{V} \\
\text{PP} \\
\text{tj}
\end{array}
\]
b. \[
\begin{array}{c}
\text{… vP} \\
\text{v} \\
\text{gave} \\
\text{DP} \\
\text{Mary} \\
\text{V} \\
\text{DP} \\
\text{a book}
\end{array}
\]

Note that the arguments involved here are the direct and indirect objects. They are both arguments of the verb, so they both appear in argument positions—the specifier and complement of VP.

4.6.2 Spray-Load Alternations

Consider the following sentences:

(75)
a. Susan sprayed paint on the wall. b. Susan sprayed the wall with paint.
c. Alice loaded the truck with hay.
d. Alice loaded hay onto the truck.
e. Peter blamed the accident on Terry.
f. Peter blamed Terry for the accident.
g. George spread the cake with icing.
h. George spread icing on the cake.

These constructions blur the argument/adjunct distinction. Either element can appear as the direct object, immediately adjacent to the verb, while the other element, typically a <goal>, appears inside a PP. Because of the similar variation with the canonical ditransitive constructions we’ve seen above, some people have adopted the same structure for the spray-load verbs; however, we will not go into the details. More advanced readers can explore the discussions in Larson (1988, 1990), Bruening (2001) and Hale & Keyser (2003).

4.6.3 Benefactive Alternations

Consider the following sentences.

(76) a. John made a quiche for Makiko.
b. Yoonjin peeled a banana for Marg.
c. Curtis prepared a snack for Alison.

The benefactive for-phrases are normally viewed as adjuncts, since they are not necessary to saturate the theta-grid of the predicates involved. Observe that they can be absent from the sentence without any degradation in acceptability.

(77) a. John made a quiche.
b. Yoonjin peeled a banana.
c. Curtis prepared a snack.

Consider, however, the following versions, where the benefactive argument has shifted into direct object position.

(78) a. John made Makiko a quiche.
b. Yoonjin peeled Marg a banana.
c. Curtis prepared Alison a snack.

It seems as though English allows optional benefactives to appear in the argument structure of predicates. Again, the precise details of this will not be a matter of discussion for this textbook.

4.6.4 Causative-Inchoative Alternations
Many verbs in English can appear in either a transitive or intransitive form. Consider the following examples.

(79)   a. Stuart is dripping coffee on the floor.  
       b. Coffee is dripping on the floor.

(80)   a. The pigs splashed mud on the wall. 
       b. Mud splashed on the wall.

(81)   a. The enemy sank the ship. 
       b. The ship sank.

(82)   a. The chef melted the butter. 
       b. The butter melted.

The last two pairs of examples illustrate a typical *causative-inchoative alternation*. In the a. examples, the enemy caused the ship to sink, and the chef caused the butter to melt. So we call these *causatives*. In the b. examples, there is no causer. Rather, the event describes the subject as entering into a state of being sunk or melted. These are called *inchoatives* from the Latin *incohāre* (‘to begin’). The first two examples are also causatives, but the non-causative alternant is a bit different from the inchoatives. Hale & Keyser (2003) describe verbs of this type.

Many languages encode causative-inchoative alternations morphologically. Consider the following Onondaga data (Woodbury, 2003).

(83)   a.  ohæ:nų́:węh  
       o-  hænųwę   -h 
       3.SG.NT-  wet  -STAT 
       ‘It is wet.’

       b.  hahæ:nųwę́sthaˀ  
       ha-  hænųwę   -st  -hàˀ  
       3.SG.M.AG-  wet  -CAUS  -HAB 
       ‘He makes it wet.’

It is also possible for suppletive forms to exist to encode the causative-inchoative distinction. Consider the following Greek examples (Alexiadou & Anagnostopoulou, 2003). Observe the two different forms of the verb *burn*.

(84)   a.  O Janis  ekapse  ti supa
English has a causative-inchoative pair that exhibits partial suppletion. The verb *to fall* can be analyzed as *cause to fall*.

### 4.6.5 Middle Voice

Finally, we discuss the **middle voice construction**. This construction has some rather mysterious properties that are not fully understood; however, the following generalizations seem to hold. First, in a middle voice construction, the DP that has the θ-role of the object appears as the subject. Furthermore, this construction always describe a state rather than a particular event. Consider the following examples.

(85)  
a. Peter washed the cashmere sweater.  
b. Cashmere sweaters don’t wash easily.  
c. * The cashmere sweater washed yesterday.

In the normal active sentence in (85)a, the direct object, *the cashmere sweater*, has a *<patient>* θ-role. In the middle voice construction in (85)b, this DP is now the subject, but is still the *<patient>*—i.e., it is still the thing being washed. Notice also that this sentence describes a general state about cashmere sweaters rather than a specific event of washing. Notice further in (85)c that this construction cannot be used to describe a specific event. Another property of the middle voice is that it tends to require an adverb or negation.

(86)  
* Cashmere sweaters wash.

(87)  
a. Susan sliced the bread.  
b. This bread (just) won’t slice.  
c. This bread slices easily.  
d. * This bread slices.

---

**Transitivity Alternations**

**Dative Shift**  
Involves the direct object and the indirect object
indirect object appears in to PP or as an object without a preposition

 Spray-Load Alternations

involves the direct object, <theme> and a <goal>
<goal> appears in PP and <theme> is the direct object, OR
<theme> appears in a PP and <goal> is the direct object

Benefactive Alternations

involves direct object and a <benefactive>
<benefactive> appears in for PP or as an object without a preposition

Causative-Inchoative Alternations

inchoative: single <theme> argument as the subject
causative: <theme> is the direct object, subject is the causer

Middle Voice

<theme> becomes the subject, middle voice is stative and typically requires an adverb or negation

4.7 Light Verbs in Other Languages

Here we look briefly at languages that exhibit overt light verbs. Light verbs typically appear in many constructions and are carry very little meaning, if any. Consider the following Mandarin predicates.

(88) dǎ pēntì to sneeze dǎ hāqian to yawn
dǎ diānhúa to phone dǎ zǐ to type

The form dǎ in Mandarin is a light verb. Its literal meaning is ‘hit’. When it is used alone, it is a lexical verb meaning ‘hit’, but in the constructions above, it is a light verb, v, which carries no meaning and serves only to introduce an external argument.

Consider now the following set of Urdu data (see p. 288), which shows a similar phenomenon (Butt & Geuder, 2003).

(89) a. yaasiin-nee keek k\textsuperscript{h}aa lii-yaa
Yassin.MASC-ERG cake.MASC.NOM eat take-PERF.MASC.SG
‘Yassin ate the cake (completely, for the benefit of himself).’
We observe here a small set of light verbs with a semantically bleached meaning (shown in **bold face**). Note that the main lexical verb provides the core meaning of the sentence. The light verbs merely adjust the meaning slightly.

**Key Concepts**

**ditransitive verb**
A verb that takes two internal arguments.

**Larsonian shell**
A double VP projection that allows space for two internal arguments to be projected.

**tense phrase (TP)**
A sentence is headed by a tense head (T), which relates the subject to the predicate, and which is the locus of agreement. A T head projects to a TP.

**complementizer**
A complementizer introduces a subordinate clause into a sentence. Complementizers often indicate the illocutionary force of a sentence.

**illocutionary force**
The illocutionary force of a clause indicates whether it is a statement (declarative), a question (interrogative) or a command (imperative).

**light verb**
A functional element, \( v \), that introduces the external argument. In English, the light verb has no phonetic content, but other languages have overt light verbs.
Double Object Construction. A construction with two DP arguments. Ex., I gave Peter a present is a double object construction. The alternant I gave a present to Peter is not.

benefactive alternation A type of DOC in which the non-<theme> DP argument is a <benefactive> rather than a <recipient>. Ex., I baked John a cake (cf. I baked a cake for John.)

middle voice A structure in which the logical subject is absent and the direct object appears in object position. The middle voice states a general state about the entity in question. Ex. This sweater washes easily refers to the fact that the sweater is easy to wash. This sentence does not refer to a particular event of sweater-washing.

Further Reading

Déchaine, R. & M. Wiltschko (2002) This article deals with the structure of pronouns in great detail using data from a variety of languages. This paper should only be tackled once this textbook has been covered in detail.

Hale K. & S. J. Keyser (2003) This monograph deals with several aspects of argument structure – how the subject, direct object and indirect object are introduced into the clause. It covers much empirical data from English and various Aboriginal languages from North America. Some of the technical discussion is best left until after Chapter 7; however, the empirical facts are quite interesting to read through and are clearly laid out.

Kaufmann, I. (2007) This paper describes some of the general properties of the middle voice and how it differs from other transitivity alternations. It brings in data from the Niger-Congo language, Fula, spoken in West Africa.

Larson, R. (1988) This is the original proposal to handle double object constructions. This article will be accessible after the discussion on wh-movement and anaphora. It also presents a more detailed analysis of double object constructions than the one presented here.

Pollock, J.-Y. (1989) This article proposes splitting TP into separate functional projections: one for tense and one for agreement.
This monograph makes an interesting proposal on how benefactives, causatives and other non-core arguments appear in the syntactic structure. Although some of the details will be difficult to graph at this point, many of the empirical facts will be accessible.

**Exercises**

1. Draw trees for the following sentences:

   a) The boy gave a box of chocolates to his teacher.
   b) Mary sent Alice a bouquet of roses.
   c) John thinks that Susan will win the race.
   d) The teacher of physics gave us some sandwiches for lunch.
   e) I think that Mary delivered the letter to those students.

2. Consider the following sentence.

   The children will have been playing checkers.

   This sentences is admittedly a little odd out of context, but let’s not let that concern us. (If you want a good context, try this: *By noon, the children will have been playing checkers for two hours, so they should have a quick nap.*) Our task is this. First, draw a tree for this sentence. Assume that *have* and *been* are the head of AuxP (auxiliary phrase) as follows.

   Once you’ve drawn the complete tree for this sentence, determine where a floated quantifier can appear. Note that there is some variation here, so it would be worthwhile to check with other native speakers of English to compare answers.
All the boys will have been playing checkers.
The boys all will have been playing checkers.
The boys will all have been playing checkers.
The boys will have all been playing checkers.
The boys will have been all playing checkers.

Which of these sentences are grammatical? How would the grammatical sentences be derived? Just as importantly, how would the ungrammatical sentences be blocked? Are any of the sentences problematic for the treatment of floated quantifiers we have outlined? (In other words, are there any grammatical sentences that cannot be accounted for by the model we are considering, or are there any ungrammatical sentences that the model would allow?)

3. Consider the following Japanese data (Miyamoto, 1999; Sato, 2010). Note the lexical item suru has an irregular form in the past tense, si.

   a. Taroo-ga Tokyo-ni ryokoo-o suru
      Taroo-NOM Tokyo-to travel-ACC do
      ‘Taroo travels to Tokyo.’

   b. Taroo-ga Eigo-no benkyoo-o suru
      Taroo-NOM English-GEN study-ACC do
      ‘Taroo studies English.’

   c. * Sachiko-ga kinoo benkyoo-o ta.
      Sachiko-NOM yesterday study-PST
      (‘Sachiko studied yesterday.’)

   d. Sachiko-ga kinoo benkyoo-o si-ta.
      Sachiko-NOM yesterday study-do-PST
      ‘Sachiko studied yesterday.’

   e. Sachiko-ga kinoo benkyoo-o si-ta.
      Sachiko-NOM yesterday study-ACC do-PST
      ‘Sachiko studied yesterday.’

What category do you think suru/si is? Are there any lexical verbs in these sentences (i.e., a lexical item that you would label with a ‘V’). Consider now the following data set.
f. Sachiko-ga kinoo benkyoo-si-ta.
Sachiko-NOM yesterday study-do-PST
‘Sachiko studied yesterday.’ / ‘Sachiko discounted something yesterday.’

g. Sachiko-ga kinoo benkyoo-o si-ta.
Sachiko-NOM yesterday study-ACC do-PST
‘Sachiko studied yesterday.’ / *‘Sachiko discounted something yesterday.’

The form *benkyoo-suru* has an idiosyncratic reading in addition to the literal meaning. Note, though, that in example g. the idiomatic reading is not available (as indicated by the *). What is the structural difference between these two sentences? Consider also the following data. Can you make a generalization on when the idiomatic reading is or is not available? What phenomenon do you think is taking place here? Explain.

h. ryoori-suru
   ryoori-o suru
cuisine-do
   cuisine-ACC do
‘to cook’ / ‘to handle well’
   ‘to cook’ / *‘to handle well’

i. boosoo-suru
   boosoo-o suru
runaway-do
   runaway-ACC do
‘to burn up’ / ‘to get out of control’
   ‘to cook’ / *‘to get out of control’

j. keisan-suru
   keisan-o suru
calculation-do
   calculation-ACC do
‘to count up’ / ‘to plan meticulously’
   ‘to count up’ / *‘to plan meticulously’

k. shobun-suru
   shobun-o suru
disposal-do
   disposal-ACC do
‘to cast away’ / ‘to murder’
   ‘to cast away’ / *‘to murder’

l. zibaku-suru
   zibaku-o suru
self-do
   self-ACC do
‘to detonate oneself’ / ‘to screw up’
   ‘to detonate oneself’ / *‘to screw up’

4. The following sentences contain *resultative phrases*. The resultative phrases are in *italics*.

a. Peter pounded the metal *flat*.
b. Susan wiped the table *clean*.
c. John burned the eggs black.
d. Alice broke the mirror in two.

The phrases in italics are called resultative phrases because they describe the state of the direct object as a result of the action. As a result of the pounding, the metal becomes flat, as a result of the wiping, the table becomes clean, etc. Consider, now, the following data:

e. * Jennifer cried asleep.
f. * John coughed awake.
g. Jennifer cried herself asleep.
h. John coughed himself awake.

What is the usual argument structure of the verbs cry and cough (in a sentence such as Jennifer cried or John coughed)? What are their θ-grids? How do you explain the presence of the reflexive pronouns herself and himself in the last two sentences? (Caution: Do not confuse resultatives with depictives as in John walked home tired. Here, tired describes the state of John while the walking took place. Crucially, John did not become tired as a result of walking home, rather, he was tired while walking home. Depictives and resultatives have quite different properties, so ignore depictives for this question.)

5. Consider the following English data.

a. John gave Mary a book.
b. John gave a book to Mary.
c. John bought Mary a book.
d. John bought a book for Mary.
e. John bought a book from Mary.

What possible θ-roles are found on Mary in these sentences? What restrictions are there on the indirect object when it does not have a preposition in this data set? Come up with more English examples to see if the generalization holds.

Consider, now, the following Oneida data (adapted from Michelson, 1991; Michelson & Doxtator, 2002). (See p. 37 for more information on Oneida. Looking at this limited data set, does Oneida appear to have the same restriction on θ-roles for indirect objects as English? If not, explain.

f. waʔ- ku- hwist- u -ʔ
   FACT- 1.SG.SUBJ:2.SG.OBJ- metal- give- PUNC
   ‘I gave you money.’
Consider the following Cantonese data (Sio & Tang, 2007).

a. keoi5 hou2 ming4hin2 bei6hoi1 lei5 laa1
   3 very clear avoid you SFP
   ‘S/he is clearly avoiding you.’ (= It’s clear that s/he’s avoiding you.)

b. keoi5 hou2 ming4hin2 gam2 bei6hoi1 lei5 laa1
   3 very clear GAM avoid you SFP
   ‘S/he is avoiding you in a very clear manner’

c. keoi5 dak6dang1 kik1 lei5 gaa3
   3 intentional kick you SFP
   ‘S/he kicked you on purpose.’

d. keoi5 dak6dang1 gam2 kik1 lei5 gaa3
   3 intentional GAM kick you SFP
   ‘S/he kicked you in an intentional manner.’

e. ngo5 hou2 ming4hin2 wui5 daa2 keoi5
   1 very clear will hit 3
   ‘I will clearly hit him.’ (= It is clear that I will hit him.)

f. ?* ngo5 hou2 ming4hin2 gam2 wui5 daa2 keoi5
   1 very clear GAM will hit 3
   (‘I will hit him in a clear manner.’)

g. ?* ngo5 wui5 hou2 ming4hin2 daa2 keoi5
   1 will very clear hit 3
   (‘I will clearly hit him.’ (= It is clear that I will hit him.))
What is the function of GAM in these sentences? Explain why sentences f. and g. are ungrammatical. Sketch a rough tree for sentences e. and h. HINT: Subjects in Cantonese are above SpecTP. Put them in SpecCP for this exercise.
Interchapter C Discourse Configurationality

**Configurationality** refers to the asymmetric, hierarchical structure of sentences in language. A well-known example of this is the subject-object asymmetries we saw in Chapter 3. Such asymmetries are evidence for the structure in example (1) as opposed to (2).

(1) 
```
     S
    / \  
   NP   VP
      /  
     V   NP
```

(2) 
```
     S
    / \  
   NP   V NP
```

Configurationality also refers to the correlation between linear order and grammatical function. For instance, in the following sentence, we understand *Alex* to be the subject and *Pat* to be the object:

(3)  Alex kissed Pat.

However, if we reverse the order of the two nouns, *Pat* is the subject and *Alex* is the object.

(4)  Pat kissed Alex.

In other words the rigidity typically associated with word order in English is associated with the fact that word order is correlated to grammatical function in English.

**Discourse configurational** languages do not exhibit these properties. In fact, the following three properties characterize such languages:

**Properties of Discourse Configurational Languages:**

- Apparently free word order
- Discontinuous constituency
- Extensive argument drop
Let’s see how these three properties manifest themselves. We will look at Warlpiri (data from Hale, 1983). Example (5) shows a simple transitive sentence with SOV word order. Examples (6) and (7), both grammatical, show the same sentence, but with OVS and VSO word order, respectively. There is no change in meaning when the word order is rearranged in this manner.

(5) Ngarra-ngku ka wawirri panti-rni [Warlpiri (see p. 197)]
man-SUBJ AUX kangaroo spear-NONPAST
‘The man is spearing the kangaroo.’

(6) Wawirri ka panti-rni ngarrka-ngku
kangaroo AUX spear-NONPAST man-SUBJ
‘The man is spearing the kangaroo.’

(7) Panti-rni ka ngarrka-ngku wawirri
spear-NONPAST AUX man-SUBJ kangaroo
‘The man is spearing the kangaroo.’

Recently, many people have argued that describing word order as “free” is actually misleading. Rather, word order is believed to depend on discourse factors such as new versus old information, emphasis or topichood. This contrasts with configurational languages such as English, where word order is dependent on grammatical function (i.e., subject versus object), although in configurational languages such as English, word order sometimes deviates from the normal order in response to information structure (see section 4.3.1 in Chapter 4).

Discontinuous constituents refers to a constituent, usually a noun phrase, being broken up into two pieces and appearing in separate places in the sentence. We give an example from Mohawk, an Iroquoian language, and Nahuatl, an Uto-Aztecan language (data from Baker, 1996: 153).

(8) Éso wahatshári’ ne onhúlsa’ [Mohawk]
many he.found NE eggs
‘He found a lot of eggs.’

(9) miyaquintin huītze’ in tlāca’ [Nahuatl]
many they.come IN people
‘A lot of people come.’

In these examples, the noun phrases many eggs and many people are discontinuous since they are broken up across the sentence.
The final property is **argument drop**, which we illustrate with Inuktitut (see p. 122), an Eskimo-Aleut language spoken across northern North America (Alana Johns, pc).

(10) Angutiup arnaq kunik-t-aa
the.man the.woman kiss-PART-3 SG/3 SG
‘The man kissed the woman.’

(11) kunik-t-aa
‘He kissed her.’

Example (10) shows a standard transitive sentence with an overt subject and object. Example (11) exhibits only the verb with no overt nouns or pronouns. As long as the arguments are recoverable from the discourse, there is no need to mention them, thus the sentence in (11) is grammatical.

Given the lack of importance for word order in indicating grammatical function, Hale (1983) proposed (2) as opposed to (1) for the structure of discourse configurational languages. With this structure, all six logically possible word orders can be derived by changing the order of the daughters of S. Note that with the structure in (1), VSO and OSV orders are not possible without some kind of movement.

(12)

```
S                      S
  SVO                   SOV
    NP.Subject  VP  NP.Subject  NP.Subject  V  NP.Object
    V  NP.Object
  VOS
    VP  NP.Subject
    V  NP.Object
```
There have been other proposals on how to capture the effects of discourse configurationality, which you can read about in the Further Reading section.

**Further Reading**

Adger, D. *et al.* (2009) This monograph discusses the discourse configurational properties of Kiowa (a Tanoan language spoken in central USA). It makes a novel proposal that relates sentence structure to word structure.

Baker, M. (1996) This monograph discusses discourse configurationality and other properties of polysynthetic languages and proposes a single macroparameter to capture the difference between polysynthetic languages and non-polysynthetic languages.

Hale, K. (1983) This is one of the earliest theoretical works dealing with non-configurationality.

Jelinek, H. (1984) This paper proposes that the overt noun phrases in non-configurational languages are not actually part of the clause, but are adjoined to the CP outside. The actual arguments are the agreement morphemes on the verb themselves.

Kiss (1995) This volume contains a number of papers dealing with theoretical aspects of discourse configurational languages from around the world.
Chapter 5 The Architecture of Grammar

By the end of this chapter you should:

- understand the Principles and Parameters approach to generative syntax
- understand the basic architecture of the T-model of generative syntax
- understand the difference between overt and covert movement
- understand the concept of building up structure by Merger
- understand head movement and when it occurs (V-to-T and T-to-C).
- explain do-support in English.

5.1 Principles and Parameters

The earliest discussions on generative grammar proposed rules specific to different constructions. For instance, there was a special rule for forming passives (John ate the apple $\rightarrow$ The apple was eaten (by John)). This rule was different from focussing phrases for emphasis (John won’t read that book $\rightarrow$ EVEN THAT BOOK John won’t read.) Furthermore, different languages were thought to have different language-specific rules. In light the observations in Chapter 1 concerning Universal Grammar and the Poverty of the Stimulus, a new model for the architecture of grammar was proposed—Principles and Parameters. Those aspects of grammar that are invariant, that is that are part of Universal Grammar (UG), are encoded by principles. One such principle we informally proposed earlier was the principle of reflexives (see p. 12). Other properties of UG we have looked at include the operation Merge. As we proceed, we will see that the passive construction is handled by basic principles of UG and does not need a language-specific or construction-specific rule. Of course not all languages are alike. There are two ways in which languages can vary. First, different languages can have different lexical items. Second, languages have a small number of parameters that are set during language acquisition.

Languages obviously have different lexical words. For example, the English word ‘apple’ is ‘pomme’ in French, ‘sagwa’ in Korean, and ‘apastaminamm’ in Blackfoot. Languages have differences in function words, too. For instance, the English indefinite determiner ‘a’ does not encode specificity. So the sentence, “I’m looking for a book.” can mean either that you’re looking for a specific book or for any book. In Blackfoot, on the other hand, there are distinct determiners for a specific indefinite object and a non-specific indefinite object.

In this chapter, we will spend most of our time looking at parameters. A parameter is a property with different possible settings—like a dial on a machine. Parameters are assumed to have a default setting. The default setting is determined by UG. Thus, we are all born with the same settings for each parameter. Exposure to a particular language might present a stimulus that triggers a different setting of the parameter in question. Thus, when investigating parameters, we must keep in mind what the default setting is and what possible triggers could be for changing the parameter setting. It’s helpful to think of parameter settings as light switches. At birth, all of our light switches are set the same way, but as we acquire language, different light switches may change settings depending on our linguistic environment.
5.1.1 The Pro-Drop Parameter

The first parameter we will discuss is the **pro-drop parameter**. Consider the following Italian data. Although both sentences mean the same thing, (1)b is the more usual way to express the proposition. (1)a would only be used if the speaker wished to focus or place emphasis on the subject. (Something like: *I’m eating an apple...not YOU.*)

(1) a. Io mangi-o una mela  b. Mangi-o una mela
I eat-1.SG an apple eat-1.SG an apple
‘I’m eating an apple.’

The traditional explanation for the ability of languages such as Italian to drop subjects is related to the recoverability of the subject from the morphology on the verb. Notice that the verb *mangio* has the morpheme –o which indicates that the subject is first person singular (and also indicates present tense). Since the verbal morphology tells us who the subject is, the subject can be dropped. This phenomenon is referred to as the **pro-drop parameter**. Italian is referred to as a pro/drop language, whereas English is a non/pro/drop language. What triggers the setting for this parameter? In this case, we are tempted to say that the rich agreement morphology triggers a positive setting for this parameter; however, we will see below that this is not the case.

Let’s look at some paradigms across a few languages. Since orthography varies greatly here and is often phonologically opaque, we will examine the verbal paradigms written in IPA.

<table>
<thead>
<tr>
<th></th>
<th>English (speak)</th>
<th>French (speak)</th>
<th>German (go)</th>
<th>Portuguese (speak)</th>
<th>Persian (go)</th>
<th>Cantonese (speak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg</td>
<td>spik</td>
<td>paɾl</td>
<td>ɡe-o</td>
<td>fal-u</td>
<td>miræv-æm</td>
<td>gɔ’ηη</td>
</tr>
<tr>
<td>2sg</td>
<td>spik</td>
<td>paɾl</td>
<td>ɡe-st</td>
<td>fal-tʃ</td>
<td>miræv-i</td>
<td>gɔ’ηη</td>
</tr>
<tr>
<td>3sg</td>
<td>spik-s</td>
<td>paɾl</td>
<td>ɡe-t</td>
<td>fal-tʃ</td>
<td>miræv-æd</td>
<td>gɔ’ηη</td>
</tr>
<tr>
<td>1pl</td>
<td>spik</td>
<td>paɾl-ʃ</td>
<td>ɡe-ɔn</td>
<td>fela-μʃ🔗</td>
<td>miræv-im</td>
<td>gɔ’ηη</td>
</tr>
<tr>
<td>2pl</td>
<td>spik</td>
<td>paɾl-ɾ</td>
<td>ɡe-t</td>
<td>fal-ʃʃ🔗</td>
<td>miræv-id</td>
<td>gɔ’ηη</td>
</tr>
<tr>
<td>3pl</td>
<td>spik</td>
<td>paɾl</td>
<td>ɡe-ɔn</td>
<td>fal-aw🔗</td>
<td>miræv-ænd</td>
<td>gɔ’ηη</td>
</tr>
</tbody>
</table>

Persian (also known as Farsi) is spoken by 22 million people, mostly in Iran. It is part of the Indo-Iranian branch of the Indo-European family (see box on p. 288). One of the more interesting properties of Persian is the so-called Ezafe vowel that appears as a linker in certain nominal constructions containing adjective phrases or other material. Ghomeshi (Ghomeshi, 1997) presents an insightful discussion on this phenomenon.
Looking first at the Portuguese and Persian paradigms, we notice that each person/number combination is distinct. In other words, the person/number combination can be determined by the agreement morphology. These two languages are also ‘null subject’ languages, or ‘pro-drop’ languages. Again, the traditional explanation for this was the content of the subject is recoverable from the agreement morphology. However, when we examine the Cantonese data, we see that all person/number forms are identical, yet Cantonese is still a pro-drop language (see p. 19 for more information on Cantonese). There have been many theories as to the nature of pro-drop. We will mention one here. First, we must ask which is the default UG setting for the pro-drop parameter. If we assume pro-drop is the default setting, then something must trigger the non-pro-drop setting. In other words, there must be some positive evidence that the child can latch on to and say, “Aha! I am acquiring a non-pro-drop language.” On the other hand, if we assume that non-pro-drop is the default setting, then there must be some positive evidence that triggers the pro-drop setting. First, it has been noticed that young children go through a pro-drop stage. Eventually, speakers of non-pro-drop languages consistently use full nouns or pronouns in subject position. So, the actual acquisition data suggest that pro-drop is the default setting. Second, It has been noticed that pro-drop languages consistently lack expletives, while non-pro-drop languages do have expletives. In the following examples, the expletive is in boldface.

(3) a. There’s a book on the table.

b. Il y a un livre sur la table. [French]
   ‘There’s a book on the table.’

c. Es gibt ein Buch auf dem Tisch. [German]
   ‘There’s a book on the table.’

d. (*Ele) ha um livro na mesa. [Portuguese]
   ‘There’s a book on the table.’

e. (*koi) hai-2 zeong-1 toi-2 soeng-6 bin-6 yau-5 yat-1 bun-2 syu-1 [Cantonese]
   ‘There’s a book on the table.’

Thus, it has been proposed that upon hearing an expletive, the child know that the language cannot be a null-subject language. Interestingly, it has been noticed that children start using expletives around the same time that they stop pro-dropping. This offers strong evidence for the notion that expletives are the trigger for the null-subject parameter. It follows from this discussion that the default setting for the parameter must be set to pro-drop. The reason again for
this is as follows. Hearing an expletive triggers the child to set the parameter to “non-pro-drop”. Failing to hear an expletive cannot be a trigger, since it does not provide a positive trigger for the child during language acquisition.

5.2 The Model of Grammar and Minimalism

The model of grammar that we are exploring here was initiated by Chomsky in the 1990’s and is known as the Minimalist Program. The basic tenets of this approach to generative syntax are reminiscent of Occam’s Razor. The components of the grammar consist of a Lexicon, which contains the lexical items of the language (see Chapter 2). The lexical items encode all the idiosyncratic information about the language. For instance the lexical item EAT must indicate that it optionally takes a DP complement, while the lexical item DEVOUR must indicate that it obligatorily takes an DP complement. The functional heads of the language are also stored as lexical items, and as we will see later on, they, too, store idiosyncratic information. The Lexicon, together with the principles and parameters interact to form the grammar of the language. We do not wish to make our model of grammar any more complicated than is necessary to explain the facts about human language. Clearly, some kind of Lexicon as described is necessary. We also need some way to put the lexical items together to form sentences. This is the topic of the next section.

5.2.1 Bare Phrase Structure and Merge

In GB theory, a module of grammar known as X-Bar Theory was used as a model for building up phrase structure. In Minimalism, researchers thought that if we can develop a theory of phrase structure that didn’t rely on the mechanisms of X-Bar Theory, but that can still capture all the facts then this simpler theory is to be preferred. This simpler theory that emerged is called Bare Phrase Structure, which we describe here. Any sort of language system will need a way of combining lexical items into larger and larger hierarchical units. Let us call this method of combining lexical items Merge. Merge takes two lexical items and combines them into one set. Let’s look at an example. In constructing the phrase the dog, we merge together the two lexical items the and dog.

\[ \text{Merge (the, dog)} \rightarrow \{\text{the, dog}\} \]

We also know that the determiner the and the noun dog together form a DP – that is the D the is the head of this phrase. We call the head of a phrase the label and notate it as follows.

\[ \text{Merge (the, dog)} \rightarrow \{\text{the, } \{\text{the, dog}\}\} \]

We can represent this as in the tree structure notation below on the left, or in the more familiar notation below on the right. These two trees are just two ways of expressing the same concept – namely, the DP the dog. The representation on the right is the one more commonly used by most generative syntacticians as it is the easiest to read. We should always be aware that this is merely a notational substitute for the tree on the left or the set notation above.
We can continue building the structure and for the verb phrase *saw the dog* by merging the verb *saw* with the DP formed above. This is then followed by merging in a *v*, which gives us the following structure.

In the interests of keeping the grammar as simple as possible, we assume that Merge can operate only on the root node of a tree. Consider the following hypothetical structures.

The root nodes in these structures are A, B and E. So we could merge A with \{B, \{C, D\}\} to give rise to the following structure (assuming A projects and becomes the label).
Furthermore, \{B, \{C, D\}\} could merge with \{E, \{F, \{G, \{H, I\}\}\}\} to give rise to the following structure (assuming B projects and becomes the label).

Note, however, that merger cannot take place to a lower node on the tree. Thus, merger between \{B, \{C, D\}\} and F is impossible.

5.2.2 Move

Merge is one operation in UG. Another operation is called Move. We have already seen some examples of movement in the previous chapter. Here, we will look at the properties of movement in more detail. There are two basic kinds of movement: head movement and phrasal movement. As the names suggest, head movement is movement of just a head — a lexical item drawn from the Lexicon. Phrasal movement is movement of any XP. We introduce here the basic properties of movement. As we have seen above, when an element moves, it leaves a trace. The trace helps us keep track of what has moved where. This is especially important when more than one thing moves in the tree. We will see in later chapters that the trace is more than a memory aid. It plays a significant role in the satisfaction of various syntactic principles. Move and Merge are similar in various respects. Like Merge, Move can target only the root node of the tree in the case of phrasal movement. Head movement is slightly
different. Head movement targets the head of the root node. As a result, only upward movement is possible. Consider the following hypothetical tree. Recall that Merge can target only the root node, A. Likewise, if we wish to move the phrase \{G, \{H, I\}\}, it can target only A and not any of the lower nodes. The outcome of this movement operation is shown below, along with an ill-formed tree resulting from an illegal movement operation, in which B was targeted. As a result of targeting only the root node, observe that the moved element always c-commands its trace.

The next section discusses head movement in more detail.

5.3 **Head Movement and XP Movement**

Head movement targets only a head (hence its name). That is, only the head or lexical item moves. We have already seen one instance of this in the previous chapter. Specifically, we saw that V raises to \(v\) in our discussion of ditransitive verbs. When a head moves, it can target only another head position, not the root node. In keeping with Minimalist assumptions and keeping the grammar as simple as possible, we assume head movement has only one option. It must target the head of root node. Consider an actual example in which the verb raises. Assume we have reached the following stage in the derivation of the phrase *saw a dog*. 
At this point, the verb raises from V to v, leaving behind a trace. Note that this is an exception to the rule that movement targets the root node; however, head movement is still in keeping with the spirit of this rule in that it targets the head of the root node.

We have also seen one instance of XP movement in the previous chapter. Recall sentences with auxiliaries, such as *John will eat an apple*. Here is the stage of the derivation just after the auxiliary has merged with the vP.
To get the correct order, recall that we proposed that John raises to the specifier of TP.

(17)

Let us think for a moment as to why this might happen. Consider the following sentences.

(18)  a. There is a book on the table.       a’. A book is on the table.
    b. There are two books on the table.   b’. Two books are on the table.
    c. It seems that John likes tuna.      c’. John seems to like tuna.
    d. It is raining                       d’. * It is raining.

Recall from above that the subjects of the sentences in the left column are expletives. They are required when no other subject is available. In later chapters we will discuss the relation between tense, agreement and Case; however, we can see from these data that there is a requirement for there to be some subject in the sentence. When no subject is available, an expletive appears in the Specifier of TP. This property was originally formulated as a requirement on the part of sentences to have subjects; however, it has been discovered that other XPs sometimes have the property of requiring some element to appear in its Specifier. This property is called the **Extended Projection Principle** (EPP).

**EPP (Extended Projection Principle)**

- If a head, X, has the EPP property, then the Specifier of XP must be filled.
- In English, T has the EPP property.
We will look at other instances of XP movement in subsequent chapters. For the remainder of this chapter we consider some other instances of head movement (although we do come back to the issue of the EPP at the end of this chapter).

5.3.1 \textit{V-to-T Movement}

Recall that a verb selects its direct object by merging with it. As a result, the verb must be adjacent to the direct object, as shown in the following English examples.

\begin{enumerate}
\item John often eats anchovies.
\item * John eats often anchovies.
\end{enumerate}

Consider, however, the following data from French and Irish in which the verb and its direct object are not adjacent.

\begin{enumerate}
\item Jean mange souvent des anchois. \hspace{1cm} [French]  
\item I have often eaten apples.
\end{enumerate}

We observe that elements in a sentence can be separated from their thematically related heads. That is, the verb assigns an internal theta-role to the direct object when it merges with it, but the verb and the direct object are separated in the surface form of the sentence. How does this happen? To answer this question, let’s consider the following sentences as well.

\begin{enumerate}
\item Phóg Máire an lucharachán. \hspace{1cm} [Irish]  
\item I have often eaten apples.
\end{enumerate}

Here, we observe that French and English exhibit the same word order. Note that adverbs of frequency adjoin to vP.
Let us proceed from the assumption that the verb and the auxiliary occupy the same position in both the English and the French sentences. That is, let’s assume the following structure for the French sentence.
Notice that the lexical item that carries the tense morphology appears under T. Let us propose that in French, the lexical item that carries the tense morphology always appears under T, whereas in English, only auxiliaries (if present) appear under T. That is, we propose the following structures for the English and French sentences.
Thus, while the verb in English undergoes head movement only from V to v, in French the verb raises further to T. This movement is traditionally referred to as V-to-T movement (really, we should call it V-to-v-to-T movement, but the term was coined before the introduction of v into UG). The position of the tensed verb with respect to adverbs of frequency is one way to distinguish between languages with V-to-T movement (such as French) and languages without it (such as English). There are two other common properties that distinguish these kinds of languages. Recall that English has subject/or inversion for yes/no questions. If there is no auxiliary, then English has a unique phenomenon known as do-support. In languages with V-to-T movement, do-support is not necessary if there is no auxiliary. Instead the lexical verb inverts with the subject. The reasons for this will become clear in the next section; however, we cover the basic facts here.

(27) a. John writes letters to Mary  
   b. Does John write letters to Mary? [do-support]

(28) a. Jean écrit des lettres à Marie  
   John writes of the letters to Marie  
   ‘Jean writes letters to Marie.’  
   b. Écrit Jean des lettres à Marie? [no do-support]  
   writes John of the letters to Marie  
   ‘Does John write letters to Marie?’
Correlates of V-to-T Movement:
- lack of do-support
- lexical verb moves in yes/no questions
- lexical verb appears before adverbs of frequency (such as often, never, etc.) in the absence of auxiliaries.

Recall that T hosts tense and agreement features (TP = tense phrase) and that V-hosts only the lexical verb without any tense or agreement (and maybe a light verb in some languages). In both English and French, when an auxiliary is present under T, the auxiliary naturally hosts the tense and agreement morphology. Also, in French, the lexical verb raises to T and can host the tense and agreement morphology. There is a problem in English, though, when there is no auxiliary. Consider again the following data.

(29) a. Nous av-ons mang-é les pommes
    we have-1.PL eat.PART DET apples
    ‘We have eaten the apples.’

b. Noun mangi-ons les pommes
    we eat-1.PL DET apples
    ‘We are eating the apples.’

c. John is eating an apple.

d. John eats an apple every day.

In the first three examples, the word that hosts the tense and agreement morphology appears under the T node, which is the locus of tense and agreement. Consult the trees above to convince yourself of this. In the last sentence, the verb eats hosts tense and agreement (the /s/ morpheme), but does not appear under T. A more accurate representation of the structure of T is shown in the following representation for the sentence John likes tuna.
This is a more accurate representation for the sentence *John likes tuna*. How do we put the tense/agreement morpheme onto the verb? English undergoes **affix hopping** or **affix lowering** due to the need of the morpheme to attach to a word. Note, this is a morphological requirement of the affix, so this process is not handled by the syntax. The morphology and syntax of words is still a matter of ongoing research. In this book, we will not worry about the morphosyntax of verb agreement.

### 5.3.2 T-to-C movement

Recall that C is the locus of illocutionary force (place where illocutionary force is found). Recall also that yes/no questions in English are formed by subject-aux inversion. When no auxiliary is present, *do*-insertion takes place.

(31)  
\[
\begin{align*}
\text{a. } & \text{Mary will eat an apple,} \\
\text{b. } & \text{Will Mary } t_i \text{ eat an apple?}
\end{align*}
\]

Let’s look first at the structure for the first sentence.
By this stage, V has undergone head movement to v, and the subject DP has raised from the Specifier of vP to the Specifier of TP to satisfy the EPP. Now, the C head merges with TP. In questions, C attracts the T head and whatever material it contains. If there is nothing under T, then do-insertion takes place. (Note that T-to-C movement does not always take place; however, we discuss the exceptions below. In a yes/no question, the matrix T always raises to C.)
Recall that French does not have *do*-support. The main verb raises to T, so there is no need for a dummy auxiliary to come in and raise to C. Consider the following pair of sentences. In French, if there is no auxiliary in T, then the verb undergoes V-to-T movement. So when T-to-C movement takes place in questions, there will always be something in T to raise. In (34), the verb *parlez* (‘speak’) undergoes V-to-T movement, and then T-to-C movement.

(34)  
\[
\begin{align*}
&\text{a. } Vous \text{ parlez français.} \\
&\quad \text{you.PL speak.2PL French} \\
&\quad \text{‘You (pl) speak French.’ (This is also the polite form when speaking to one person)} \\
&\text{b. } Parlez-vous français? \\
&\quad \text{speak.2PL- you.PL French} \\
&\quad \text{‘Do you speak French?’}
\end{align*}
\]

Here is the tree for (34)b.

(35)  
```
CP
  \( \text{C} \)
    \( \text{TP} \)
      \( \text{Parlez, D} \)
        \( \text{T'} \)
          \( \text{vous} \)
            \( \text{T} \)
              \( vP \)
                \( t_i \)
                  \( t_j \)
                    \( v' \)
                      \( v \)
                        \( \text{VP} \)
                          \( t_i \)
                            \( \text{V} \)
                              \( \text{DP} \)
                                \( t_i \)
                                  \( \text{français} \)
```

5.4 Parameterization and Word Order

Recall the six logically possible word orders: SOV, SVO, etc. The following chart gives the relative frequencies of these basic word orders for the world’s languages for those languages which have a dominant order, see also Interchapter B: Typology (Dryer, 2011).
SVO  English, Mandarin (see p. 85), Cantonese, Swahili   41.1%
SOV  Turkish, Japanese, Persian, German   47.6%
VSO  Irish (see p. 134), Tagalog, Lushootseed, Welsh  8%
VOS  Niuean, Tongan, Malagasy  2.1%
OVS  Hixkaryana (see p. 76), Pari, (Klingon)  0.9%
OSV  Nadëb, Kxoe (see p. 76), Tobati  0.1%

How can we derive these possible word orders? We have already derived SVO in English. Note that subject DP raising to SpecTP and V raising to v are not necessary here for SVO order. SVO order results from the structure itself.

(36)  Mary likes syntax

Let’s consider now a language such as Japanese (see p. 38):

(37) Gakusei-ga hon-o yon-da
student-NOM book-ACC read-PST
‘The student read the book.’

Before we analyze Japanese word order, let us examine the structure of phrases in general. Notice that XPs up to now have taken the following shape (adjuncts aside):
We must ask ourselves whether this order is fixed or universal. Recall the discussion on postpositions in the previous chapter. While prepositions have the order P-DP, postpositions have the order DP-P. Also, SOV languages tend to have postpositions, while SVO languages tend to have prepositions. Both of these facts can be accommodated by assuming the following structure for SOV languages.

Let’s examine first the structure of a PP in Japanese. Observe that the complement to the postposition is to the left of the head.

Recall that Japanese is SOV and has postpositions. Thinking of the various parametric settings available to language, it is easiest to analyze Japanese using the setting in (39) above. Consider the following structure for (37) above.
The two X-Bar parameter settings that we have just seen (Spec-Head-Complement for SVO languages and Spec-Complement-Head for SOV languages) are by far the most common. In fact, they are often referred to as left-headed and right-headed, respectively. There are four logically possible ways to order the specifier, head and complement. Recall that adjuncts can appear on either side of the phrase. Adjuncts do not figure in this four-way classification.
We consider, now, a mixed language. Consider the following German data.

(42) a. mit einem Auto     b. das Buch [das Peter gelesen hat]  
     with a.DAT.M car     the book [that Peter read has]  
     ‘with a car.’     ‘the book that Peter read.’

c. Peter hat das Buch gelesen. d. Hat Peter das Buch gelesen?
     Peter has the book read  has Peter the book read
     ‘Peter has read the book.’  ‘Has Peter read the book?’

We see that German has prepositions, post-nominal relative clauses and T-to-C movement, all of which are characteristic of SVO languages. Note, however, that German displays consistent SOV word order. (This is obscured by the fact that German is also a verb-second language. See Interchapter E for more details.) SOV word order is seen most readily in embedded clauses in German, so we’ll restrict our attention to those for now. Consider the following sentence.

(43) Ich weiß daß Peter das Buch in der Küche gelesen hat  
     I know that Peter the book in the kitchen read has
     ‘I know that Peter has read the book in the kitchen.’

Here, we clearly see the SOV order in the embedded clause. Note that although the verb and the auxiliary follow their complements, the complementizer precedes its complement. These facts can be captured if we assume that VP, vP and TP are right-headed (Spec-Complement-Head) and all other projections are left-headed (Spec-Head-Complement). Ideally, the Headedness Parameter should set uniformly for all XPs for a given language, as we saw for English and Japanese above. If we admit the possibility of setting different kinds of XPs to different orders in one and the same language, then we predict numerous word order possibilities and increase the acquisition problem for the child who now has to learn a different setting for each XP. Nevertheless, the dominant view in the study of Germanic languages is that German and many other Germanic languages are SOV. Traditionally, this fact was captured by positing a right headed VP, vP and TP. The exact mechanism for deriving German word order is still a matter of ongoing debate.
Now, let’s see how we would go about deriving VSO word order (see Interchapter D for more information on verb-initial languages). Consider the following Irish sentence (see p. 134 for more information on Irish).

(45) Phóg Máire an lucharachúan
    kiss-PST Mary the leprechaun
    ‘Mary kissed the leprechaun.’

Notice that none of the basic word orders will capture VSO word order since the verb and the object are not adjacent. There are two basic hypotheses on the derivation of VSO word order. Building on the hypothesis for verb-second order in Germanic in which the verb undergoes T-to-C movement (see Interchapter E), one possibility is that Irish does the same thing, but without anything moving to the Specifier of CP. Another hypothesis is that Irish has V-to-T movement like French, but the EPP is not active on T, so the subject remains in the Specifier of vP. The following two trees illustrate these two options. Observe that both trees exhibit the order VSO.
Consider, now, the following Irish example.

(47) Duirt mé gur phóg Máire an lucharachúan
  say-PST I that kiss-PST Mary the leprechaun
  ‘I said that Mary kissed the leprechaun.’

We see that there is an overt complementizer in the embedded clause, yet we still observe VSO word order. Thus, (46)a is not a possible analysis, so we adopt (46)b. Here, then, is the tree for the Irish sentence in (47).
As a final example, consider now, the following data from Vata, a Kru language from West Africa (Koopman, 1984).

(49)  

\begin{align*}
a. & \quad A \text{ la saka li} \quad \text{we have rice eat} \quad \text{‘We have eaten rice.’} \\
b. & \quad A \text{ li saka} \quad \text{we eat rice} \quad \text{‘We eat rice.’}
\end{align*}

Observe that the verb appears to the left of the object when there is no auxiliary present, suggesting V-to-T movement. Note also that when the verb is not raised, its complement, the direct object, appears to the left of the verb. Taking a cue from the analysis for word order in German above, one possibility to account for word order in Vata is to assume that the VP and vP are right headed (Spec-Complement-Head), but that the TP is left-headed (Spec-Head-Complement). Again, assuming mixed headedness seriously overgenerates the number of possible language types;
however, if the analysis for German is on the right track, then we should consider this analysis as a possibility. These data are also important because they show that the model for verb movement (head movement, such as V-to-T and T-to-C), which has captured word order facts in more familiar languages (English, French, German, Irish, Japanese), also shows promising results for other languages around the world. We will take up Vata again in subsequent chapters.
Key Concepts

**generative grammar**
A grammar that generates all and only the grammatical sentences of a language.

**principle**
An invariant property of UG that underpins all human language.

**parameter**
A property of human language that can vary from one language to the next.

**Pro-drop parameter**
A parameter which determines whether a language requires overt subjects or not.

**Headedness parameter**
A parameter which determines the order between a head and a complement. SVO languages are left-headed. SOV languages are right-headed.

**Minimalism**
A research program in which principles and parameters of grammar are kept to a minimum. New principles and parameters are proposed only as required output conditions.

**head movement**
Movement of a head to an immediately c-commanding head.

**phrasal movement**
Movement of an XP to a c-commanding specifier position.

---

(51)

```
(51) CP
    / \      /
    C   TP   
    / \\   / \  
   DP_a T' /   
   / \    /   
  a   T   vP  
  /   / \   /  
 li_j t_i v'  
  /   /   /   
 vP VP  V   V'  
  /   /   /   
 DP   V   t_j 
  /   /   /   
 saka t_j  
```
Extended Projection Principle  Also known as the EPP. This is a property of particular heads. A head with the EPP property requires something to appear in its Specifier. In English, T has the EPP property.

Further Reading

Adger, D. (2003)  This textbook is an excellent introduction to the mechanics of generative syntax within the Minimalist Program. It is a recommended next step after this textbook.

Baker, M. (2001)  This monograph contains a very accessible discussion on the current status of parameters in syntactic theory.

Chomsky, N. (1994)  This is Chomsky’s original monograph that outlines Bare Phrase Structure.

Chomsky, N. (1995)  This is Chomsky’s first most comprehensive discussion on the Minimalist Program. Novice readers should be warned that most of the discussion is highly technical and should only be tackled once the reader has worked through the material in this textbook.

Cowper, E. (1992)  This textbook contains a highly accessible and concise discussion on the history and development of generative syntax.

Haegeman, L. (1994)  This textbook contains an in depth introduction to many aspects of Government and Binding Theory. It is a wonderful resource that ties together much of the discussion on this topic.

Hyams, N. (1986)  This is the original proposal for the Pro-drop parameter. The discussion is rather technical in parts, so the reader may wish to acquire more background in the study of L1 acquisition.

Kayne, R. (1994)  This monograph presents a restrictive theory of word order called Antisymmetry (see p. 142). The reader is well advised to have a strong command of the concepts in this textbook before tackling this monograph.

Koopman, H. (1984)  This book was one of the first in-depth studies on head movement in a non-Indo-European language. It contains discussions on several Kru languages, including Vata.
This is the original proposal that sought to derive the differences between word order in French and English by head movement. It also includes a discussion of infinitives, so the reader is advised to wait until Chapter 9 has been covered.

Exercises

1. Draw trees for the following sentences:

   a. Did Peter bake the pie in the oven?
   b. Is Alice sitting in the kitchen?
   c. Must you play that trumpet so loudly?!
   d. Do you know if Peter has eaten?
   e. Sally told me that you were eating dinner in the kitchen.
   f. Peter bought me a book about linguistics.
   g. I washed the dishes in the sink three times yesterday.
   h. Has Fred said if he will buy a new car?
   i. Do you think that it will rain?
   j. John said that those magazines he put in the attic yesterday.

2. Draw trees for the following sentences. Use triangles for the DPs in the Japanese sentences, and draw only the embedded clauses for the German sentences.

   a. Pierre a mangé la pomme. [French]  
      Pierre has eaten the apple  
      ‘Pierre has eaten the apple.’
   b. Marie pense que l’invité aime beaucoup le café. [French]  
      Marie thinks that the guest likes a lot the coffee  
      ‘Marie thinks that the guest likes coffee a lot.’
   c. Midori-wa ringo-o tabe-ta. [Japanese]  
      Midori-TOP apple-ACC eat-PST  
      ‘Midori ate an apple.’
   d. Makiko-wa Kenji-ga hon-o kat ta to omot te. [Japanese]  
      Makiko-TOP Kenji-NOM book-ACC buy PST COMP think PRS  
      ‘Makiko thinks that Kenji bought a book.’
   e. Ich denke daß Peter grünen Äpfel ißt. [German]  
      I think that Peter green apples eats  
      ‘I think that Peter eats green apples.’
f. Ich denke daß der Student dem Professor das Buch gegeben hat. 
   I think that the student the.DAT professor the book given has
   ‘I think that the student gave the professor the book.’

3. Consider the following Portuguese data:

   O Pedro tem comido uma maçã.  
   the Peter has eaten an apple
   ‘Peter has eaten an apple.’

   Tem o Pedro comido uma maçã?  
   has the Peter eaten an apple
   ‘Has Peter eaten an apple?’

   O Pedro comeu uma maçã.       
   the Peter ate an apple
   ‘Peter ate an apple.’

   Comeu o Pedro uma maçã?       
   ate the Peter an apple
   ‘Did Peter eat an apple?’

   Draw a tree for the all four Portuguese sentences. What evidence did you use to decide how to draw the trees?

4. Consider the following Italian data:

   a. Gianni giocca con il bambino 
      John plays with the baby
      ‘John is playing with the baby.’

   b. * Gianni sempre giocca con il bambino? 
      John always plays with the baby
      (‘John always plays with the baby’)

   c. Gianni giocca sempre con il bambino.  
      John plays always with the baby
      ‘John always plays with the baby’

   Draw a tree for the first Italian sentence (a.). What evidence did you use to determine where the verb appears?

5. Consider the following Korean data (see p. 93 for more information on Korean). What is the basic word order for Korean? What is your evidence? Draw a tree for these sentences. Use triangles for DPs.

   a. Chelswu-ka maykcwulul masi-n-ta 
      Chelswu-NOM beer-ACC drink-PRS-DECL
      ‘Chelswu is drinking beer.’
b. Chelswu-ka maykcwulul masi-ni
   Chelswu-NOM beer-ACC drink-INTER
   ‘Chelswu is drinking beer.’

c. Chelswu-ka phoku-lo keyiku-lul mek-ess-ta
   Chelswu-NOM fork-with cake-ACC eat-PST-DECL
   ‘Chelswu ate the cake with a fork.’

6. Consider the following Hixkaryana data. Assume that the Hixkaryana words have the same category (part of speech) as the corresponding English words. (See p. 76 for more information on Hixkaryana.)

a. bɨryekomo yotahano wosi
   boy hit woman
   ‘The woman hit the boy.’

b. toto yonoye kamara
   man ate jaguar
   ‘The jaguar ate the man.’

c. kana yokono Waraka maryeya ke
   fish cut Waraka knife with
   ‘Waraka cut the fish with a knife.’ (assume that the knife was used to cut the fish)

d. nomohtxownà horota
   came spider.monkey
   ‘The spider-monkeys came.’ (assume horata ‘spider-monkey’ is a single word)

Based on the discussion on word order parameters in this chapter, attempt to draw trees for these sentences. What problems do you run into? Can you draw these trees assuming a uniform setting for the Headedness Parameter? Consider now the following piece of data (which requires the advanced discussion on topics and focused phrases).

e. maryeya ke kana yokono Waraka
   knife with fish cut Waraka
   ‘It was with the knife that Waraka cut the fish.’ (maryeya ke ‘with the knife’ has been emphasized by dislocation to the front of the Hixkaryana sentence.)

Assuming that the adjunct maryeya ke (‘with the knife’) is in the Specifier of a FocP, what problems, if any, does this raise for the trees you drew for the sentences above? How might you solve this problem?
Interchapter D Verb-Initial Languages

Verb-initial languages (both VSO and VOS) make up approximately 10% of the world’s languages and are found in a wide variety of geographical locations. They are also found in a great deal of genetically unrelated language families. We have already seen one verb-initial language - Irish, a VSO language (see p. 134 for more information on Irish). All extant Celtic languages are verb-initial. Other Verb-initial languages around the world include Niuean (Austronesian – Niue, see p. 311), Jakaltek (Mayan - Guatemala), Tagalog (Austronesian - Philippines), Arabic (Semitic - Northern Africa and the Middle East), Chinook (Penutian - Oregon and Washington, only 12 speakers), Halkomelem (Salish - Vancouver Island, Cowichan Bay, Nanaimo), and Berber (Afro-Asiatic - Northern Africa).

Although genetically unrelated, verb-initial languages exhibit many common properties. These include post/nominal adjectives example (1), inflected prepositions, example (2), and preverbal particles that mark tense, mood, aspect, etc. example (3). There are other properties of verb-initial languages, but will restrict ourselves to these ones here. Note in particular that the preposition is inflected for its object (3. pl.). In Irish, inflected propositions are not possible when an independent DP complement to the preposition is present. Thus, in (2)b and c, the preposition le (‘with’) has a complement DP Máire agus Eoghan (‘Mary and Owen’), so the uninfllected form must be used as in (2)c.

(1) Y torthau mawr          [Welsh]  
    the loaves big    ‘the big loaves’

(2) a. Bhí mé ag caint leofa inné  [Irish]  
    was I talk PROG with.them yesterday
    ‘I was talking to them yesterday.’

b. *leofa Máire agus Eoghan  
    with.them Mary and Owen
    (‘with Mary and Owen’)

   c. le Máire agus Eoghan  
    with Mary and Owen
    (‘with Mary and Owen’)

(3) ‘Oku sai’ia ika ‘a Mele  [Tongan]  
    PRS like fish ABS Mele
    ‘Mele likes fish.’

Verb Initial Languages

- post-nominal adjectives
- inflected prepositions
- preverbal particles that mark tense, mood, and aspect
There are two standard hypotheses for generating VSO order. Either the verb can undergo obligatory T-to-C raising to the left of the subject, or the verb can undergo V-to-T raising while the subject remains in the Specifier of vP. Of course there are other possibilities, and it may turn out that neither of these approaches is the right one for some VSO languages. Nevertheless, we will compare these two since they have both been proposed at some point. These two approaches are shown below. Recall from the previous chapter that we presented evidence for the second of these proposals for Irish, although it is possible that some VSO languages are derived by the first proposal.

\[\text{(4) Comparison of SVO and VSO Clause Structure (CP not shown)}\]

This way, we can maintain the EPP, claiming that SVO languages satisfy EPP by the subject raising to SpecTP and that VSO languages satisfy EPP by raising the verb to T. In both situations, lexical material is moving to the TP projection. This means we have to loosen the notion of the EPP to mean that either the Specifier or the head is filled to satisfy the EPP.

Recall from the previous chapter that the presence of an overt complementizer in an embedded clause in Irish with VSO order indicates that that VSO order cannot arise by general T-to-C movement. The following example from Tagalog shows that T-to-C movement cannot be responsible for VSO order in the embedded clause in that language, either. Thus, the model on the right might be more appropriate for Tagalog, too.

\[\text{(5) Nagulat si Isabel na kumakain si Lito ng pansit. [Tagalog]}
\]

‘sIsabel is surprised that Lito is eating noodles.’

Tagalog is a Polynesian language of the Austronesian family. It is spoken by just over 90 000 000 people, mostly in the Philippines where it is an official language. It is spoken as a first language in a large portion of the country, including Manila.
In example (5), we observe a complementizer. Recall, that an overt complementizer blocks V-to-C movement in V2 languages. If VSO were truly derived from V-to-C movement, we would expect to find a different word order in embedded clauses in VSO languages; however, embedded clauses are still verb-initial, thus arguing against an analysis in which VSO is derived by V-to-C movement.

Finally, we will look at why-constructions in verb-initial languages. First, let’s consider a standard sentence and a clefted sentence in Lushootseed (Hess, 1995). Note that PERF = perfect; TR = transitive; OBL = oblique, but these won’t matter for this discussion.

(6) ʔu/čala/t/əb ʔə  tiʔiɬ wiw’su  tiʔəʔ sqəbay?
    PERF-chase-TR-OBL OBL DET children DET dog
    ‘The children chased the dog.’

(7) (tiʔəʔ) sqəbay? ti ʔu-čala-t-əb ʔə tiʔiɬ wiw’su
    DET dog DET PERF-chase-TRANS-OBL OBL DET children
    ‘A dog is what the children chased.’

Example (6) shows VSO order, the typical word order for Lushootseed. In the clefted sentence in (7) we observe that the normal VSO word order has been subverted so that the clefted XP precedes the verb. Specifically, the boldfaced determiner is what marks the clause as a cleft construction. Now, observe a why-question in Lushootseed (ASP = aspect):

(8) stab kwí ?u-ʔəy’-du-b ʔə ti sqəbay?
    DET PERF-find-ASP OBL DET dog
    ‘What did the dog find?’

We observe that the why-phrase appears in the same position as clefted XPs. Also, we see a determiner immediately after the why-phrase, just as in the clefted sentence. Thus, structurally, the question in example (8) is more like ‘What is it that the dog found?’ VSO languages typically employ the clefted structure just described for why-questions, although this is not universal (Oda, 2002). Let’s see another example of a question, this time from Irish. Examine first the clefted sentence in example (9). Observe that the clefted XP is signalled by a complementizer, shown in boldface. Examine now the why-question in example (10). Note that the why-phrase, too, is followed by a complementizer, suggesting that the why-question is formed by clefting just as in the Lushootseed example above.

(9) Is é Seán Bán aL dinis an scéal dom
    COP AGR Seán Bán COMP tell.PST the story to.me
    ‘It was Seán Bán that told me the story.’
Cé a scriobh an dráma seo?
What COMP write.PST the story this
‘Who wrote this drama?’

Verb Initial Languages

- wh-questions typically formed by clefting
- VSO order arises by V-to-T movement and by the subject remaining in the Specifier of vP

Further Reading

Carnie, A.& E. Guilfoyle (2000) This is a collection of papers all dealing with the syntax of verb initial languages. Many of these contributions build on the proposals presented here and solve some ongoing challenges.

McCloskey J. & K. Hale (1984) This paper discusses inflection in Irish and includes a discussion on inflected prepositions. Much of the Irish data from this section was taken from this article.
Chapter 6 Case Theory

By the end of this chapter you should:
• understand the “Case Filter” and “Inverse Case Filter”
• recognize passive constructions.
• draw S-structure trees for passive constructions.

6.1 Case and the Distribution of DPs

Anyone with a Classical background will be familiar with the notion of grammatical case from studying Latin or Ancient Greek. Let’s start by looking at the following Latin sentence. Notice that the subject is marked with nominative case (NOM) and the direct object is marked with accusative case (ACC).

(1) amicus puellam amat.
friend-NOM girl-ACC loves
‘The friend loves the girl.’

Notice the endings on the noun phrases. We call these endings the case suffixes. If you are familiar with Latin, you will recall that there are six cases. For now, let’s just worry about the two that we see in example (1). We note that the subject appears with nominative case and the direct object appears with accusative case. For now, we will not worry about other cases you may know such as dative, ablative, and so forth.

Nominative Case is assigned to the subject.

Accusative Case is assigned to the direct object.

Although case marking is extremely limited in modern English, it still appears on pronouns. Compare I saw him and He saw me. The pronouns I and he are used as subjects only, and are thus assumed to be marked with nominative case, while the pronouns me and him are used as objects only and are marked with accusative case. Case markings are not always visible, however. For example, in the English translation of the Latin sentence above there is no visible case marking on the noun. We still say that the nouns have been assigned Case, though. Notice the capital ‘C’ on the word Case here. We use the term ‘case’ to refer to the various morphological markings as in Latin, Russian, Finnish and other languages with overt case morphology. The term ‘Case’, with a capital ‘C’ is used to refer to the identification of the structural position of the noun – that is, the noun in subject position or object position. This type of Case is

You may be surprised to learn that Latin is not considered a dead language under the strict sense of the term. A dead language is one which is no longer spoken by anyone AND which was not passed down to future generations. Latin was passed down over many generations, and we now call it Italian. Thus, Latin is just an older stage of Italian, just as Old English is an older form of Modern English. Examples of truly dead or extinct languages include Huron, which was spoken in Southern Ontario, Manx, which was spoken on the Isle of Man, and Ubhyk, which was spoken in Turkey. Hebrew and Cornish are both languages which were formerly extinct, but have since been revived.
more theoretical and will be built up in this chapter. While the presence of case varies from language to language, it is assumed that Case is present in all languages. For our purposes, we will start with the assumption that Case and case are identical for nominative and accusative, though we will see below that we will modify this assumption slightly. Thus, if the form of a pronoun is he or she, for example, we can conclude that this argument has nominative Case. If the form of a pronoun is him or her, we can conclude it has accusative Case in most situations. We will cover the exceptions below.

6.1.1 Nominative Case

Consider the following sentences. Pay close attention to the subject of the verb eat in all three sentences.

(2)  Distribution of Nominative and Accusative Pronouns

   a. She ate the spinach.
   b. For her to eat the spinach would be surprising.
   c. I would really like for her to eat the spinach.

In example (2)a, the verb is tensed. In particular, it is marked with past tense. Furthermore, the subject of this sentence appears with nominative Case, as we have discussed above. In examples (2)b and (2)c, however, we still understand her to be the logical subject of the sentence – that is, her gets the external θ-role (the subject θ-role) from eat. However, her is marked with accusative Case. Notice further that the verb eat in the latter two sentences are infinitives. That is, they are not tense. This correlation led people to conclude that nominative Case and tense are intimately intertwined such that tensed T is responsible for assigning nominative Case. What if there is no logical subject, but we still have a tensed T? Consider the following sentences, recalling the discussion of expletives in the previous chapter.

(3)  a. It’s raining.
     b. It seems that John left early.
     c. John seems to have left early.

Looking first at (3)a, observe that there is no meaningful subject. There is no ‘it’ that is doing the raining. In fact, in all these sentences the word it does not contribute any meaning to the sentence – it does not refer to anything. Since the expletive does not refer to anything, it does not get a θ-role – only actual participants in an event or state get a θ-role. They are also sometimes referred to as pleonastic pronouns. Compare this to a sentence such as It’s in the kitchen as a response to a question such as Where’s my book? Here, it does refer to something, so it bears a θ-role. Under our assumption that tensed T assigns nominative Case, there must be a nominal of some type to be assigned this Case. That’s the job of the expletive – it doesn’t mean anything; it’s just there for T to assign nominative Case to (and to satisfy the EPP as discussed in the previous chapter).
6.1.2 **Accusative Case**

Let’s examine another paradigm, this time with object expletives:

(4)  
   a.   I like bananas.  
   b.   I like it here. 
   c.   I like it in Hong Kong.  
   d.   * I like here.  
   e.   * I like in Hong Kong.

The verb *like* assigns a <percept> θ-role to its internal argument (the object). The subject receives an <experiencer> θ-role from *v*. In (4)a, *bananas* gets the <percept> θ-role, and in (4)b and c, *here* and *in Hong Kong* gets the <percept> θ-role, respectively. In (4)d and e, the Theta-Criterion is fully satisfied, but the sentences are still ungrammatical. Like nominative Case above, we posit that direct objects are assigned accusative Case. In the ungrammatical examples above *here* and *in Hong Kong* are not suitable as direct objects since they are not DPs. We will come back to this observation below.

6.1.3 **Case Assignment**

Borrowing from observations made on traditional studies of Latin grammar, arguments of a clause are considered to be assigned Case. We know Case is morphologically realized in many languages (such as Latin), but in English, it remains only on pronouns:

(5)   
   I like him. He likes me.

Nevertheless, the distribution of nouns has the same properties across languages with active case morphology (such as Latin and Russian) and languages with impoverished case morphology (such as English, French and Mandarin). A tensed T assigns nominative Case. We have also said that *v* assigns accusative Case, but we will come back to the role of *v* and accusative Case later on in this chapter and in chapter 7.

---

**Nominative Case is assigned by the tensed T head.**

**Accusative Case is assigned by the light verb, *v*. (to be revised slightly)**

Consider the following tree for *John ate an apple*. Note how Case is assigned to each of the arguments. Specifically, tensed T and *v* assign case *at a distance*. That is to say, there is no need for the direct object to be adjacent to *v* or to be in the Specifier of *vP* in order for *v* to assign accusative Case to it. The subject moves to the Specifier of TP; however, this is due to the EPP. Nominative Case assignment is shown in red and accusative Case assignment is shown in blue. The dotted lines indicate that no movement takes place. Instead, Case assignment takes place at a distance as discussed. Actual movement, which is called *overt movement* is shown with a solid line. In this example, the EPP triggers overt movement, which is shown in black.
Before continuing, let us briefly discuss propositions. Prepositions assign Case to their complements. From the data below we see that pronouns appear with accusative case morphology. This is not the same kind of accusative Case that is assigned by v. Here it is important to keep morphological case distinct from Case. In most languages of the type discussed here subjects in basic sentences are inflected with nominative case and direct objects are inflected with accusative case. The case that appears on the object of a preposition varies idiosyncratically from one language to the next. We will not worry about the nature of the case/Case assigned by prepositions. It is important for us, however, that prepositions do assign Case. We must also remember that in English, the object of a preposition is inflected with accusative case.

(7)  
   a.  John baked a cake for me.  
   b.  * John baked a cake for I.

6.2 The Case Filter and The Theta Criterion

Let’s start this discussion by reviewing some basic facts about Case assignment. Recall that only tensed T assigns nominative Case. Consider the following data, concentrating only on the underlined clauses.

(8)  
   a.  That John/he lost the race was devastating.  
   b.  For John/him to lose the race would be devastating.
c.  * John/him to lose the race would be devastating.

In (8)a the verb lost is inflected for past tense, so T assigns nominative Case to the subject. In (8)b, the verb lose is an infinitive. T is not tensed and so cannot assign nominative Case to the subject. Instead, the subject is assigned Case from the preposition for. Recall that the morphological realization of case assigned by prepositions in English is accusative, but this is not the same as accusative Case assigned by v. If we look at (8)c, we see that the sentence is unacceptable. The Theta Criterion is not violated since John/him has a θ-role as the subject of the verb lose. In this sentence, John/him lacks Case. It does not receive nominative Case, and there is no preposition to assign Case to it. We posit the Case Filter, which states that DPs must be assigned Case. Thus, sentence (8)c is ungrammatical because it violates the Case Filter.

Next, let’s see if a DP can be assigned. 

(9)  * John hit ti.

This sentence is unacceptable. Let us assume, then, that there is a strict one-to-one correspondence between DPs and Case such that each DP is assigned Case once and only once, and Case assigners discharge Case to one and only one DP.

<table>
<thead>
<tr>
<th>Case Filter:</th>
<th>All DPs must be assigned Case once and only once.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inverse Case Filter:</td>
<td>All Case assigners must assign their Case to one and only one DP.</td>
</tr>
</tbody>
</table>

Next, we will take a closer look at Case assignment and the Theta Criterion in light of DP movements and expletives. To start our discussion, let’s look at a simple case of the subject raising from the specifier of vP to the specifier of TP leaving a trace. We say that John and its trace form a chain. A chain is like a link that joins a moved XP with its traces. So far in all of the situations we have looked at in which movement takes place, the XP has moved only once, leaving a single trace. Thus, it forms a chain with a single link.

(10)  John, [\(_v\)p ti, likes tuna].

John receives an external θ-role in the specifier of vP and is assigned nominative Case by T. It moves to the Specifier of TP to check the EPP. Another way to think of this is as follows. The chain <John, ti> is assigned Case once. So, we can think of the Case Filter and the Inverse Case Filter as constraints on chains, rather than constraints on the actual DPs themselves. Let’s see how this view of these principles works with expletives. It is important to remember here that expletives do not receive their own θ-roles because they do not refer to anything real. Consider the following sentence, repeated from above.

(11)  I like it in Hong Kong.
Like is a transitive verb and must appear with a DP to which accusative Case is assigns. Also, the PP in Hong Kong receives a \( \theta \)-role <percept>, but cannot be assigned Case (because it’s not a DP). The expletive it can be assigned Case, because it’s a DP, but cannot receive a \( \theta \)-role, because it does not refer to anything. Thus, if the expletive and the PP in Hong Kong form a chain, then both the Case Filter and Theta Criterion are satisfied by this chain. This chain is not formed by movement, but is imposed upon these two elements to satisfy the Case Filter, Inverse Case Filter and the Theta Criterion.

Let’s look at another case. Consider the following pair of sentences. Recall above we considered the expletive it, which is a pronoun (a D) and so can be assigned Case. The first sentence below makes use of the expletive there, which is not a DP of any kind. Since it is not a DP, the expletive there is not assigned Case.

(12)  
   a. There is a soprano singing Una voce poco fa. (=name of a famous aria from The Barber of Seville.)  
   b. A soprano is singing Una voce poco fa.

Let’s look at the structure of (12)b and consider where the \( \theta \)-role and Case assignment happen for the subject. The chain formed by movement is shown with a black line. Case assignment is shown in red and \( \theta \)-role assignment is shown in blue.

As we discussed above, the chain <a soprano, it> satisfies both the Case Filter and the Theta Criterion by being assigned Case once and bearing one \( \theta \)-role. Let’s consider, now, the structure for (12)a. Here, there is an expletive in the specifier of TP, and the subject has remained in the specifier of vP. Again, the chain is shown in black, this time with a dotted line to underscore the fact that no movement has taken place. Case assignment is shown in red, and \( \theta \)-role assignment is shown in blue.
Recall that one of the prime goals of generative grammar is to generate all and only the grammatical sentences of a language. We should make sure that our principles correctly rule out ungrammatical sentences. Consider the following sentence.

(15) * John seems that likes tuna.

First, let’s look at the grammatical version:

(16) It seems that John likes tuna.

The verb like assigns a θ-role to the subject John, and the embedded T assigns nominative Case to the same DP, John. The matrix verb seem does not assign a θ-role to its subject, so that’s why the expletive it can appear as the subject. The matrix T must assign nominative Case, which it does to the matrix subject – the expletive it. Now, let’s look at the tree for this sentence:
Here, the DP *John* raises from the embedded VP to the specifier of the embedded TP, to satisfy EPP and to get nominative Case from the embedded T. The DP then raises to the specifier of the matrix TP to satisfy EPP again and to get nominative Case from the matrix T. Why doesn’t this work? The Case Filter has been violated – Every DP can get Case once and only once. *John* has been assigned Case twice, which is shown in red.

### 6.3 Passivization

Consider the following pair of sentences.

(18)  
   a. Mary ate the mango.  
   b. The mango was eaten (by Mary).
The sentence in (18)b has undergone a process called *passivization*. In traditional grammar we say that (18)a appears in the *active voice* and that (18)b appears in the *passive voice*. Notice also that the adjunct *by*-phrase ‘by Mary’ is optional. The hallmark of the passive voice is that the object of the active sentence is the subject of the passive sentence. Compare some more passive and active sentence pairs.

(19)  

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<tbody>
<tr>
<td>a.</td>
<td>John kicked the chair.</td>
<td>a’. The chair was kicked (by John).</td>
</tr>
<tr>
<td>b.</td>
<td>Susan bought the computer.</td>
<td>b’. The computer was bought (by Susan).</td>
</tr>
<tr>
<td>c.</td>
<td>The passengers boarded the airplane.</td>
<td>c’. The airplane was boarded (by the passengers).</td>
</tr>
</tbody>
</table>

Passive sentences in English contain the auxiliary *be* plus the past participle form of the verb (which contains what is often called the passive morpheme *–en*). The passive morphology (the combination of the auxiliary *be* and the past participle morpheme *–en*) does two things:

1. It swallows the subject θ-role, and
2. it removes the ability of the verb to assign accusative Case to the object.

The last point is apparent in the following contrast. Notice that the subject appears with nominative case morphology, which we assume means that it is assigned nominative Case by T. As with the examples above, the subject of this sentence is understood to be the direct object of *see*, even though it appears as the subject in the passive voice.

(20)  

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</thead>
<tbody>
<tr>
<td>a.</td>
<td>He was seen.</td>
<td>a’. *Him was seen.</td>
</tr>
</tbody>
</table>

In order to talk about these sentences easily we will introduce the following terms. Note that unless otherwise specified, the object refers to the direct object. We will address the issue of indirect objects and ditransitive verbs later in the chapter. For now, we will assume a single internal argument—that is a single object, the direct object.

- **grammatical subject**: The entity that appears in the Specifier of TP and bears nominative case morphology
- **thematic subject**: The entity that bears the external θ-role
- **grammatical object**: The entity that is the sister to V and bears accusative case morphology
- **thematic object**: The entity that bears the internal θ-role

Our task is to account for passive sentences in a simple and straightforward way. The correlation between the active form and the passive form is remarkably constant. In all cases, the thematic subject of the active sentence is either absent in the passive sentence or appears in an optional *by*-phrase in the passive sentence. The thematic object of the active sentence is the grammatical subject of the passive sentence. There is
no grammatical object in the passive sentence. It appears, then that the passive sentence has lost the ability to assign accusative Case and to give a θ-role to an external argument (the subject). To form a passive, then, it seems that all we have to do is get rid of $v$ – it assigns the subject θ-role and accusative Case. Consider an early stage in the derivation for the sentence *The mango was eaten*. The verb assigns a <patient> θ-role to the DP *the mango*.

(21)

![Diagram of the passive sentence derivation](image)

There is no $v$, so accusative Case cannot be assigned to the thematic object. Furthermore, no external argument can be introduced because $v$ is also in charge of assigning a θ-role to a subject. Recall, however, that $T$ assigns nominative Case. The DP object needs Case; $T$ needs to assign Case to a DP, so the object is assigned nominative Case (and appears with nominative case morphology). Finally, the DP *the mango* raises to the Specifier of TP to satisfy the EPP.

(22)

![Diagram of the passive sentence derivation with Case assignment](image)

### 6.4 Alternative Types of Case and Passives

#### 6.4.1 Inherent Case

So far, we have discussed *structural Case* – Case which is assigned according to the structural position of the argument. We now turn to another situation. Consider the following German data.

German is a member of the Germanic branch of the Indo-European family. It is closely related to English. German is an SOV language and is also a verb-second (V2) language. For more information of V2 effects, see Interchapter E.
The a. sentences illustrate a canonical passive. The accusative direct object in the active sentence appears with nominative Case in the passive sentence. The b. sentences are different. In the active sentence, the direct object appears with dative Case. Certain verbs assign inherent Case, which remains invariant, regardless of the voice of the predicate. Thus, in the passive sentence, dative Case appears on the derived subject, rather than nominative. We say that verbs such as *help* assign Case directly to the direct object in German. It is an inherent property of these verbs that they assign the particular Case they do. Furthermore, arguments that bear inherent Case are not assigned structural Case by either $v$ or $T$.

### 6.4.2 “Get” Passives

Colloquial English has an additional passive construction with similar properties to the standard passive. Consider the following examples. While the standard passive can refer to either a state or an event, the *get*-passive can refer only to an event. Also, the *get*-passive is often used to express an unintentional or unexpected event.

<table>
<thead>
<tr>
<th>(25)</th>
<th>a. My bike was stolen.</th>
<th>b. The window was broken.</th>
<th>c. The window was broken to let the smoke out.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>My bike got stolen.</td>
<td>The window got broken.</td>
<td><em>The window got broken to let the smoke out.</em></td>
</tr>
</tbody>
</table>

Thus, in (25)b, the standard passive is ambiguous between referring to the event of the window becoming broken and referring to a state in which was in pieces. In (25)c, the phrase “to let the smoke out” indicates that the event was carried out intentionally. Since *get*-passive typically refer to an unexpected or unitnintentional event, such phrases are not compatible with them.

### 6.4.3 Impersonal Passives

So far, we have seen that passives reduce the valency of verbs by one. Thus, a passivized ditransitive verb appears with two arguments and a passivized transitive verb appears with one.

<table>
<thead>
<tr>
<th>(26)</th>
<th>Mary gave John a book.</th>
<th>→ John was given a book. A book was given to John.</th>
</tr>
</thead>
</table>
Mary bought this book. → This book was bought.

It would seem that intransitives cannot be passivized since they only have one argument to begin with. The result of passivizing an intransitive verb would be a sentence with zero arguments. If we look at English, indeed there are no passives of intransitives.

(27) Mary slept (in this bed). → *It was slept (in this bed).
The students danced. → *It was danced.
The baby cried. → *It was cried.

Consider, however, the following data from German:

(28) Es wurde getanzt.
it was.3.SG danced
‘There was dancing.’ (lit: It was danced.)

(29) Es wurde in diesem Bett geschlafen.
it was.3.SG in this bed slept
‘Someone/people slept in this bed.’ (lit: It was slept in this bed.)

These constructions are referred to as impersonal passives because they don’t talk about or relate the event to anyone or anything. These sentences merely assert that the event took place without saying who the participants were.

6.4.4 SE in Romance

The morpheme *se* is found in virtually all varieties of Romance. We will deal with this morpheme more fully in Chapter 10, but for now, we will discuss the impersonal passives using the *se* morpheme. Although Romance languages have passives that are structurally similar to those found in English, they are not as common as the impersonal passives found with *se*. The following example shows an active sentence, passive sentence and impersonal *se* passive in Portuguese.

(30) a. Eles comeram as toranjas.
they ate.3.PL the grapefruit.PL
‘They ate the grapefruit.’
b. As toranjas foram comidas.
the grapefruit.PL were eaten
‘The grapefruit were eaten.’
c. As toranjas comeram-*se*.
the grapefruit.PL ate.3.PL-*SE
‘The grapefruit were eaten.’

We concentrate here on the impersonal passive in (30)c. Like the standard passive construction, impersonal passives undergo a valency reduction of one. That is, they have one fewer argument than the active counterpart. Morphologically, the impersonal SE passive is formed with the active

Romance languages are all descendents of Latin. The Romance branch is one of the more well-known branches of the Indo-European family. Romance languages include not only the more well-known languages such as French, Spanish, Italian, Portuguese and Romanian, but also lesser known varieties such as Catalan (spoken in eastern Spain, principally in Barcelona), Gascon (also known as Occitan, spoken in the Gascongne Province in France), Romansch (spoken in Switzerland), Calabrese (spoken in southern Italy), Quebecois French (spoken in Quebec in Canada), Galician (spoken in the portion of Spain just north of Portugal) and Sardinian (spoken on the Island of Sardinia) to name just a few.
form of the main verb that agrees with the promoted argument and the presence of the SE morpheme. There is no passive morphology as in English passive. The impersonal SE passive can appear with agent-oriented adverbs, but not with by-phrases. This is illustrated with Italian data (Frigeni, 2004).

(31) a. Gli elettori si corrupero deliberatamente.  
the electors SE corrupted.3.PL deliberately  
‘The electors were bribed deliberately.’  
b. I voti si scrutinano (*da due segretari).  
the votes SE counted.3.PL (*by two officers)  
‘The votes were counted (by two officers).’

6.4.5 Mandarin: The Ba-Construction

Consider the following examples from Mandarin (see p. 85). Mandarin is an SVO language; however, the thematic object in the sentences in the right column appear to the left of the verb and are accompanied by a morpheme glossed as BA. Thus, SVO becomes S ba-O-V.

(32) a. wo sha-le ta le  
I kill-PRFV him LE  
‘I killed him.’

b. wo wang-le yaoshi le  
I forget-PRFV key LE  
‘I forgot the key.’

As you can see by the English translations, there appears to be little difference in meaning between the ba-sentences and their non-ba counterparts. While much is known about the structure of these sentences, less is known about their semantics (though see Li & Thompson, 1981 for one of the most detailed discussions on the semantic properties of the ba-construction).

Key Concepts

- **case**: The morphological marker that relates a noun to its grammatical function.
- **Case**: A licensing relation that relates a noun to its grammatical function.
- **Case Filter**: A principle that states that all nominal phrases (DPs) must bear Case.
- **chain**: A link between a moved XP and its traces, or a link between a DP and an expletive.
- **nominative**: The case borne by the subject in many languages, including English.
**accusative**

The case borne by the direct object in many languages, including English.

**dative**

The case borne by the indirect object in many languages, but not in English. Indirect objects in English bear accusative case.

**active voice**

The form of a sentence in which the thematic arguments correspond to their grammatical counterparts in terms of position.

**passive voice**

The form of a sentence in which the thematic object is the grammatical subject.

**structural Case**

Case that is assigned by virtue of an argument’s position in the structure.

**inherent Case**

Case that is assigned directly by a particular lexical item (usually a verb). Typically, inherent Case is dative in German.

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**Further Reading**

Chomsky, N. (1993) This is one of the earliest introductions to the Minimalist Program. This is where Chomsky suggests that Case assignment takes place in a Specifier-Head configuration.

Keenan, E. (1985) This book chapter provides an overview of passive constructions in the world’s languages.

Li. Y.-H. A. (2006) This comprehensive review papers offers an in depth discussion of the properties of the ba-construction in Mandarin and also gives a brief comparison with a similar construction in Taiwanese Chinese. Much of the descriptive content should be accessible by this point.

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**Exercises**

1. Draw trees for the following sentences.
   a. The apples were washed in the kitchen with a wet cloth.
   b. John was told that these cookies were eaten yesterday.
   c. The sad child was given the candies in the kitchen.
   d. The church on the top of the hill was built during the Renaissance.
Consider the following sentences.

a. This book was scribbled in.

b. This bed was slept in.

c. This paper was typed on.

These sentences are called pseudo passives. What is different about pseudo passives from regular passives? What problem do pseudo passives present for Case Theory? Consider additionally the following data. What kind of sentences can participate in the pseudo passive construction?

d. *This book was scribbled a note in.

e. *This paper was typed an essay on.

3. Consider the following German data. These constructions are referred to as long passives. What is different about German long passives from standard passives?

a. weil der Lastwagen und der Traktor zu reparieren versucht wurden
   since the.NOM truck and the.NOM tractor to repair try.PART were.3PL
   ‘since somebody tried to repair the truck and the tractor.’

b. * weil der Lastwagen und der Traktor zu reparieren geplant wurden
   since the.NOM truck and the.NOM tractor to repair plan.PART were.3PL
   (‘since somebody planned to repair the truck and the tractor.’)

4. Degema is argued not to have a true passive construction. Consider the following data and comment on the differences between them and canonical passives in English (data from Kari, 2004). (FE = factitive enclitic – This morpheme does not figure in the answer to this problem.)

a. Ohoso o-gbiye-ūń ólóló
   Ohoso 3.SG-kill-FE bottle
   ‘Ohoso broke a bottle.’
b. Òlõlõ  o-wú-ūn
   bottle  3.SG-die-FE
   ‘The bottle broke.’

c. Ohoso  o-tó-n  ómó yó.
   Ohoso  3.SG-burn-FE  child the
   ‘Ohoso burned the child.’

d. Ómó yó  o-tú-ūn
   child the  3.SG-be.burnt-FE
   ‘The child got burned.’
Interchapter E Verb Second in Germanic

Verb second (V2) is a phenomenon in which the tensed verb of a matrix clause must appear as the second element in the sentence. It is found in almost all Germanic languages, except English. Consider the following examples from German:

(1) Johann geht morgen in die Oper. [German]
    Johann goes tomorrow in the opera
    ‘Johan is going to the opera tomorrow.’

(2) Morgen geht Johan in die Oper
    tomorrow goes Johan in the opera
    ‘Tomorrow, John is going to the opera.’

Notice that the verb *geht* (“goes”) is the second element in each clause. It is not simply the second word in the sentence; rather, it follows the first constituent, as shown below.

(3) [Der Musikstudent aus Tübingen] geht morgen in die Oper
    the music.student from Tübingen goes tomorrow in the opera
    ‘The music student from Tübingen is going to the opera tomorrow.’

(4) [In die Oper über den Herrenfriseur] geht Johann morgen
    in the opera about the barber goes Johann tomorrow
    ‘Johann is going to the opera about the barber tomorrow.’

In examples (3) and (4), the first constituent is enclosed in square brackets. Notice also that only the tensed verb sits in second position. If there are infinitivals or participles present, they appear in another position. The following example from Dutch illustrates this point.

(5) Vandaag kust de man de vrouw [Dutch]
    today kisses the man the woman
    ‘The man kisses the woman today.’

In example (5), the main verb appears in V2 position, but in example (6), the auxiliary is in V2 position, and the main verb is at the end of the clause. Verb-second effects are achieved by **V-to-C raising** in V2 languages. In other words, in V2 languages, the verb obligatorily raises to C, unless it is blocked from doing so. There are two pieces of evidence to support this analysis. The first comes from blocking effects just alluded to above. If another C element, such as a complementizer, is present in the clause, then the verb will not be able to move up to second position. Consider the following Danish example.
...at Peter ofte har drukket kaffee om morgenen [Danish]
...that Peter often has drunk coffee in the morning
‘...that Peter has often drunk coffee in the morning.’

(7) a. *...at Peter har ofte drukket kaffee om morgenen
b. *...at har Peter ofte drukket kaffee om morgenen

The presence of the complementizer *at* (“that”) prevents the verb from raising to C0. Note that, unlike German and Dutch which are SOV languages, Danish is an SVO language. This explains the difference between Danish on the one hand and German and Dutch on the other. A closely related phenomenon called *conditional inversion* is found in English, as well as the other Germanic languages. Consider the following example.

(8) a. If Peter had been smarter…(he would have won the game).
b. Had Peter been smarter…

*If* is also a complementizer, occupying the head of CP. It can be freely deleted for stylistic purposes as shown in English above; however, the verb must raise to C in its place. We find the same phenomenon in German as well.

(9) a. Wenn Peter klüger wäre…
   if Peter smarter were
   ‘If Peter were smarter…’

b. Wäre Peter klüger…
   were Peter smarter
   ‘Were Peter smarter…’

Again, the verb and the complementizer alternate, suggesting that they occupy the same position.

The second line of evidence comes from the position of object pronouns. In German, object pronouns regularly appear after the complementizer.

(10) …ob ihm mein Freund gestern das Buch gegeben hat. [German]
…whether him my friend yesterday the book gave has
‘…whether my friend gave him the book yesterday.’
In (10), the complementizer *ob* ("whether") prohibits V2 from taking effect. Also, the object pronoun *ihm* appears adjacent to the complementizer. If we consider a matrix clause instead of an embedded clause, we see that the object pronoun is adjacent to the auxiliary verb, suggesting it has raised to C.

(11) Mein Freund hat *ihm* gestern das Buch gegeben
    my friend has *him* yesterday the book given
    ‘My friend gave him the book yesterday.’

This suggests the following schematic for matrix clauses in V2 languages.

(12)  

We are now in a position to draw some trees for German V2 sentences, remembering that German is an SOV language and that the head parameter is set to “right” for VP, vP and TP (see Chapter 5).

(13) a.  
    Susi hat gestern in der Oper gesungen  [German]
    Susi has yesterday in the opera sung
    ‘Susi sang in the opera yesterday.’

    b.  
    Susi sang gestern in der Oper
    Susi sang yesterday in the opera
    ‘Susi sang in the opera yesterday.’
(14) a. ![Diagram of sentence structure]

b. ![Diagram of sentence structure]

Case Filter: All DPs must have Case

Inverse Case Filter: All Case assigners must assign their Case to a DP

Further Reading

Vikner, S. (1995) This monograph offers an indepth analysis of various word-order properties across a wide range of Germanic languages and dialects. The reader is cautioned, however, that the theoretical discussion can be quite technical in parts.

Chapter 7  
Ergativity and Unaccusativity

By the end of this chapter you should:

• understand Ergativity
• recognize antipassive constructions
• draw trees for antipassive constructions
• understand unaccusativity and how it is structurally represented
• understand Burzio’s Generalization

7.1  
Ergativity

Not all languages assign nominative and accusative Case. Many of the world’s languages exhibit an ergative/absolutive Case agreement system. In these languages, the subject of a transitive verb is assigned ergative Case, while the object of the transitive verb (the PATIENT) and the unique argument of an intransitive verb (the SUBJECT) are assigned absolutive Case. Thus, in the sentence John kicked the tree, “John” is the AGENT and “the tree” is the PATIENT. In the sentence John laughed, “John” is the SUBJECT.

Figure 7-1 Case Systems

Here is a Korean example that illustrates the nominative/accusative Case system. Note the case markers.

(1)  
a. Minsoo-NOM laugh-PST-DECL
Minsoo-NOM wus-ess-ta. ‘Minsoo laughed.’

b. Minsoo-NOM apple-ACC eat-PST-DECL
Minsoo-NOM sakwa-lul mek-ess-ta. ‘Minsoo ate the apple.’

Dyirbal is an Australian language spoken in the Cairns rain forests on the north east coast of Australia. It is a highly endangered language with only about 40 to 50 speakers left (Dixon, 1983).
Now, let’s look at an example in an ergative language. The following example is from Dyirbal (Dixon, 1994). Note that in Dyirbal there is no overt marker of absolutive Case. Ergative Case is marked with a suffix, however. In (2)a, *mother* is the SUBJECT and has absolutive Case. In (2)b, *mother* is the AGENT and has ergative Case; *father* is the PATIENT and has absolutive Case.

(2) a. yabu-Ø banaga-n’u [Dyirbal]
   mother-ABS returned-NONFUT
   ‘Mother returned.’

   b. ѱума-Ø йабу-ӈgu bura-n
   father-ABS mother-ERG saw-NONFUT
   ‘Mother saw father.’

In the first two situations above, the two difference Case systems were illustrated by differences in case marking on the nouns. Consider first the following examples from Khanty (Nikolaeva, 1999a), a nominative/accusative language. Note that the subject agreement is the same for both the SUBJECT in (3)a and for the AGENT in (3)b. (The vowel change is related to phonological properties of Khanty and do not bear on the discussion here.) The object agreement is shown in blue.

(3) a. ma jel÷ŋən oməs-l-ɔm [Khanty]
   I at.home sit-TNS-1.SG.SUBJ
   ‘I’m sitting at home.’

   b. ma tăm kălah wel-sɔ-l-am
   I these reindeer kill-TNS-PL.OBJ-1.SG.SUBJ
   ‘I killed these reindeer.’

Contrast the example above with an ergative/absolutive language, Abaza. Note that gender is neutralized in the 3rd person absolutive, but is distinguished in the ergative. Thus, there are separate forms for *he* and *she* in the ergative only.

(4) a. d-θa’d [Abaza]
   3.SG.ABS-gone
   ‘S/he has gone.’

   b. h-θa’d
   1.PL.ABS-gone
   ‘We have gone.’

   c. h-l-ba’d
   1.PL.ABS-3.SG.F.ERG-saw
   ‘She saw us.’

   d. d-h-ba’d
   3.SG.ABS-1.PL.ERG-saw
   ‘We saw him/her.’

Khanty (also known as Osyak) is a Uralic language spoken in central Russia. It is an SOV language with about 12 000 speakers. You can read more about Khanty in Nikolaeva (1999b) and about Uralic languages in general in Abondolo (2006).

Abaza is a Northwest Caucasian language spoken in Russia and Turkey by about 45 000 people.
These data show a clear distinction between absolutive Case and ergative Case for the 3rd person. Thus, the subject of the intransitive in (4)a (the SUBJECT) and the object of the transitive in (4)d (the PATIENT) both have the same form /d/. This contrasts with the subject of the transitive (the AGENT) in (4)c, /l/. As mentioned, in the ergative, the 3rd person marker distinguishes gender, thus (4)c can only mean ‘She saw us’. The form for ‘He saw us’ has a different morpheme. The distinction for the 1st person plural is less clear, since both forms are /h/ in the absolutive and the ergative. However, the data in (4)c and d show that they occupy different positions, suggesting the need to maintain the distinction.

Warning! Do not confuse the terms ‘AGENT’ and ‘PATIENT’ with the theta-relations of the same name!

<table>
<thead>
<tr>
<th>AGENT</th>
<th>subject of a transitive verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;agent&gt;</td>
<td>theta-relation indicating volitional action</td>
</tr>
</tbody>
</table>

In a nominative-accusative language like English, the SUBJECT and the AGENT have many properties in common. They both appear with the same morphological case (nominative) in opposition to the PATIENT (which bears accusative case). The SUBJECT and the AGENT can also serve as the ‘same subject’ in conjunction constructions. In the following examples, the missing argument in the second conjunct is ‘John’. In the first example, the overt ‘John’ and the empty argument are both subjects – with nominative Case. In the second example, the overt ‘John’ is the subject (nominative), and the empty argument is an object – in an accusative Case position. Leaving the the argument empty is possible only when both arguments are subjects – that is when they both have nominative Case.

(5)  
(a) John¹ laughed and e¹ kicked the tree. (John has nominative Case in both sentence.)  
(b) * John¹ laughed and Mary kicked e¹. (John has nominative Case in the first sentence and accusative Case in the second.)

In an ergative language, the SUBJECT and the PATIENT have these same properties in common – but with some variation. They both appear with the same morphological case (which we call morphological ergativity). In some cases, they can also serve as the ‘same subject’ (which we call syntactic ergativity). Morphological ergativity is more common than syntactic ergativity. If a language is syntactically ergative, it is also morphologically ergative; however, if a language is morphologically ergative, it is not necessarily syntactically ergative. Dyirbal is an example of a language that is both morphologically and syntactically ergative.

(6)  
ŋuma-Ø¹ banaga-n’u e¹ yabu-ngu bura-n  
father-ABS return-NONFUT e¹ mother-ERG see-NONFUT  
‘Father returned and mother saw (him).’ NOT ‘Father returned and saw mother.’

Do ergative languages have anything like passives? Yes, some ergative languages have standard passives as discussed in the previous chapter. Some ergative languages have another kind of construction called an antipassive. Descriptively, the passive transformation demotes the subject to an oblique Case (ie, the by-phrase) or omits it altogether, and promotes the thematic object of a transitive to the grammatical subject
position of an intransitive. An antipassive demotes the absolutive object of a transitive clause to an oblique Case or omits it altogether, and shifts the ergative subject of a transitive to the absolutive subject of an intransitive. Let’s look at an example:

(7)  

a. yabu-Ø ŋuma-ŋgu bura-n   
   mother-ABS father-ERG see-NONFUT  
   ‘Father saw mother.’

b. ŋuma-Ø bural-ŋg-n'u yabu-gu   
   father-ABS see-ANTIPASS-NONFUT mother-DAT  
   ‘Father saw mother.’

The first sentence is transitive and has an ergative subject and absolutive object. The second sentence is intransitive with an absolutive subject. The absolutive object has been demoted to an oblique (dative) object, and is optional (just like the by-phrase in English).

Another illustration of the antipassive is offered by Inuktitut (see p. 122). Consider the following data (Spreng, 2005). In the first example, the agent is marked with ergative Case and the patient is marked with absolutive Case, as expected. This is reflected in the agreement on the verb, too. In the second example, notice that the AGENT is now the SUBJECT of an intransitive verb, so is now absolutive. The PATIENT has been demoted to an oblique, marked by mik.

(8)  

a. angupti-up arnaq-Ø kunik-taa   
   man-ERG woman-ABS kiss-PART.3SG.3SG  
   ‘The man kissed the woman.’

b. anguti-Ø kunik-si-vuq arna-mik   
   man-ABS kiss-ANTIPASS-IND.3SG woman-MIK  
   ‘The man kissed the woman.’

Let’s consider a final example, which is different from the antipassives shown above. Consider the following Squamish (aka Sḵwx̱wú7mesh) data (Jacobs, 1994). In the first example, we see ergative and absolutive agreement on the verb rather than case marking on the DPs. The second example contains not an antipassive, but a detransitive, as indicated by the detransitivizing morphology (DETR). Here, the PATIENT retains its status as the absolutive argument, but the AGENT has been demoted to an oblique.
Some languages exhibit properties of both nominative-accusative languages AND ergative-absolutive languages. Such languages are said to exhibit split ergativity. Consider the following Halkomelem data (Wiltschko, 2006). Halkomelem exhibits typical properties of ergativity. Only the subject of a transitive verb triggers agreement. The subject of an intransitive does not trigger verbal agreement.

\[ \begin{align*}
(10) & \quad a. \ &q’o:y-tes \quad &\text{te Strang} \quad &\text{te qwâ:l} \\
& \quad &\text{kill-TR-3.ERG} \quad &\text{DET Strang} \quad &\text{DET mosquito} \\
& \quad &\text{‘Strang killed the mosquito.’} \\
& \quad b. \  &i:mex \quad &\text{te Strang} \\
& \quad &\text{walking} \quad &\text{DET Strang} \\
& \quad &\text{‘Strang is walking.’}
\end{align*} \]

Note that the examples above contain 3\textsuperscript{rd} person subjects. Consider now the following data, which contain 1\textsuperscript{st} and 2\textsuperscript{nd} person subjects.

\[ \begin{align*}
(11) & \quad a. \ &måy-t-tsel \\
& \quad &\text{help-TR-1.SG.SUBJ} \\
& \quad &\text{‘I help him.’} \\
& \quad b. \  &yô:ys-tsel \\
& \quad &\text{work-1.SG.SUBJ} \\
& \quad &\text{‘I work.’} \\
(12) & \quad a. \  &måy-t-chexw \\
& \quad &\text{help-TR-2.SG.SUBJ} \\
& \quad &\text{‘You help him.’} \\
& \quad b. \  &yô:ys-chexw \\
& \quad &\text{work-2.SG.SUBJ} \\
& \quad &\text{‘You work.’}
\end{align*} \]

In contrast to the data in (10), the 1\textsuperscript{st} and 2\textsuperscript{nd} person subjects trigger subject agreement in both transitive and intransitive verbs. This is an instance of split ergativity. In this case, we call this a person based split.

\[ \begin{align*}
1\textsuperscript{st} \text{ and } 2\textsuperscript{nd} \text{ person} & \quad \text{nominative/accusative agreement} \\
3\textsuperscript{rd} \text{ person} & \quad \text{ergative/absolutive agreement}
\end{align*} \]

There are other kinds of splits, which can be found in the discussions in the references.
7.3 *Unaccusativity*

Until now, we have treated intransitive verbs as a single class of predicates structured as in the following tree.

(13) \[ \text{John sneezed} \]

In this section, we will take a critical look at several intransitive verbs and see if they do indeed for a homogenous class, or whether they for two distinct classes. Consider the set of intransitive verbs in (14). These can usually appear with what are called *cognate objects* and *dummy reflexives*.

(14) Cognate objects and dummy reflexives (underlined)

a. I dreamed a wonderful dream.  
b. I sneezed a terrible sneeze.  
c. I cried myself to sleep.  
d. I laughed myself silly.  
e. I sighed a huge sigh of relief.

Examples a, b and e contain cognate objects. A cognate object is a noun that is lexically derived from the verb. Other examples include *dance a dance*, *breathe one's last breath*, and *cough a loud cough*. A dummy reflexive is one that appears only on intransitive verbs with *resultative secondary predicates*. A resultative is a phrase that describes the resultant state of an entity. For example, in the sentence *Peter hammered the metal flat*, the metal became flat as a result of the hammering. Without the resultative, the dummy reflexive cannot appear (John yelled versus *John yelled himself*). Now look at the set of intransitive verbs in (15). These verbs cannot appear with a cognate object or a dummy reflexive.
Lack of cognate objects and dummy reflexives

a. *I arrived an exhausting arrival
b. *I arrived myself exhausted.
c. *I fell an almost fatal fall.
d. *I fell myself almost dead.

Another difference found with intransitive verbs is their ability to appear in an expletive construction. The set of verbs in (16) can appear with the expletive *there in some varieties of English, whereas the first set of intransitive verbs cannot. The examples in (16) have an almost literary feel; however, they are significantly better than the examples in (17).

(16) a. There arrived several travelers.
    b. There fell some leaves from the tree.

(17) a. *There sneezed a dog.
    b. *There yawned a tired traveller.
    c. *There laughed several children.

We turn, now, to a phenomenon in Italian called ne-cliticization. The Italian partitive clitic *ne, which is similar to the clitic *en in French, represents the entity of which a part is expressed. First, note that the direct object in Italian can support the clitic *ne.

(18) a. I ragazzi hanno letto tre libri
    the.M.PL boys have.3PL read.PART three books
    ‘The boys have read three books.’

    b. I ragazzi ne hanno letto tre
    the boys NE have.3PL read.PART three
    ‘The boys have read three (of them).’

The subject, however, cannot support this clitic.

(19) a. Tre ragazzi hanno letto i libri
    three boys have read the books
    ‘Three boys have read the books.’

    b. *Ne hanno letto (tre) i libri (tre)
    NE have read (three) the books (three)
    (‘Three of them have read the books.’)
As expected, the subject of an intransitive verb cannot typically support the ne clitic, as in (20). For the arrive-set of verbs, however, ne-cliticization is possible, as in (21).

(20) a. Tre uomini hanno tossito.
Three men have coughed
‘Three men have coughed.’

b. *Ne hanno tossito tre.
NE have coughed three
(‘Three (of them) have coughed.’)

(21) a. Tre uomini sono arrivati.
Three men are arrived
‘Three men have arrived.’

b. Ne sono arrivati tre.
NE are arrived three
‘Three (of them) have arrived.’

If ne-cliticization is restricted to direct objects, how is it that the subjects of the arrive-class of verbs can undergo this process? This puzzle is related to the resultatives puzzle discussed above.

Recall the process of noun incorporation from Interchapter A. The direct object of a verb can incorporate into the verb. This is illustrated in the Hare dialect of Slave (Rice, 1991).

(22) a. léxudek’a
lé- xu- de- k’a
together- tooth- ASP- grind
‘S/he is grinding his/her teeth.’

b. lédek’a
lé- de- k’a
together- ASP- grind
‘S/he is grinding it together.’
This process is normally restricted to direct objects, but there is a set of intransitive verbs in which the subject can incorporate.

(23) rátakelį
rā- ta- de- lį
down- water- ASP- flow
‘Water flows down.’

If noun incorporation is restricted to direct objects, why can subjects incorporate for this set of intransitive verbs?

Let’s turn now to Cantonese. Consider the following Cantonese verbs, which are intransitive in English (see p. 19 for more information on Cantonese):

(24) a. fan3 gaau3
sleep sleep
‘to sleep’

b. sik6 ye5
eat stuff
‘to eat’

c. waak6 wa2
d. coeng3 go1
draw drawing
‘to draw’
sing song
‘to sing’

Many languages, including Cantonese, have a strict transitivity requirement – that is, there must be a direct object, even if the direct object is semantically vacuous or a cognate object. If this is the case, why do the following verbs appear without any apparent direct object?

(25) a. heoi3
go
‘to go’

b. lei6
arrive
‘to arrive’

The following chart summarizes the observations above. All of these phenomena are related to a single generalization originally noted by Burzio, which we now call Burzio’s Generalization. The arrive-set of verbs are called unaccusative and the other set of intransitive verbs are called unergative.

<table>
<thead>
<tr>
<th></th>
<th>Unaccusatives</th>
<th>Unergatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>cognate objects and dummy reflexives in English</td>
<td>impossible</td>
<td>possible</td>
</tr>
<tr>
<td><em>there</em> expletive constructions in English</td>
<td>possible</td>
<td>impossible</td>
</tr>
<tr>
<td><em>ne</em> cliticization with surface subject in Italian</td>
<td>possible</td>
<td>impossible</td>
</tr>
<tr>
<td>subject incorporation in Slave</td>
<td>possible</td>
<td>impossible</td>
</tr>
<tr>
<td>cognate objects in Cantonese</td>
<td>impossible</td>
<td>obligatory</td>
</tr>
</tbody>
</table>
Burzio’s Generalization

A verb which lacks an external argument (i.e., a subject) fails to assign accusative Case. A verb which fails to assign accusative Case fails to \( \theta \)-mark an external argument.

The set of verbs which Burzio’s Generalization applies to are called unaccusative verbs because they fail to assign accusative Case. If they fail to assign accusative Case, then it must be that there is no \( vP \) in unaccusatives. If so, where does the subject originate? It clearly doesn’t originate as an external argument, since there is no Specifier of \( vP \) position. Thus, the subject must originate as an internal argument inside the \( vP \). We now have an explanation for the wide range of facts seen earlier. Cognate objects and dummy reflexives are impossible with unaccusatives because the subject is really the object underlingly and appears in the same place where the cognate object would. Ne-cliticization is available with unaccusatives because the subject is really an internal argument. Likewise, noun incorporation is available with these arguments, since they, too, are internal arguments. Finally, unaccusative verbs in Cantonese do not appear with cognate objects because the subjects are really internal arguments underlingly.

Verbal Predicates with no \( vP \)

- unaccusatives
- passives
- seem-type verbs (it seems that…, it appears that…. it looks like…, etc.)

Let’s look at the derivation, now, for a sentence such as *Three men arrived*. As we build up structure, we get to the following point in the derivation. The DP *three men* is merged into the direct object position of the verb *arrive*, where the verb assigns it a \( \theta \)-role. Since there is no \( vP \), there is no external \( \theta \)-role, and the argument cannot be assigned accusative Case.

(26)

```
TP
T
  VP
V
  DP
arrived
three men
```
At this point, the DP *three men* raises to the specifier of TP to satisfy the EPP, where it receives nominative Case. Observe again that there is no \( v \), so it cannot receive accusative Case.

(27)

Now, how do we derive the sentence *There arrived three men* with the *there* expletive?

(28)

Here, the DP remains *in situ* (in its merged position) and the expletive is merged in the specifier of TP to satisfy the EPP. Since the expletive is not a DP, nominative Case is assigned to the DP *three men*.

We have one last loophole to deal with, which is unergative verbs. They have a \( v \)P, but no DP to assign accusative Case to. This is not a problem for Cantonese – unergatives in Cantonese always appear with a cognate object. For English, there have been two major proposals. We will consider these proposals, but we will leave the choice between the two open. One option is to assume that there are always cognate objects in English, too, it’s just that sometimes they are invisible. Thus, the sentences on the left below have counterparts on the right.
(29)  

a.  \[ VP \text{dream } [DP \text{a dream}] \]  
\[ VP \text{dream } [DP \emptyset] \]

b.  \[ VP \text{laugh } [DP \text{a hearty laugh}] \]  
\[ VP \text{laugh } [DP \emptyset] \]

c.  \[ VP \text{sleep } [DP \text{the sleep of the dead}] \]  
\[ VP \text{sleep } [DP \emptyset] \]

Another more recent proposal is to assume that a bare unergative verb really is the object and that the verb is just an empty shell looking for a nominal root. This N head is enough to satisfy the Case requirements of \( v \). We will not decide between possibilities in this textbook and will leave the option open.

(30)

\[
\begin{array}{c}
    \text{VP} \\
    \text{V} \quad \text{N} \\
    \text{sleep}
\end{array}
\]

The final topic of this section brings us back to the causative/inchoative alternations discussed in chapter 4 in section 4.6.4. Here are some examples to refresh our memories. The causative forms are on the left and the inchoative forms are on the right.

(31)  

a.   John broke the mirror.  
\hspace{1cm} a’.   The mirror broke.

b.   The chef melted the butter.  
\hspace{1cm} b’.   The butter melted.

c.   Alex dried the dishes.  
\hspace{1cm} c’.   The dishes dried.

Notice that the subject of the inchoative has the same \( \theta \)-role as the object of the causative. In fact, inchoative verbs of this type are often considered a kind of unaccusative. We will give them the same analysis here. Let us assume that verbs such as \textit{break}, \textit{melt}, and \textit{dry} have the option to merge with a little \( v \) or not. When \textit{break} merges with \( v \), the causative form arises. When it doesn’t, the inchoative form arises.
In both trees, the DP *the mirror* is merged in object position (as the complement to V) and receives a θ-role of <patient> from the verb. In the causative variant on the left. This DP received accusative Case from v. In the inchoative variant, there is no v to assign Case to the object. Furthermore, because there is no v, there is no external argument, so the thematic object must raise to the specifier of TP to satisfy the EPP. The DP receives nominative Case.

We are now in a much better position to update the lexical entries for verbs such as *break* and *freeze*.

### Key Concepts

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ergative</td>
<td>The case reserved for the subject of a transitive verb in ergative-absolutive languages.</td>
</tr>
<tr>
<td>absolutive</td>
<td>The case reserved for the subject of an intransitive verb and the object of a transitive verb in ergative-absolutive languages.</td>
</tr>
<tr>
<td>morphological ergativity</td>
<td>Ergativity which is exhibited in Case agreement only.</td>
</tr>
<tr>
<td>syntactic ergativity</td>
<td>Ergativity which is manifested in the syntax, such as satisfying the ‘same argument’ constraint in subject elision constructions.</td>
</tr>
<tr>
<td>split ergativity</td>
<td>The presence of both nominative-accusative and ergative-absolutive properties in a single language.</td>
</tr>
</tbody>
</table>
**unaccusative**

An intransitive verb with no vP, and no external argument. The single argument of an unaccusative is merged inside VP.

**unergative**

An intransitive verb with a vP. The single argument of an unergative is merged in the Specifier of vP.

### Further Reading

Aldridge, E. (2008)
This paper provides a brief discussion of recent generative approaches to ergativity.

This is one of the most comprehensive discussions on ergativity and split ergativity from a typological perspective. Much of the discussion should be accessible at this stage.

This monograph discusses the argument structure of verbs and fleshes out the distinction between unaccusatives and unergatives in detail. In particular, it deals with the problem noted at the end of this chapter. Some of the discussion is rather advanced; however, this data rich book is strongly recommended.

Levin, B. & M. Rappaport Hovav (1994)
This monograph offers an in depth discussion of the lexical properties of unaccusative verbs.

This paper provides a recent discussion on the typological implications of ergativity.

Perlmutter D. (1978)
This is the original proposal for the distinction between unaccusatives and unergatives.

### Exercises

1. Draw trees for the following sentences. The underlined verbs are unaccusative.

   a. Mary knows that the presents **arrived** yesterday.

**Georgian** is a Kartvelian language spoken in the Caucasus region and is the official language of Georgia. It is known for having a complex agreement system with separate morphemes for person and number.
b. It seems that the children left for school already.
c. These students were told that the teachers went to a meeting.
d. Were the presents given to the good children yesterday?
e. The ice melted quickly.

2. Consider the following sentences from Georgian.

   a. student-i mivida
      student went
      ‘The student went.’
   
   b. student-ma çeril-i dacera
      student letter wrote
      ‘The student wrote a letter.’

What type of Case system does Georgian have? List the Georgian Case markers and name the Cases they represent.

3. Consider the following data from Chukchi.

   a. ətlag-e ən-in l’ulqal ra-gtəkwən-nen
      father-ERG 3.SG-POSS face.ABS CAUS-freeze-3SG.3SG.AOR
      ‘Father got his face frozen.’ (i.e., got frost-bite on his face)
   
   b. ətlag-ən l’o-na-gtəkwət-g’e
      father-ABS face-CAUS-freeze-3SG.AOR
      ‘Father got his face frozen.’

Looking at the idiomatic English translations of these sentences, one might think that both Chukchi sentences have the same valency. This is not the case, however. Explain how the valency changes between these two sentences (i.e., does it increase or decrease; if so, by how much), stating your evidence. What phenomenon is taking place that allows for the change in valency? Explain.

4. Consider the following data from Tauya, an ergative-absolutive language, where the absolutive Case is marked with a null morpheme (data from MacDonald, 1990, slightly simplified).

   a. ?e fanu-ni fenaʔa yauaʔa
      that man-ERG woman saw
      ‘That man saw the woman.’
   
   b. ya-ni pai yaueʔa
      I-ERG pig saw
      ‘I saw the pig.’

Chukchi is a Chukotko-Kamchatkan language. It is spoken in central Russia.

Tauya belongs to the Trans-New Guinea family. Papua-New Guinea is one of the most linguistically rich locations in the world, with over 800 languages spoken on that island.
c. ya-ni fanu yaueʔa
   I-ERG man saw
   ‘I saw the man.’

d. ya pai yaueʔa
   I pig saw
   ‘I saw the pig.’

e. *ya fanu yaueʔa
   I man saw
   (‘I saw the man.’)

Although Tauya exhibits morphological ergativity, the pattern of Case marking is not so simple. What additional factor plays in Case marking in Tauya and in what way? Now consider the following data (TOP = topic). (You may wish to read about topics in Chapter 4, Section 4.3.1 before considering the second half of this question.)

f. ʔe fanu-ra fofeaʔa
   that man-TOP came
   ‘That man came.’

g. *ʔe fanu-ni-ra fenaʔa yauaʔa
   that man-ERG-TOP woman saw
   ‘That man saw the woman.’

h. ʔe fanu-ni fenaʔa yauaʔa
   that man-ERG woman saw
   ‘That man saw the woman.’

Do the data in f. – h. suggest that Tauya is syntactically ergative? Why or why not? How do the following data affect your answer?

i. ʔe fanu-ra pai yauaʔa
   that man-TOP pig saw
   ‘That man saw the pig.’
Interchapter F  Second Positions Clitics

A distinction is generally drawn between morphemes (pieces of words put together by morphology) and words themselves (put together by syntax). Many languages sport clitics, which cannot be comfortably classified as either words or as morphemes. While some morphemes are free, most are bound and cannot appear alone. Clitics exhibit similar behaviour; they must attach to a lexical host. Morphemes tend to be quite rigidly ordered in most languages; whereas words have typically free word order within a sentence. Clitics behave more like words in this respect as they tend to have fairly liberal ordering properties. Interchapter G discusses further properties of clitics.

Many languages around the world have clitics which must appear in the second position in the sentence. Because of this type of placement, they are often called second position clitics (2P clitics for short) or Wackernagel clitics, after Jacob Wackernagel, who first described these clitic in 1892. Consider the following example from Serbo-Croatian (Halpern, 1995), where the auxiliary je (aux) is a second position clitic.

(1) a. Čovek je voleo Mariju.
   man.NOM AUX loved Mary.ACC
   ‘The man loved Mary.’

b. Čovek je Mariju voleo.
   man.NOM AUX Mary.ACC loved
   ‘The man loved Mary.’

c. Voleo je Mariju čovek.
   loved AUX Mary.ACC man.NOM
   ‘The man loved Mary.’

d. Voleo je čovek Mariju.
   loved AUX man.NOM Mary.ACC
   ‘The man loved Mary.’

e. Mariju je čovek voleo.
   Mary.ACC AUX man.NOM loved
   ‘The man loved Mary.’

f. Mariju je voleo čovek.
   Mary.ACC AUX loved man.NOM
   ‘The man loved Mary.’

Serbo-Croatian is a member of the Slavic branch of the Indo-European family. It is spoken by about 18 000 000 in the former Yugoslav republic, which now includes Serbia, Montenegro, Croatia, Bosnia and Herzegovina. The term Serbo-Croatian is a term used to refer to the dialect continuum of that area; however, many speakers prefer to maintain a distinction between the speech forms, using the terms Serbian, Croatian, and Bosnian. For more information, the reader is urged to consult Kraemer (2006).
As this example shows, word order is quite free in Serbo-Croatian, but the clitic must appear as the second element in the sentence. There are two types of 2P clitics with respect to the size of the first element. Specifically, 2P clitics can appear after the first word (2W clitics) or after the first syntactic phrase (2D clitics, D for (syntactic) daughter).

<table>
<thead>
<tr>
<th>2W clitic</th>
<th>a 2P clitic that appears after the first word.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2D clitic</td>
<td>a 2P clitic that appears after the first phrase.</td>
</tr>
</tbody>
</table>

In the example above, it is not clear whether Serbo-Croatian has 2W or 2D clitics, since the first syntactic constituent is also a single word. Serbo-Croatian, in fact, has both types of clitics as the following examples shows. The first sentence contains a 2W clitic, and the second contains a 2D clitic. There is no significant difference in meaning between these two sentences. Thus, 2W and 2D clitics in Serbo-Croatian are said to be in free variation. Of course, it may come to light that there is some difference in interpretation between these two sentences, thus it would be inappropriate to say that they are in free variation.

(2) a. Taj je čovek voleo Mariju.
That man.NOM loved Mary.ACC
‘That man loved Mary.’

b. Taj čovek je voleo Mariju.
That man.NOM AUX loved Mary.ACC
‘That man loved Mary.’

Other languages with both 2W and 2D clitics include Luiseño, Ngiyambaa, Warlpiri, and Pashto. Like Serbo-Croatian, 2W and 2D clitics in Luiseño are in free variation. In Pashto, however, 2W and 2D clitics are in complementary distribution. The following examples are from Luiseño and Pashto, respectively, and the clitics are shown in boldface.

(3) a. wiwiš ?axaat up naʔq. [Luiseño]
wiwish delicious AUX is.burning
‘The delicious wiwish is burning.’

b. wiwiš up ?axaat naʔq.
wiwish AUX delicious is.burning
‘The delicious wiwish is burning.’

Warlpiri is a Pama-Nyungan language spoken in north-central Australia. It is an endangered language, spoken by approximately 2500 people in a population of 5000 – 6000 (2006 census data provided by the Australian Bureau of Statistics). Despite this, it is one of the healthiest aboriginal languages of Australia. As with many Australian languages, it possesses an avoidance register, which consists of a separate set of lexical items certain relatives. See Laughren et al. (1996) for an introduction to the Warlpiri language and Dixon (2011) for a general discussion on the languages of Australia.

Luiseño is an Uto-Aztecan language spoken in southern California in the United States. There are no longer any remaining fluent speakers; however, revitalization efforts are underway. There is no dominant word order; however, the subject typically precedes the verb. It has postpositions, which is typical of SOV languages.
Finally, there are some languages (such as Czech) that exhibit only 2D clitics, and some languages (such as Proto-Indo-European, Alse and Shuswap) that exhibit only 2W clitics. The following Czech example shows that the clitic mi must appear after the first phrase (2D position) and cannot appear after the first word (2W position).

(5) a. Ten básník mi čte ze své knihy.

that poet to.me reads from his book

‘That poet reads to me from his book.’

b. * Ten mi básník čte ze své knihy.

that to.me poet reads from his book

(‘That poet reads to me from his book.’)

Further Reading


Halpern, A. (1995) This volume offers a comprehensive introduction and analysis of clitic phenomena in a wide variety of languages around the world.

Halpern, A. & A. Zwicky (1996) This book contains several papers on 2P clitics and other second position effects. The papers are from a variety of theoretical backgrounds.
Chapter 8  \textit{Wh}-movement and Relative Clauses

By the end of this chapter you should:

- understand the basic properties of \textit{wh}-movement
- be able to draw trees for various kinds of \textit{wh}-questions
- understand and account for the differences between pied-piping and preposition stranding
- understand the difference between matrix and embedded questions
- understand the notion of Attract Closest and how it relates to multiple \textit{wh}-questions
- understand the notion of successive cyclicity and how it relates to long distance movement
- be familiar with the basic properties of \textit{wh} in situ and multiple \textit{wh}-movement
- understand the concept of LF movement
- understand the basic properties of relative clauses and be able to draw trees for them
- understand various cross-linguistic properties of relative clauses, including the difference between pre-nominal and post-nominal relative clauses, the accessibility hierarchy, and internally headed relative clauses
- understand how \textit{wh}-movement is constrained and how this is captured by the notion of phases and DP structure.
- understand the notions of Strong and Weak Cross-Over, and how this argues for the existence of LF movement.

8.1 \textit{Wh}-Movement

Recall that movement to the specifier of TP is triggered by the EPP. Recall also that yes/no questions trigger head movement of T to C. We now discuss content questions and introduce the concept of \textit{wh}-movement. Consider the following English and Mandarin sentences, paying attention to the position of the object.

(1) a. Alice bought an apple.
    b. Mingxing mǎi-le pingguǒ
      Mingxing buy-PERF apple
      ‘Mingxing bought an apple.’

The verb \textit{buy} assigns at $\theta$-role to the object DP \textit{an apple}. We say that the direct object is in its “thematically related” position.

(2) a. \begin{center}
\begin{tikzpicture}
  \node (v) at (0,0) {bought};
  \node (dp) at (1,0) {\textit{an apple}};
  \draw (v) -- (dp);
\end{tikzpicture}
\end{center}

b. \begin{center}
\begin{tikzpicture}
  \node (v) at (0,0) {mǎi};
  \node (dp) at (1,0) {pingguǒ};
  \draw (v) -- (dp);
\end{tikzpicture}
\end{center}
Now consider the following sentences, in which the direct object is being questioned.

(3)  

a. **What** did Alice buy ___ ?  
b. Mingxing mǎi-le shénme

‘What did Mingxing buy?’

A *wh*-word (so called because most question words in English begin with “*wh*”) appears at the left edge of the English sentence, and there is now a gap in the position of the direct object. In the Mandarin question, though, the question word remains in the same position as the object in the declarative sentence.

There are some instances where the English word *what* appears in the same position as the object. One such situation is that of *echo questions*. An echo question is not a true question, rather it is a request for clarification of an unexpected statement. Game show questions often leave *wh*-phrases in the same position as their corresponding answers. The following two examples illustrate both of these.

(4)  

A:  I bought an ugli fruit at the market yesterday?  
B:  You bought *what* at the market yesterday?!?  

[caption: What did you buy at the market yesterday?]  

A:  King Henry the VIII was survived by which of his wives?  
B:  Anne Boleyn  

[angry buzzer sound]  
A:  Sorry, the correct answer is Katherine Parr.  

[caption: Which of his wives was K.H. VIII survived by?]

Another situation in which the *what* appears in object position is when there is already another *wh*-word at the left edge of the sentence. This is called a *multiple wh-question*, and we will look at these shortly. Consider the following example.

(5)  

Who bought what?

Before we try to figure out where the *wh*-word is moving, let’s look at content questions from some other languages in which the *wh*-phrase appears in a different position from its corresponding answer. That is, we will first look at languages such as English, where the *wh*-phrase moves. We will come back to languages like Mandarin, where the *wh*-phrase does not move. Consider first the following German examples. Note that the positions of the direct object and the location phrase are inside the sentence (the so-called *Mittelfeld* in traditional descriptions of Germanic linguistics). However, when either of these phrases is questioned, the *wh*-phrase (*was* and *wo*, respectively) appear at the left edge of the clause.
(6) a. Peter hat einen Apfel auf der Markt gekauft. ‘Peter bought an apple at the market.’

b. Was hat Peter auf der Markt gekauft? ‘What did Peter buy at the market?’

c. Wo hat Peter den Apfel gekauft? ‘Where did Peter buy the apple?’

Onondaga (see p. 110), has relatively free word order (see Interchapter C), so the direct object (shown in red) can appear anywhere within the clause. If the direct object is questioned, again the *wh*-phrase (*nwade*) must appear at the left edge of the clause.


b. John ne ganadka? wахahní:nǫ John NE bed he bought it ‘John bought a bed.’

c. ne ganadka? ne John wahahní:nǫ a bed NE John he bought it ‘John bought a bed.’

d. ne ganadka? wahahní:nǫ ne John a bed he bought it ‘John bought a bed.’

e. John ne ganadka? wahahní:nǫ NE bed he bought it ‘John bought a bed.’

f. John ne ganadka? wahahní:nǫ NE bed he bought it ‘John bought a bed.’

g. *nwade* wahahní:nǫ ne John what he bought it ‘What did John buy?’

Finally, consider the following Chamorro data (Chung, 2009). Again, observe that the *wh*-phrases all appear at the left edge of the clause.

Chamorro is an Austronesian language spoken in the Mariana Islands. Like all Austronesian languages, it is verb-initial.
a. Ha-konfitma i kotte i intensión i Covenant Agreement.
‘The court confirmed the intention of the Covenant Agreement.’

b. Hägas ha-läknus enna siha na planu si Speaker Benigno R. Fitial.
‘Speaker Benigno R. Fitial presented those plans long ago.’

(9) a. Hayi siña luma’la’ gi $3.05 gi ora na suetdu?
‘Who can live on an hourly wage of $3.05?’

b. Pära manu guātu na un-konni’ si Rita?
‘To where did you take Rita?’

c. Hafa malago’-mu?
‘What do you want?’

Let’s return to example (3)a. The wh-phrase what is understood as the object that Alice bought, so we assume it is theta-marked by the verb. Notice that there is a gap after the verb buy. The direct object position is empty. We propose that the wh-word what has raised from the direct object position to the front of the sentence. In fact, the data presented above all show the same properties. A wh-phrase appears at the left edge of the clause which corresponds to a gap in the sentence. This gap corresponds to the position where the wh-phrase is understood. Consider the following examples. This sentence contains a ditransitive verb along with a temporal adverbial modifier. In each case, when one of the elements in the sentence is questioned, a gap appears in its associated position.

(10) a. John gave a book to Mary yesterday.

b. What did John give ___ to Mary yesterday?

c. Who did John give a book to ___ yesterday?

d. When did John give a book to Mary ___?

e. Who ___ gave a book to Mary yesterday

Let’s consider the derivation of (3)a up to the point when C merges with TP. At this point, the verb has already raised to v, and the subject DP Alice has raised to the specifier of TP for EPP and to satisfy the EPP of T. The Mandarin question provides support for this proposal
since the question word appears in object position, but does not raise. This is a general property of \(wh\)-phrases in Mandarin and other languages that we will discuss in more detail later on in this chapter.

Recall that C is the locus of illocutionary force. For content questions, we encode interrogative force on C with the feature \([+\text{wh}]\), which we propose must be checked by a \(wh\)-word. In the sentence above, the DP what raises to the specifier of CP. As with yes/no questions, T-to-C movement takes place in non-subject matrix questions (i.e., questions involving the top-most CP). Thus, we propose that a C head with a \([+\text{wh}]\) feature has the EPP property in English (and in the other languages above with \(wh\)-movement). Here is the tree after the \(wh\)-phrase moves to the specifier of CP.
These observations lead us to posit the *Wh-Criterion*. This criterion states that an interrogative C (a C head with a [+wh] feature, abbreviated wh-C) must be checked by some XP that also bears a [+wh] feature, if the EPP on wh-C is active. In order to check this feature on C, the wh-phrase (the XP in question) must raise to the specifier of CP. It looks as though some languages (such as Mandarin) do not have the EPP property on wh-C. These languages satisfy the Wh-Criterion in a different way (as we will see later).

**Wh-Criterion (to be reformulated):** A [+wh] feature in C must be checked by an XP bearing a [+wh] feature, where checking takes place in the specifier of CP (if EPP is active on wh-C).
You might wonder how we know the traces of wh-movement are there? First of all, the verb *buy* is transitive and must take an object. Here, the object *what* has been displaced to satisfy the Wh-Criterion (the need to check the [+wh] feature). As we’ve seen several times in previous chapters, when something in a syntactic tree moves, it leaves a trace. The trace prevents anything else from occupying that position.

(13)    * What did Alice buy the apples?

This sentence is ill-formed because we tried to stick a DP into a position that already contains a trace. Furthermore, recall the Case Filter, and Theta Criterion. The chain <what, ti> bears the θ-role <theme>. If we stick another DP in, the chain becomes <what, ti/the apples>. The chain still contains only one θ-role, but now it contains two DPs – a violation of the Theta-Criterion. There is also an additional DP that requires Case, but nothing to assign Case to it.

You might be thinking…

If I knew that Alice bought the apples, I wouldn’t be asking what she bought! This sentence is ungrammatical because the question contains the answer.

Consider carefully the difference between ungrammaticality and pragmatic ill-formedness. Pragmatically ill-formed sentences can sometimes feel as if they might be ungrammatical, but this is not necessarily the case. Consider the following sentences:

(14)    # What’s your name, Susan?

Note, that *Susan* is not an argument of this sentence. It is a vocative – the addressee of the utterance. Simply speaking, the vocative names the person you are talking to. A sentence such as this is quite natural if you’re asking Susan for some information other than her name.

(15)    How old are you, Susan?

The sentence in (14) is pragmatically ill-formed, since people don’t normally ask the name of someone whose name they already know. Thus, this sentence is not ungrammatical…just weird. Sentence (13) is both weird (pragmatically ill-formed) and ungrammatical. Because of the ungrammaticality of (13), we assume that the moved element leaves a trace in its base position (the position where it started) that blocks anything else from being inserted there.

*Wh*-movement typically involves movement of a *wh*-phrase to the specifier of CP and an auxiliary to C. More

**Vocatives** are phrases used for addressing individuals. They are often accompanied by a particle or by case marking on the noun. This person can be referred to by name, by a general term of address, or by an epithet. Here are some more examples of vocatives in English:

*Hey buddy*, you dropped your wallet.

*O Susan*, where’s John?

Many languages have a vocative particle of some kind (such as *hey* or *o*).
accurately, it involves movement of T to C, although the conditions under which T raises to C can be rather complex. So, in English, an auxiliary raises to C, but in French, since the main verb raises to T when no auxiliary is present, it is the main verb that raises to C. This is the case for Standard French, shown in (9). Colloquial French offers an interesting point of comparison. The surface distinction between these two dialects is the position of the main verb with respect to the subject.

(16) Où manges-tu?  [Standard French]
where eat.2SG.PRS-you.SG
‘Where do you eat?’

(17) Où tu manges?  [Colloquial French]
where you.SG eat.2SG.PRS
‘Where do you eat?’

Let’s consider the tree structure for these sentences. The difference between Standard French and Colloquial French is easily accounted for by a difference in T-to-C movement. T-to-C movement takes place in Standard French for why questions, but not in Colloquial French.

(18) a. CP (=16))
    Adv C TP
      où C TP
        T' D
          tu T vP
            t_V t_k
              v' V
                t_V t_t
      manges D
    b. CP (=17))
    Adv C TP
      où C TP
        T' D
          tu T vP
            t_V t_k
              v' V
                t_V t_t

The structure in (18)b leave the C position empty. In some varieties of Colloquial French, the C head can be filled with a complementizer, suggesting that the structure in (18)b is on the right track.
(19) Où que tu manges?
where COMP you.SG eat.2SG.PRS
‘Where do you eat?’

At the beginning of this chapter, we remarked that T-to-C movement is restricted to non-\textit{why}-subject questions in matrix clauses, just as in yes/no questions. The following example shows that T-to-C movement in subject questions and in embedded questions does not happen. Since there is no T-to-C movement, there is no \textit{do}-insertion in these examples. The syntax of T-to-C movement is a complicated subject that is still a matter of ongoing research.

(20) Who left the party early? * Who did leave the party early? (okay only on emphatic reading)
I know what Alice bought. * I know what did Alice buy.

Having introduced the concept and basic mechanism of \textit{wh}-movement, we will go on to discuss various its properties. One such property of \textit{why}-movement is \textit{unboundedness}. Unboundedness refers to the possibility for movement to span more than one clause. Consider the following sentence where the DP \textit{which book} moved up three clauses.

(21) Which book did Susan say that Peter thought Mary would never suggest to David to buy it?

The unboundedness property of \textit{wh}-movement has the potential to lead to ambiguity. Recall the following sentence from the first chapter.

(22) When did John say \textit{that} Peter was fired \textit{?}

The original merged position of the \textit{why}-adverb, \textit{when}, is either in the matrix clause (shown in red) or the embedded clause (shown in blue) giving rise to the two following possible meanings. The first meaning is asking when John said what he did. The second meaning is asking when Peter was fired. \textit{Wh}-movement can theoretically span any number of clauses. It is constrained in practice only by memory, computational complexity, and pragmatic issues discouraging the use of overly complex sentences in actual speech.

A well known property of \textit{wh}-movement in English is \textit{preposition stranding}. Preposition stranding is found in almost all varieties of casual speech and is also found in more formal registers. It occurs with most prepositions. Preposition stranding consists of raising the DP complement of a preposition to the specifier of CP. This is shown in (23)a, where the preposition \textit{to} has been stranded. \textit{Pied-piping} occurs when the entire PP raises to the specifier of CP, a construction more closely associated with formal speech. (23)b shows an example of pied-piping.

(23) a. Who was Mary talking to ___?
b. To whom was Mary talking ___?
Although Romance languages in general do not exhibit preposition stranding, many colloquial varieties of French do. Consider the following examples. (Note, these examples contain relative clauses, which we consider later.) Preposition stranding is also found some Scandanavian languages and in two Niger-Congo languages (Vata and Gbadi).

(24)  

a. le garcon qu’il a parlé avec ___  
   the boy that he has spoken with  
   ‘the boy that he spoke with’  

b. le gars que je te parle de ___  
   the guy that I you speak of ___  
   ‘the guy that I’m talking to you about’

Let us now consider the structures for the pied-piping and preposisition stranding sentences. Looking first the stranding example, we simply adopt the same analysis in which the [+wh] feature of the DP who (shown in red) triggers it to raise to the specifier of CP. For the pied-piping sentence, let us assume that the whole PP containing the [+wh] feature raises to the specifier of CP. We won’t worry about the exact mechanism for this structure, rather, let us simply assume that the [+wh] feature can optionally percolate from D to P (shown in blue) in English. In Romance languages, including Standard French, let us assume that the [+wh] feature obligatorily percolates from D to P. The exact mechanism of pied-piping is an ongoing topic of discussion that you will have to opportunity to investigate in more advanced studies.

(25)  

a. CP  
   |   
   DP,   C'  
   |   
   who   TP  
   |   
   was, DP, T'  
   |   
   Mary T vP  
   |   
   talking, V  
   |   
   PP  
   |   
   to  

b. CP  
   |   
   PP,   C'  
   |   
   P   DP,   C'  
   |   
   to   whom was, DP, T'  
   |   
   Mary T vP  
   |   
   talking, V  
   |   
   to
The next phenomenon we will look at is **embedded questions**. So far, we have looked at **matrix questions**. A matrix question is one in which the *wh*-phrase raises to the matrix CP. Matrix questions require an answer in cooperative discourse. For example, the sentence *What does John think Mary bought?* is a matrix question, and it requires an answer. An embedded question is one in which the *wh*-phrase raises only as far as an embedded CP. Crucially, they are interpreted in an embedded clause. These are statements which do not require an answer in cooperative discourse. Consider the following examples.

(26)  

a.  What does John think that Mary bought?  - matrix question, requires an answer  
   b.  John knows what Mary bought.  - embedded question, does not require an answer

Before leaving this section, we will take a brief look at **multiple wh-question**. Consider the sentence *Who bought what?* This sentence contains two *wh*-phrases, so it is often referred to as a multiple *wh*-question. Such constructions often trigger what’s called a **pair-list reading** as follows.

(27)  

A – So, can you tell me who bought what?  
   B – Well, Mary bought the apples, Susan bought the oranges, Bill bought the grapefruit, …

For reasons that are poorly understood, multiple *wh*-questions in English strongly tend to prefer the type of answer that B gives above rather than just a single answer, although this may be subject to variation among speakers.

Note that with multiple *wh*-questions the higher of the two *wh*-phrases must raise. Consider the following examples.

(28)  

a.  Who bought what?  
   b.  * What did who buy?  
   c.  What did John give to who?  
   d.  * Who did John give what to?

In both cases, the closer *wh*-phrase moves to the specifier of CP. Consider the derivation for these sentences before the *wh*-phrase moves to the specifier of CP. The close *wh*-phrase is shown in green and the other *wh*-phrase is shown in red. The red phrase raises to the specifier of CP.
If a feature needs to attract something to its specifier, it always chooses the closest element it can find to check its feature. This notion of closeness is often referred to as **Attract Closest**. An curious exception to this generalization is observed when the *wh*-phrases are full DPs with the interrogative determiner *which*. Consider the following examples.

(30) Which student, *t₁*, bought which book?
    Which book, *did which student buy* *t₁*?

We observe here that either *wh*-phrase can raise to the specifier of CP.

8.1.1 *Wh-Movement and Successive Cyclicity*

Recall that *wh*-movement is unbounded, as the following sentences show. When a *wh*-phrase moves outside of its own clause to a higher clause, we call this **long distance movement**.
(31)  

a.  What did John eat \( t_1 \) ?  
b.  What does Mary think that John ate \( t_1 \) ?  
c.  What did Bill say that Mary thinks that John ate \( t_1 \) ?  

In this section we will look at long distance \( wh \)-movement in more detail. Before we take up the issue of long distance movement, however, we will examine the interaction between \( wh \)-movement and anaphors. Consider the following sentence.

(32)  

[Which picture of himself\(^1\)] does John\(^1\) like \( t_1 \)?

This sentence appears to violate the principle of anaphor binding that states that anaphors must be c-commanded by their antecedents. In its original merged position, however, the antecedent, John, does c-command the anaphor, himself. Thus, let us assume that it is necessary for the antecedent to c-command the anaphor at least once during the derivation. We will return to binding in chapter 10, so we will wait until then to sharpen the exact formulation of anaphor binding. In the meantime, however, we can use this fact about anaphor binding as a diagnostic for movement.

With this much in mind now, consider the following example.

(33)  

[Which picture of himself\(^2\)] does John\(^1\) think [CP that Bill\(^2\) likes \( t_1 \)]?

Here, himself can refer to either John or Bill. Let us consider a possible derivation for this sentence. The following structure is in line with what we have assumed so far. The \( wh \)-phrase is merged as the complement of the verb like, where it receives a \( \theta \)-role. It then raises to the specifier of the matrix CP to satisfy the \( wh \)-criterion. In fact, all else being equal, we expect the simplest analysis to be the correct one. Examine, now, the tree on the following page.
Again, we see that the anaphor is c-commanded by the antecedent Bill in its merged position represented by $t_i$ that is the sister to the embedded verb. In this representation, however, there is no way to capture the fact that the anaphor can also be coreferential with the matrix subject John. If the wh-phrase makes a pit stop on its way to the specifier of the matrix CP, then it can locally c-commanded by John. We propose that the wh-phrase moves successive cyclically through the specifier of every CP on its way to the matrix SpecCP. Here is the actual derivation for this sentence.
When the wh-phrase stops in the specifier of the intermediate CP, it is bound by John. From this position, John c-commands the anaphor inside the wh-phrase. John and the wh-phrase are also sufficiently close enough to license the anaphor. We assume that the specifier of the CP is part of the superordinate clause.

When the wh-phrase is merged in its thematically related position, it is in the same clause as Bill. The anaphor contained inside of it is also c-commanded by Bill, so the anaphor is licensed in this position.
Successive Cyclicity: Wh-movement targets the specifier of every intermediate CP.

Let’s consider now some more data in support of successive cyclic nature of wh-movement. The first line of evidence comes from wh-copy constructions in German. (You may wish to read about German word order in Interchapter E and on p. 145.) Consider the following data.

(36)  
\[ \text{a. Wen} {}_i \text{ hat Peter } t_i \text{ gesehen?} \]  
\[ \text{whom has Peter seen} \]  
\[ \text{‘Who did Peter see?’} \]  

\[ \text{b. Wen} {}_i \text{ denkst du wen} {}_i \text{ Peter } t_i \text{ gesehen hat?} \]  
\[ \text{whom think you whom Peter seen has} \]  
\[ \text{‘Who do you think Peter saw?’} \]  

Notice that there are two copies of the wh-phrase wen (‘whom’). The lower copy is evidence that the wh-phrase moved through the specifier of the intermediate CP. Unlike English, German has the option of spelling out the trace as a copy of the moved element.

The next line of evidence comes from Irish (see p. 134). Irish complementizers agree with the illocutionary force of their clauses (McCloskey, 2001). Of interest here are the complementizers go (declarative) and aL (interrogative – the L indicates a phonological change on the following consonant.) Consider the following examples. Note that the complementizers often fuse with tense morphology.

(37)  
\[ \text{a. Deir siad gur ghoid na síogaí í.} \]  
\[ \text{say they COMP-PST stole the fairies her} \]  
\[ \text{‘They say that the fairies stole her away.’} \]  

\[ \text{b. [Cá fhad]} {}_i \text{ a bhé siad fá Bhaile Átha Cliath } t_i {}_i \text{?} \]  
\[ \text{what length aL were they around Dublin} \]  
\[ \text{‘How long were they in Dublin?’} \]  

The first example contains a declarative complementizer (inflected for past tense), which introduces the embedded clause. The second example contains an interrogative complementizer because the sentence is a question. Whenever a wh-phrase appears in the specifier of a CP in Irish, the interrogative complementizer, aL, must appear in the C head rather than the declarative complementizer, go. Consider, now, the following example of long distance movement in Irish.
This example contains a wh-phrase cé (‘who’) that has undergone long distance movement from the embedded clause. The matrix clause is interrogative and is accordingly marked with an interrogative complementizer. The embedded clause, however, is declarative. One would expect a declarative complementizer; however, we observe an interrogative complementizer in this clause, too (shown in boldface). This fact follows from the assumption that wh-movement is successive cyclic. When the wh-phrase moves through the specifier of the embedded CP, it triggers the appearance of the interrogative complementizer in the embedded clause.

The final line of evidence come from Kikuyu (Sabel, 2000). Kikuyu exhibits a phonological phenomenon known as tonal downstep in which the relative pitches of the tones become lower. (Thus, it is possible that a high tone after downstep is lower in pitch than the low tone before downstep.) Downstep is indicated by a raised exclamation mark. In a declarative sentence, downstep occurs at the left edge of the verb and the right edge of a major constituent (usually the clause). In an interrogative sentence, however, no downstep occurs; however, there is a slight phonological change in the vowel of the verbal complex (on the tense marker, specifically).

Kikuyu also exhibits optional partial wh-movement, in which a wh-phrase moves only as far as one of the intermediate CPs. Despite the fact that the wh-phrase only moves as far as an embedded clause, this is not considered an embedded question, since the wh-phrase is still interpreted in the matrix clause. Consider the following examples, paying close attention to downstep and phonological changes in the verbal complex (shown in red) and the effect this has on the following vowel (shown in blue). Note that there is no difference in meaning between these sentences.
First, the fact that the wh-phrase can appear in the specifier of any of the intermediate CPs strongly suggests that wh-movement universally targets every intermediate specifier. Furthermore, since the wh-phrase does not move to the matrix CP in the b. and c. examples, downstep is not deleted in the matrix clause. Thus, even when the wh-phrase does appear in the matrix clause, the fact that downstep has been deleted in the lower clauses provides good evidence that the wh-phrase passed through the specifier of each clause. Note also that the special form of the verb say and its effect on the following vowel is not observed in the last example. Again, the special form appears only when the wh-phrase passes through the specifier of CP in that clause. Since the special form is observed in both embedded clauses in the first example, we can conclude that the wh-phrase has passed through all the embedded CPs.

We finish this section off with an empirical prediction in English made by successive cyclic movement. If wh-movement must target the specifier of every intermediate CP, then wh-movement should be impossible if the specifier of CP is already filled. Consider the following sentence.

(41) *What does John wonder when Mary bought it?*

Let us try to understand why this sentence is ungrammatical. Consider the following hypothetical derivation for this sentence. The DP what attempts to raise successive cyclically through the specifier of the intermediate CP; however, there is already another wh-phrase there. Thus, this sentence fails since there is no wh-phrase in the specifier in the matrix CP. For the remainder of this chapter, we will represent failed movement with a line containing an alternating long dash and two short dashes — — .
(42)
8.2 Cross-Linguistic Patterns of Wh-Movement

We have seen that for many languages wh-phrases must raise to the specifier of CP. If there is more than one wh-phrase, then only the highest one raises. The rest remain in their merged position. In this section we will look at some other patterns of wh-movement found cross-linguistically. First, we will take a look at wh-in-situ languages, where no wh-movement takes place. Then we will examine some languages with multiple wh-movement.

8.2.1 Wh-In-Situ

In many languages of the world, the wh-phrase does not move to the specifier of CP. Rather, it remains in its original merged positions, referred to as the in situ position. This phenomenon is often referred to as wh-in-situ. Recall from the beginning of this chapter that Mandarin was such a language. Consider the following additional data.

(43) a. i. Zhāngsān mǎi-le shénme? [Mandarin, see p. 85]
Zhāngsān buy-ASP what
‘What did Zhangsan buy?’

ii. Zhāngsān mǎi-le pinggūo
Zhāngsān buy-ASP apple
‘Zhangsan bought apples.’

b. i. lei5 heoi3 bin1 dou6 a3 [Cantonese, see p. 19]
you go where SFP
‘Where are you going?’

ii. ngo5 heoi3 Hoeng1 Gwong2 lo4
I go Hong Kong SFP
‘I’m going to Hong Kong!’

c. khun ʔaan ʔaray [Thai, see p. 219]
you read what
‘What did you read?’

d. i. Taro-wa ringo-o tabe-mashi-ta [Japanese, see p. 38]
Taro-TOP apple-ACC eat-POLITE-PST
‘Taro ate an apple.’

The morpheme glossed as SFP is a sentence-final particle. These particles are pervasive in a number of languages around the world. Cantonese has about 30 of them. They often specify the illocutionary force of the sentence, but also convey information about the speaker’s attitude about the sentence or their emotional state. Here are a few examples from Cantonese.

a5 – disapproving, surprised or suspicious
ze1 – playing down a fact: ‘that’s all’
zek1 – cheeky, intimate
wo5 – evidential (hearsay, reported speech)
lo4 – impatient: ‘of course’
ii. Taro-wa nani-o tabe-mashi-ta-ka
Taro-TOP what-ACC eat-POLITE-PST-Q
‘What did Taro eat?’

e. i. John-i mwues-ul sa-ss-ni [Korean, see p. 93]
John-NOM what-ACC buy-PST-Q
‘What did John buy?’

ii. John-i sakwa-lul sa-ss-da
John-NOM apple-ACC buy-PST-DECL
‘John bought an apple.’

Notice that in every case, the wh-phrase occupies the same position as a non-wh-phrase. In other words, there is no overt wh-movement. As a typological fact, note that SOV are typically wh-in situ and SVO languages (along with verb-initial languages) typically have wh-movement. Chinese languages and Thai are obvious exceptions to this generalization.

Several questions arise from these structures in light of the discussion above on English wh-movement. For one, how does wh-checking work in a wh-in-situ language? How is the Wh-Criterion satisfied? Let’s start by considering the base structure for the following Cantonese sentence, up to the point where T is merged, forming a TP (see p. 19 for more information on Cantonese).

(44) lei5 sik6 me1 ye5 a3?
you eat what SFP
‘What are you eating?’

Thai belongs to the Tai-Kadai family and is spoken by over 20 000 000 people worldwide, mostly in Thailand. It is an SVO language with prepositions; however, it forms yes/no questions with a sentence-final particle and does not have wh-movement.
Let us assume that subjects in Cantonese raise to the specifier of TP to satisfy the EPP. The *wh*-element, however, appears *in situ*. Evidence for the subject raising to SpecTP comes from the following data. Notice that an adverb can appear between the subject and the verb. If we assume that manner adverbs are adjoined to vP, then the subject must have raised to SpecTP.

(45)  Keoi5 hou2 ming4hin2 gam2 bei6hoi lei5 laa1. [Cantonese, (Sio & Tang, 2007)]
     s/he very clear ADV avoid you SFP
     ‘He/She is avoiding you very clearly (in a clear manner).’

(46)

We take a short excursion here to refine our concept of movement originally presented in chapter 5. Currently our model of grammar consists of a dynamic derivation that is built up until the sentence is completed. This sentence is then handed over to another module where the phonological properties are determined. Note that many aspects of the phonology (such as prosody) are dependent on the whole sentence, so it must be done at the end of the derivation after the sentence is built. Consider the following examples. Observe the difference in prosody between the following declarative and the interrogative sentences. This kind of phonetic information can only be determined once the sentence is formed.
(47) a. John ate an apple.      b. Did John eat an apple?

The effects of prosody can be understood clearly in the following two Korean examples. Note that the only distinction between the declarative and interrogative forms is the prosody. The word order and morphological structure is otherwise identical between the two forms. Below the examples the pitch tracks for these two examples are shown, respectively. Notice how the pitch rises significantly in the interrogative form.

     Minsoo-NOM apple-ACC eat-PST-INFORM-POLITE Minsoo-NOM apple-ACC eat-PST-INFORM-POLITE
     ‘Minsoo ate an apple.’       ‘Did Minsoo eat an apple?’

We call the module where phonetic and phonological information is processed **Phonetic Form or PF**. PF ultimately is responsible for producing a representation that body’s speech apparatus can interpret. We can depict this model as follows.
Once the derivation is complete, it must also be given a meaning. So, we assume that another module of grammar gives the derivation a meaning and ultimately interfaces with the mind’s system of thought. We call this module \textit{Logical Form} or \textit{LF}. We now depict the model as follows.

Notice that the derivation splits in two and that one copy is sent to PF (blue line) and another copy is sent to LF (red line). The point at which this happens is called \textit{Spell-Out}. Notice that the red line does not feed PF. So any operations that take place in this component of the grammar will have no effect on PF. That is to say, there is no effect on the linear order of words in the sentence. We call any movement that happens at this stage in the derivation (that is, along the red line) \textit{LF movement} or \textit{covert movement}. Movement that takes place before Spell-Out is referred to as \textit{overt movement}. As an example of covert movement that affects meaning, consider the following sentence.

(49) Someone read every book.

a. There is one person who read every book
b. For every book, there is someone or other who read it.

This sentence has the two meanings indicated. The two meanings are said to arise by covert movement of the phrase \textit{every book}. We will not discuss the syntax and semantics of quantifiers here; however, we can understand the two different meanings to arise by different LF structures. Here are the approximate structures.

\begin{align*}
(50) \quad & a. \quad [CP [TP \text{ someone}, \ [VP \text{ read [VP [DP every book]]]]] ] \\
& b. \quad [CP [TP [DP every book], [TP \text{ someone}, \ [VP \text{ read [VP t ]]]] ]]
\end{align*}

(50)a is understood as follows. There is someone such that that person read every book. In order to get this interpretation, \textit{someone} must c-command \textit{every book} at LF. (50)b, conversely, is understood in the following way. For every book, there is someone who read it, but not necessarily the same person for each book. To get this interpretation, \textit{every book} must c-command \textit{someone} at LF. Prosody, discussed above, and quantifier interactions are just two of the processes that are ascribed to PF and LF, respectively.
Returning to our Cantonese example, let us assume that the \textit{wh}-phrase raises to the specifier of CP at LF, thus having no effect at PF. (Evidence for this will be presented in the later in this chapter when we discuss constraints on \textit{wh}-movement.) This gives rise to the following structure, where the dashed line refers to LF movement.

\begin{itemize}
\item \textbf{structure at Spell-Out (and PF)}
\end{itemize}

\begin{itemize}
\item \textbf{structure at LF}
\end{itemize}

We can now address an issue with the \textit{Wh}-Criterion that was left unsettled. Some languages satisfy the \textit{Wh}-Criterion \textit{overtly} (English, Italian, German, Chamorro, etc.) other languages satisfy the \textit{Wh}-Criterion \textit{covertly}, that is at LF – these are the \textit{wh-in-situ} languages (Mandarin, Cantonese, Korean, Japanese, Thai, Vietnamese, Tamil, etc.). Here is the revised \textit{Wh}-Criterion.

\begin{itemize}
\item \textbf{Wh-Criterion (final version):} A \textit{[+\textit{wh}]} feature in C must be checked by an XP bearing a \textit{[+\textit{wh}]} feature, where checking takes place in the specifier of CP either overtly (if the EPP is active on \textit{wh-C}) or at LF (if the EPP is inactive on \textit{wh-C}).
\end{itemize}
To understand why LF movement is important for interpretation, consider the following Mandarin example. This sentence is three-ways ambiguous, with the interpretations given below. The first interpretation is declarative and the following two are interrogative. Example answers are given for the two interrogative interpretations. Recall from example (26) above that matrix questions are formed by movement of a wh-phrase to the specifier of the matrix CP and embedded questions are formed by movement of a wh-phrase to the specifier of an embedded CP. Since Mandarin is wh-in-situ. This movement must take place at LF to get the correct interpretations. The three LF structures are shown below.

(52) Nǐ xiāng-zhīdào shéi mǎi-le shénme.
you want-know who buy-perf what

i. ‘You wonder who bought what.’
ii. ‘What is the x such that you wonder who bought x?’ answer: I wonder who bought the apples.
iii. ‘Who is the x such that you wonder what x bought?’ answer: I wonder what Susan bought.

(53) a. [CP Nǐ xiāng-zhīdào [CP shéi, shénme, tī mǎi-le tī]]
b. [CP shénme [CP Nǐ xiāng-zhīdào [CP shéi, tī mǎi-le tī]]]
c. [CP shéi, Nǐ xiāng-zhīdào [CP shénme, tī mǎi-le tī]]

As an exercise, let’s consider the following pair of sentences. How would these sentences appear in a wh-in-situ language?

(54) a. Mary decided what Peter should buy.
b. What did Mary decide that Peter should buy?

In wh-in-situ languages, the wh-phrase does not move overtly, so we predict that both sentences have roughly the same word order. Here are the two sentences in Japanese, remembering that Japanese is an SOV language (see p. 38 for information on Japanese).

(55) a. Mary-wa [Peter-ga nani-o kau-beki-ka] kime-mashi-ta
Mary-TOP [Peter-NOM what-ACC buy-should-Q] decide-POLITE-PST
‘Mary decided what Peter should buy.’

b. Mary-wa [Peter-ga nani-o kau-beki-to] kime-mashi-ta-ka
Mary-TOP [Peter-NOM what-ACC buy-should-DECL] decide-POLITE-PST-Q
‘What did Mary decide that Peter should buy?’

These two sentences are disambiguated only by the particles on the verbs. In the first sentence, decide takes a CP complement with a [+wh] feature. This is shown by the morpheme ka (marked Q) on the embedded verb. In the second sentence, the matrix verb has a [+wh] feature. Thus, in English, the wh-phrase raises to the matrix CP, and in Japanese the morpheme ka appears on the matrix verb. It is helpful to consider the tree
structures for these sentences. (Note for simplicity, we have left off the politeness marker *mashi.* ) The arrow in the English example shows the *wh*-movement and the circle in the Japanese example show the *wh*-phrase *in situ* while the dotted line shows LF movement.
8.2.2  *Multiple Wh-Movement*

Recall that if the specifier of CP is already filled with a *wh*-phrase, other *wh*-phrases, in English must remain *in-situ*.

(56)    I wonder who bought what.

Some languages allow several *wh*-phrases to appear at the left edge of the clause. Consider the following data.

(57)    a.  Kogo kakvo e pital Ivan
whom what AUX asked Ivan
‘Who did Ivan ask what?’

b.  * Kogo e pital Ivan kakvo
whom AUX asked Ivan what
(‘Who did Ivan ask what?’)
These languages exhibit *multiple wh-movement*. In Bulgarian, all *wh*-phrases must raise to the specifier of CP in multiple *wh*-questions. In Polish, on the other hand, at least one *wh*-phrase must raise – the other(s) may also raise or may stay *in-situ*. Both Bulgarian and Polish have SVO order, indicating that the object *wh*-words in the a. examples are not in their base positions. The majority of Slavic languages as well as the languages of the Balkan sprachbund exhibit multiple *wh*-movement (see p. 275 for information on Balkan languages and sprachbunds). One account of multiple *wh*-constructions is to assume that CP can have multiple specifiers in these languages.

(58) a. kto co widzi
   who-NOM what-ACC sees

   ‘Who sees what?’

   b. kto widzi co
      who-NOM sees what-ACC

      ‘Who sees what?’

Note the following restrictions on the order of the *wh*-phrases. When more than one *wh*-phrase moves to the specifier of CP, the order of the *wh*-phrases reflects the c-command relations of their base positions.

(59)

Each specifier is filled with a *wh*-phrase. If there are three *wh*-phrases, then there are three specifiers for CP.

(60) a. Kogo kakvo e pital Ivan
    whom what AUX asked Ivan

    ‘Who did Ivan ask what?’

    b. * Kakvo kogo e pital Ivan kakvo
       what whom AUX asked Ivan

       (‘Who did Ivan ask what?’)

Consider the following tree for (60)a. Note that the auxiliary in Bulgarian is second position clitic (see Interchapter F), so we will not represent it in the tree. Furthermore, Bulgarian has V-to-T movement, but we will not present the evidence here. Observe that the order of the object *wh*-phrases respects the order in which they were merged into the derivation. This property is called *superiority*. 
8.3 Relative Clauses

A relative clause is an adjunct to a noun that modifies that noun in some way. In the following sentences, the relative clause is shown in italics and the head noun is underlined.

(62) The book which Peter read  The juice which Mary bought  The boy who saw the elephant  The day when Mary met Peter

Notice that relative clauses involve *wh*-movement, too. The *wh*-phrase is co-indexed with the head noun that the relative clause modifies. Consider the following example with the structure given below.

(63) The book which Peter reads $t_i$. 

The indirect object $c$-commands the direct object in the positions in which they are first merged. Thus, the indirect object appears in the higher specifier of CP, and the direct object appears in the lower specifier.
There are two important observations about the structure of relative clauses. First, note that the relative clause itself is adjoined to the NP. Second, note that the head noun (book in the example above) must correspond thematically to the extraction site in the relative clause. The extraction site is the position which the relative pronoun (which in the example above) raises from. In the example above, the relative pronoun originated as the complement to the verb read, where it received a θ-role, which it then transfers to the head noun. This is how we understand the book as the thing that was read.

Before continuing, let us examine the constituency properties of this construction. The structure suggests that the string of words book which Peter read is a constituent. Consider the following example.

(64) These books that Peter read and those ones

The one-replacement test shows that this string of words is indeed a constituent. Convince yourself that if the relative clause were adjoined to the DP it would make the wrong prediction with respect to the one-replacement test.
Relative clauses in English can also be formed with the complementizer *that* rather than with a relative pronoun or can simply be bare, with no complementizer or relative pronoun. In these situations, we assume that there is a phonologically null operator that raises from the extraction site to the specifier of the CP of the relative clause, just as we saw for the relative pronouns above. Consider the following examples.

\[(65)\] the boy \(\text{Op}_i(\text{that})\) Mary talked to \(t_i\). \(\text{(Op} = \text{operator)}\)

Note that piedpiping is impossible in *that* relative clauses in English.

\[(66)\] the boy who Peter was talking to

the boy to whom Peter was talking

the boy that Peter was talking to

* the boy to that Peter was talking

Some bare subject relatives from TV and film:

It was beauty killed the beast. [King Kong]

I’m the kind of man likes to know who’s buying his drinks. [The Shining]

And Charlie. There’s not a day goes by I don’t think of him [Rose Nylund, The Golden Girls]
Note that complementizer must be overt with subject relatives in Standard English, but some dialects do tolerate bare subject relative clauses, as shown in the box in the margin.

\[(67) \quad \text{the boy Op, that Peter saw \(t\)}
\]
\[
\text{the boy Op, Peter saw \(t\)}
\]
\[
\text{the boy Op, that \(t\) saw Peter}
\]
\[
\ast \text{the boy Op, \(t\) saw Peter}
\]

To summarize, a relative clause adjoining to an NP. The specifier of the CP of the relative clause contains a relative pronoun. In English, the available relative pronouns are *who*, *which*, or a null operator, Op. When the relative clause is introduced by a null operator in English, the complementizer, *that*, may be overt. In the case of subject relatives, the complementizer is obligatory (though see the box above to the right). We come back to the notion of ‘subject relative’ and ‘object relative’ later in the discussion.

### 8.3.1 Pre-nominal Relative Clauses

Languages vary in their placement of relative clauses. Recall that one of the correlates of SVO versus SOV word order is the placement of relative clauses with respect to the head noun. Japanese, you may recall, is SOV and thus exhibits pre-nominal relative clauses.

\[(68) \quad \text{[Peter-ga yon-da ] hon [Japanese]}
\]
\[
\text{Peter-NOM read-PST book}
\]
\[
\text{‘the book that Peter read.’}
\]

Mandarin (see p. 85) is exceptional in that it is SVO, like English, but has pre-nominal relative clauses since the relative clauses, like Japanese. Relative clauses in Mandarin are introduced by the particle *de*.

\[(69) \quad \text{a. shūo yīngyǔ de xuēsheng [Mandarin]}
\]
\[
\text{speaks English REL student}
\]
\[
\text{‘the student who speaks English’}
\]

\[
\text{b. tā kàn-jìàn de rén}
\]
\[
\text{s/he see-ASP REL person}
\]
\[
\text{‘the person who s/he saw’}
\]
### 8.3.2 Accessibility Hierarchy

Languages differ in terms of what elements in the clause are available for relativization. There is a hierarchy of types of elements that can be relativized called the *accessibility hierarchy* (see Comrie, 1989 for a clear discussion). All languages can relativize the first item on the list – the subject. Most can relativize the second – the object. Of those, many can relativize the third – indirect object. Of those, some can relativize the fourth, and so forth. Languages, in general, start at the top of the list and move down. Thus, if a given language can relativize any given element on the hierarchy, it can relativize anything higher in the hierarchy. There are some exceptions to this generalization, however, so the accessibility hierarchy is not a true universal, but rather a strong tendency. Here is the order of the hierarchy, with some English examples provided.

(70)  
<table>
<thead>
<tr>
<th>Type of Element</th>
<th>English Example</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>the boy who <em>saw</em> Peter.</td>
<td>(subject of <em>see</em> is extracted)</td>
</tr>
<tr>
<td>Object</td>
<td>the boy who <em>Peter saw</em></td>
<td>(object of <em>see</em> is extracted)</td>
</tr>
<tr>
<td>Indirect object</td>
<td>the boy who <em>Peter gave the book to</em></td>
<td>(indirect object and object of a preposition not distinguished in the original proposal and are referred to as non-direct objects)</td>
</tr>
<tr>
<td>Object of a preposition</td>
<td>the table which <em>Peter worked on</em></td>
<td></td>
</tr>
<tr>
<td>Possessor</td>
<td>the boy whose <em>book Peter stole</em></td>
<td></td>
</tr>
<tr>
<td>Object of comparison</td>
<td>the boy that <em>Susan is taller than</em></td>
<td>(not part of original proposal of the Accessibility Hierarchy)</td>
</tr>
</tbody>
</table>

English is quite flexible in terms of its ability to relativize almost anything. Let’s look at a language which can relativize only subjects, Malagasy.

(71)  
<table>
<thead>
<tr>
<th>Malagasy Example</th>
<th>English Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Nahita ny vehivavy ny mpianatra</td>
<td>The student saw the woman.</td>
</tr>
<tr>
<td>b. ny mpianatra [izay nahita ny vehivavy]</td>
<td>‘the student who saw the woman’ (NOT: ‘the student who the woman saw’)</td>
</tr>
</tbody>
</table>

Because of the VOS order in Malagasy, one might think that the construction in (71)b is ambiguous. Because object relatives are not available in Malagasy, (71)b is not ambiguous. Compare the extraction sites for SVO, SOV, and VOS languages.

<table>
<thead>
<tr>
<th>Language</th>
<th>SVO</th>
<th>VOS</th>
<th>SOV</th>
</tr>
</thead>
</table>

Notice that for SVO languages, the order of the elements in a subject relative is V DP. In an object relative, the order is DP V. In VOS languages, the order for both is V DP and in SOV languages, the order is DP V. Now, in the majority of situations, pragmatics or context can disambiguate these constructions. In the case of Malagasy, however, object relatives are not available, so no ambiguity arises. In some languages, overt case marking will disambiguate the constructions. Consider the following German example.
Die Frau, [die Peter gesehen hat]  the woman REL Peter seen has  ‘the woman [that saw Peter]’ OR ‘the woman [that Peter saw]’

Recall that German is SOV in embedded clauses (importantly, this includes relative clauses). Thus, here are the two derivations. Notice that the trace is in a different spot in each sentence, but that the linear order of the overt words is the same in both constructions.

(73) a. Die Frau, [Op, die Peter t₁ gesehen hat]  b. Die Frau, [Op, die t₁ Peter gesehen hat]  
the woman REL Peter seen has the woman REL Peter seen has  ‘the woman [Op, that Peter saw t₁]’  ‘the woman [Op, that t₁ saw Peter]’

The next example comes from Kinyarwanda, which allows subject and object relative clauses, but not non-direct objects.

(74) a. N-a-bonye umugabo [w-a-kubise abagore]  
I-PST-see man REL-PST-strike woman  ‘I saw the man who struck the woman.’

b. N-a-bonye abagore [Yohani yakubise]  
I-PST-see woman [John he.struck]  ‘I saw the woman that John struck.’

These examples show a subject relative and object relative, respectively.

8.3.3 Internally-Headed Relative Clauses (advanced)

Until now, we have been looking at externally-headed relative clauses, where the relativized noun (red in the following example) is outside of the relative clause:

(75) The book [rel clause that Peter read]

Some languages exhibit what are called internally-headed relative clauses, where the head noun appears inside the relative clause. Conceptually, we can think of this as shown in the following example. The actual relative clause is enclosed in a circle. This clearly shows the differences in structural relationships between these two types of relative clauses. Notice also that the externally-headed relative clauses are adjoined to NP as explained above and that the internally-headed relative clauses are the complement to D.
Bambara offers a clear example of an internally/headed relative clause. Consider the following examples (cited in Comrie, 1989: 145).

(77) a.  N  yes so ye    b.  Tyɛ́ be [ n ye so min ye] dyɔ
I                   man     I PST house see build
‘I saw the house.’       ‘He is building the house that I saw.’

To highlight the properties of the construction, the head noun is underlined and the relative clause is red. Observe that the head noun is contained within the relative clause in the Bambara sentence.

If you examine the schema for the structure of the internally-headed relative clause in (76)b, you will notice that there is a D head at the edge of the relative clause. In many languages internally-headed relative clauses are introduced with a determiner or demonstrative. Consider the following Lakhota data (Williamson, 1984). Again the head nouns are underlined and the relative clause is red. The determiner elements are in boldface. Note that Lakhota is an SOV language, so we expect the D head to be on the right of the CP.

(78) Mary owiža wa kağe ki he ophewathu.
Mary   quilt   a make the   DEM   I like
‘I bought the quilt that Mary made.’

Notice that demonstratives and determiners must be kept separate in Lakhota. We will not worry about this fact of Siouan grammar here.

Case marking may play a role in the difference between internally- and externally-headed relative clauses. Consider the following Korean data (see p. 93 for more information on Korean). Again, the head nouns are underlined and the relative clauses are red.

Lakhota is a Siouan language spoken in southern Manitoba, North Dakota, South Dakota, northern Nebraska, northeastern Montana, and southern Minnesota. It is an SOV language and is spoken by approximately 6 000 people. Lakhota was made popular in the Hollywood Film Dances with Wolves.

Bambara is a Niger-Congo language spoken in Mali and neighbouring countries. It is an SOV language.
I-TOP robber-NOM bank-from come.out-REL thing-ACC caught
'I arrested the robber who was coming out of the bank.'

The first example contains an internally-headed relative clause. Recall that one of the clues for internally-headed relative clauses is that they are introduced by determiner morphology (kes-ul in this example. (Note that the true characterization of kes is still a matter of debate, so we enclose the gloss in brackets to indicate its unclear status.). The head of this relative clause is kangto-ya ('robber'). Since it is internally-headed, it receives Case from its position inside the relative clause. In this case it is assigned nominative Case since it is the subject of nao-nun ('come out'). In (79)b, however, kang-to is the head of an externally-headed relative clause, and it is assigned Case according to its position in the matrix clause. In this case, it is the direct object of capassta ('catch') and, so, is assigned accusative Case.

8.4 Restrictions on wh-movement

Recall that wh-movement is unbounded.

(80) Which hat did John say Susan thought Mary should persuade Peter to buy?

Wh-movement, however, is not a free-for-all. There are constraints on movement. Recall, for instance, that the successive cyclic nature of wh-movement requires it to target the specifier of every CP on its way to surface position. Thus, if there is another wh-phrase in the way, movement is blocked. In the early influential work, Ross (1967) deduced several independent conditions on movement. We examine here these conditions as they apply to wh-movement. In each case, the relevant structure is in italics.

I Complex DP Constraint

This constraint states that extraction cannot take place from inside a complex DP. A complex DP is one that contains an embedded clause or a definite determiner, but not an indefinite determiner. Consider the following examples.

(81) a. * What do you believe [DP the claim that Mary stole t_i]
   c. * Who did you see [DP a picture of t_i]
   e. * What did you make [DP the claim that Mary stole t_i]?
   b. * Who did you see [CP the picture of t_i]
   d. * What did you claim [CP that Mary stole t_i]?
Examples (81)b. and c. illustrate the fact that extraction out of a definite DP is generally ungrammatical, while extraction out of an indefinite DP is fully acceptable. Note, however, that some languages do not allow extraction out of a DP at all. Examples (81)a. and e. show that extraction out of a clause contained within a DP is ungrammatical.

II Subject Constraint

This constraint states that extraction out of a subject is not possible. The following data show several examples where extraction out of a subject is barred. The first example again shows that extraction out of a DP object is fine. Note, however, that if the subject is extraposed as in (82)e, then extraction is once again acceptable.

(82)  a.  i.  John put a picture of Dracula on the wall.
        ii.  Who did John put [a picture of ti] on the wall?

    b.  i.  A picture of Dracula frightened the children.
        ii.  * Who did [a picture of ti] frighten the children?

    c.  i.  I expected Mary to not to give up linguistics.
        ii.  What did you expect Mary not to give up ti?

    d.  i.  For you to give up linguistics would be a pity.
        ii.  * What would [for you to give up ti] be a pity?

    e.  i.  It would be a pity for you to give up linguistics.
        ii.  What would it be a pity [for you to give up ti]?

III Wh-Island Constraint

Movement cannot cross another wh-phrase. We have already seen this constraint at work earlier in the chapter. Here is another example.

(83)  * What do you know whether John likes ti?

Note also that movement cannot take place out of a relative clause. Consider the following examples.

(84)  a.  Mary talked to the man that built the house.
        b.  * What did Mary talk to the man that built ti?
This property of relative clauses is often attributed to the fact that it is a complex DP. Another way to think of this constraint is to reduce it to a *wh*-island violation. Recall that the relative clause must have either an operator or an overt relative pronoun in its specifier. Thus, the ungrammatical sentence has the following structure.

c.  * Who, did Mary talk to the man [Op, that tj built tj ]?

The *wh*-phrase *who* must target the specifier of the CP in the relative clause, but it already contains an operator, so movement is blocked.

This is a shortened list of all the constraints that Ross originally discussed. Since Ross’ seminal discussion on the constraints of movement, linguists have been trying to come up with a unified explanation for the various constraints. Since this is still a matter of ongoing research, we will only consider the issues in brief detail and leave some points unresolved. One influential proposal to capture island effects is to postulate a set of *phase heads*, {C, D}. Once a phase head is reached, any element that wishes to escape the phase must move the edge of the phase – the specifier of CP or DP (in the case of head movement, C and D). Once movement is complete, the sister to the phase head undergoes Spell-Out and is sent to PF and LF, respectively.

---

**Phase Heads: C and D**

Let’s consider a hypothetical example. In the following example, C is the phase head. Once all movement to CP is complete, then the sister to the phase head, TP, undergoes Spell-Out and is sent to PF and LF. It is no longer accessible to the syntax at this point. The elements in blue are at the edge of the phase and are available for further operations. Thus, XP can raise further if necessary; however, DP is frozen in place.

(85)

The CP at the top of the derivation continues to participate in further operations. For instance, it can merge with another verb that takes a clausal complement and the XP can continue to raise to the next CP. If there are no more operations and the derivation is finished, then the portion in blue simply undergoes Spell-Out and is sent to PF and LF.
Now let’s work through an actual example. Consider the following sentence.

(86) Who do you think that Peter saw?

1. The wh-phrase moves to the specifier of the embedded CP – the edge of the lower C phase head.
2. The lower TP is Spelled-Out and sent to PF and LF.
3. The wh-phrase moves to the specifier of the matrix CP – the edge of the matrix C phase head.
4. The matrix TP is Spelled-Out and sent to PF and LF.
5. With no more operations, the remainder of the tree (in black) is Spelled-Out.
There are two phase heads that the *wh*-phrase targets (shown in circles). Thus, movement takes place *successively cyclically*, targeting the specifier of every CP, that is, the specifier of every phase head on its way to its surface position. Consider next a DP island violation. As mentioned above, the following example illustrates that extraction out of a definite DP is generally ungrammatical.

(87) * Who did John see the picture of *?

This assumes that the *wh*-phrase cannot target the specifier of DP for *wh*-movement. Without the possibility of stopping off in the specifier of DP, the *wh*-phrase cannot escape the lower DP phase, shown in red. Not all DPs are islands, of course. Consider the following example.

(88) Who did John see a picture of *?
Why is extraction out of this DP fine? We will say more about this at the end of the chapter in the advanced reading section; however, we can offer the following solution right away. Contrast the following two sentences.

(89)  

a. [[How big], a \( t_i \) house] did John buy?  
b. * [[How big], the \( t_i \) house] did John buy?  
c. John bought [a [very big] house].  
d. John bought [the [very big] house].

Interrogative adjective phrases raise to the specifier of an indefinite DP, but not a definite DP. Thus, we propose that the specifier of DP can be used as an escape hatch only when it is indefinite. The reasons for this are still not completely understood. Here is the derivation.
Finally, we will look at subject islands. We won’t present an analysis here. Rather, we will merely illustrate the phenomenon. At the end of this chapter we come back to one proposal that ties the subject island effect with definite DP islands. We stress again that this is still a matter of ongoing research and that these issues are not settled. Consider the following examples.

(90)  

a. A picture of Dracula frightened the children.

b. *Who, did [a picture of Dracula] frighten the children?

Before leaving this section, we make a note above resumptive pronouns in English. In casual speech, a resumptive pronoun can rescue an island violation. Compare the following sentences.
(91) a. Where are those files\(^1\) that I can never remember where I put them\(^1\)?
   b. * Where are those files Op, that I can never remember where I put it?

Consider first the sentence in (91)b. Why is this sentence ungrammatical? Notice that the trace of the operator must cross the wh-phrase where to reach the specifier of the CP of the relative clause.

(92) * Where are those files \([\text{CP} \text{Op, that I can never remember [\text{CP} \text{where I put it}]}]\)??

Thus, when the operator attempts to move to its surface position, it is blocked the the wh-phrase in the specifier of the intermediate CP. Such violations can be rescued in English by the presence of a resumptive pronoun, as in (91)a.

(93) Where are those files \([\text{CP Op, that I can never remember [\text{CP} \text{where I put them}]}]\)??

Although the exact mechanism of resumptive pronouns is not fully understood, it has been suggested that the operator does not move to the specifier of CP, but rather is merged directly there and forms a chain with the resumptive pronoun (shown by the dotted line). Since no movement takes place, there is no wh-island violation.

8.4.1 Cross-Over Effects (advanced)

We will now look at some interactions between wh-phrases and bound pronouns. By bound, we mean that the pronoun co-references to a DP that c-commands it. We can define binding more formally as follows.

(94) A binds B iff:
   i) A c-commands B, and
   ii) A and B are coreferential

We indicate co-reference by use of superscripts. We use numbers here to keep them distinct from the subscripted indices that show movement. Consider first the following example.

(95) a. John\(^1\) thinks that he\(^{1/2}\) is a genius.       b. John\(^1\) saw himself\(^4\) in the mirror.

In (95)a, he refers either to John (indicated by the superscript \(^1\)) or to any other human male (indicated by the superscript \(^{1/2}\)). In (95)b, himself must refer to John – again as indicated by the superscript.
Pronouns can also be coreferential with a *wh*-expression. (In this case, the pronouns are referred to as *bound variables*, which we saw in Chapter 4 in the discussion of ditransitive verbs. See also p. 16 for a discussion on singular *they*, which is found in the following examples.)

(96)  a. Who	extsuperscript{1},	extit{i} loves their	extsuperscript{1} mother?  
      b. Who	extsuperscript{1},	extit{i} loves themself	extsuperscript{1}?

These sentences can be schematized as follows: *Who is the ‘x’ such that x loves x’s mother?’ and *Who is the ‘x’ such that x loves x?’ If you think of x as a variable (as in algebra), then we see why the pronouns here are called bound variables. A possible answer for the first question is: *John loves his mother and Susan loves her mother.* Now consider the following data.

(97)  a. * Who	extsuperscript{1}, do they	extsuperscript{1} love $t$?
      b. ? Who	extsuperscript{1}, does their	extsuperscript{1} mother love $t$?

In contrast to the previous examples, (97)a is sharply ungrammatical and (97)b is mildly ungrammatical. What is the difference between this example and the previous two? We have included the trace of *wh*-movement in these examples to make the point clear. In (97)a, the *wh*-phrase has raised past a coreferential pronoun (i.e., a bound variable) that c/commands the trace, and in (97)b, the *wh*-phrase has raised past a coreferential pronoun that does not c-command the trace. This is shown in the following trees. The first sentence is an example of *Strong Cross Over* and is so called because the ungrammaticality is felt strongly by most speakers. The second sentence is an example of *Weak Cross Over* and is so called because the ungrammaticality is felt more weakly.

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Pronoun binds trace of *wh*-movement $\rightarrow$ Strong Cross Over violation (SCO)
We can use the notion of Strong and Weak Cross Over to adduce support for LF movement of *wh*-phrases in *wh*-in *situ* languages. Consider the following Cantonese data (see p. 19 for more information on Cantonese).

(98)  *keoi* ma sek bingol
3.SG mother love who
( *Who, does their,mother love?*)

Consider the tree for this sentence.
The fact that the Cantonese sentence incurs a WCO violation supports the hypothesis that the wh-phrase raises to CP at LF.

8.4.2 Definite and Indefinite DPs (advanced)

Recall that extraction out of definite DP is ungrammatical because the wh-phrase cannot escape the DP phase. Recall that extraction out of an indefinite DP is grammatical, as long as it’s not in subject position. The forthcoming analysis is inspired by Davies and Dubinsky (2003).

(99) a. Who, did John see [a picture of t₁]?  b. * Who, did John see [the picture the of t₁]?

We assumed that only indefinite DPs could host a wh-phrase in its specifier, thereby allowing the wh-phrase to escape into the next higher phase. This still doesn’t explain why extraction out of the indefinite DP in subject position is ungrammatical, though. Earlier in the chapter, we left subject island effects as an unexplained mystery. Here, we take up the idea again.

The first part of the argument concerns the structure of DPs and the identity of the indefinite determiner a. Note that in many languages, the indefinite determiner is identical to the number one.

(100) a. ein Buch  [German]
    one/a book
    ‘one/a book’
b. un livre [French]
one/a book
‘one/a book’
c. uno libro [Spanish]
one/a book
‘one/a book’

Also, we know that the definite determiner precedes numbers in nominal phrases.

(101) the two books the seven apples etc.

Let us propose, then, the following structure for DPs, where NumP stands for Number Phrase and the indefinite *article, a*, is a Num rather than a D. Notice I have now called *a* an indefinite article rather than a determiner to highlight the fact that it is a Num rather than a D.

(102) 
\[ \text{DP} \]
\[ \text{D} \quad \text{NumP} \]
\[ \text{Num} \quad \text{NP} \]

Let us propose, then, that an indefinite DP can consist of just a NumP. This would give us the following structure for (99)a.
Now, we consider what blocks movement out of the subject, including indefinite subjects. Recall that the EPP requires that the specifier of TP be filled with a DP. This is the key to the solution. If the specifier of TP must be filled with a DP, then all subjects, including indefinite DP subjects must project a DP. The structure for (99)c is as follows.
Key Concepts

Wh-Criterion: A constraint whereby the specifier of a [+wh] CP must be filled by a wh-phrase.

wh-in situ: A phenomenon in which wh-phrases do not raise to SpecCP in the overt syntax.

Multiple Wh-Movement: A phenomenon in which all wh-phrases move to the left edge of the clause.

relative clause: A clause containing a thematically empty position and which modifies a noun (called the head noun). The head noun corefers to an operator extracted from this thematically empty position.

Island: A syntactic phrase out of which movement cannot take place.
Phase Head: The phase heads are C and D. The sister of a phase head undergoes Spell-Out and is not longer accessible to the derivation.

Strong Cross Over: A phenomenon in which *wh*-movement over a c-commanding coreferential pronoun results in ungrammaticality.

Weak Cross Over: A phenomenon in which *wh*-movement over a non-c-commanding coreferential pronoun results in mild ungrammaticality.

Further Reading

Cheng, L. L.-S. (1991) This dissertation is the original source of the Wh-Criterion.

Chomsky, N. (1977) This paper lays the groundwork for our current understanding of *wh*-movement.

Davies W. D. & S. Dubinsky (2003) This paper is the foundation for our understanding of definite DP islands in this textbook.

Huang, J. (1982) This dissertation first proposed an LF movement analysis for *wh*-phrases in Chinese.

McDaniel, D. (1989) This paper contains an in depth discussion on various aspects of German and Romani *wh*-questions, including partial movement briefly discussed here. Although the analysis is quite technical, the empirical facts are clearly laid out and the discussion should be accessible once the concepts in this chapter are mastered.

Rizzi, L. (1990) This is an in depth monograph dealing with constraints both on *wh*-movement and other kinds of movement. Many of the issues discussed here still form the foundation of current syntactic theory.

Ross, J. (1967) This dissertation is the source of many of constraints on movement that are still discussed today.

Rudin, C. (1988) This article discusses the syntax of multiple *wh*-movement languages.

Watanabe, A. (2001) This review article gives an excellent overview of different approaches to *wh* in situ languages. Although some of the discussion is rather technical, it does clearly explain some differences between different kinds of *wh* in situ languages.
Exercises

1. Draw trees for the following sentences.
   a. Who did you visit?
   b. Which sword did Stephen give to George?
   c. What does John think that Susan bought?
   d. Which book was given to John?
   e. Who was given a new car?
   f. Who was John told that Susan likes?
   g. Which car do you think was stolen from their driveway?
   h. The book which Mary read was purchased in Chicago.
   i. Did you eat the pear that I bought?
   j. I like the hat that John thinks Mary bought.
   k. The teacher recommended the student who wrote a report on unaccusative verbs.
   l. Who knows who ate the apple that Mary bought?
   m. Which book about physics that Hawking wrote was borrowed from the library?
   n. Which car that was stolen from that house was found behind the mall?

2. The following sentences are ambiguous. What are the meanings? Draw the tree structure for each meaning. For the second sentence, draw the two LF trees that correspond to the two different meanings.
   a. When did Mary decide that John should visit Montreal?
   b. Who wonders who bought what? (hint: search for “Baker’s Ambiguity” online if you want a hint…this one is tricky!)

3. Draw trees for the following French sentences.
   a. Quelle livre as-tu lu?
      (the hyphenation between as and tu is an orthographic convention of French
      treat these as two separate words)
      ‘Which book have you read?’
   b. Marie sait dans quelle maison Pierre habite.
      Mary knows in which house Peter lives
      ‘Mary knows which house Peter lives in.’
4. Draw a tree for the following Japanese sentence. Explain how the Wh-Criterion is satisfied in this sentence.

a. Makiko-wa Kenji-ga nani-o kat ta to omot te ka.
   Makiko-TOP Kenji-NOM what-ACC buy PST COMP think PRS Q
   ‘What does Makiko think that Kenji bought?’

5. Why are the following sentences ungrammatical? Make sure you explain as clearly as possible what principle(s) of grammar they violate.

a. * What does John wonder why Mary bought?
   b. * Who did you see the picture of?
   c. * Which car did the driver of cause an accident?

6. Consider the following data from Tok Pisin. Tok Pisin is an SVO language.

a. yutupela sutim husat tru?  b. yu lukim wanem?
   2.DU shot who really 2.SG see what
   ‘Who did you two really shoot?’
   ‘What do you see?’

c. * wanem yu lukim?  d. wanem samting yu lukim?
   what 2.SG see what thing 2.SG see
   (‘What do you see?’)
   ‘What (thing) did you see?’

e. wanem banana yu lukim?
   what banana 2.SG see
   ‘What banana did you see?’

Characterize the wh-movement that is taking place here (use terms such as ‘wh-raising’, ‘wh-in situ,’ and ‘multiple wh-raising’). Does the type of wh-movement vary? If so, how? Briefly state your evidence. Now consider the following additional data in addition to the data above (husat can be translated as “who” or “which” in English).

f. *Husat yu givim banana long?  g. *Husat meri yu givim banana long?
   who 2.SG give banana to who woman 2.SG give banana to
   (‘Who did you give a banana to?’)
   (‘Which woman did you give the banana to?’)
h. * Husat yu givim banana long em?
   who 2.SG give banana to 3.SG
   (‘Who did you give the banana to?’)

i. Husat meri yu givim banana long em?
   who woman 2.SG give banana to 3.SG
   ‘Which woman did you give the banana to?’

j. yu givim banana long husat?
   2.SG give banana to who
   ‘Who did you give the banana to?’

Are there any other conditions on wh-movement that you can determine from all the data in this question?

7. Consider the following Tagalog data (see p. 156). The grammatical subject in Tagalog is marked with ang, and the verb agrees with the Case associated with the logical role of the grammatical subject. The aspect marker on the verb plays no role in this question. Note that the English translations are only approximate. In the first sentence the grammatical subject is also the logical subject, so there is nominative agreement on the verb. In the second sentence the grammatical subject is the logical object, so there is accusative agreement on the verb. Thus, the second sentence cannot be considered a passive in the usual sense.

a. B-um-ili   ang bata   ng tela   sa palengke   para sa nanay.
   buy-NOM,ASP-buy   DET child   DET cloth   DAT market   FOR DAT Mother
   ‘The child bought cloth at the market for Mother.’

   buy-ASP-buy-ACC   DET cloth   DET child   DAT market   FOR DAT Mother
   ‘The cloth was bought at the market by the child.’

Now consider the following data.

c. sino b-in-igy-an   ng lalaki   ng bulaklak?
   who give-ASP-give-DAT   DET man   DET flower
   ‘Who did the man give the flower to?’
These data suggest the *wh*-movement is restricted to grammatical subjects. Explain.
Interchapter G Romance Clitics

Recall that clitics were introduced in Interchapter F. Here we discuss clitics in Romance languages and introduce some more properties of clitics in general. Recall that clitics seem to be more like words than like morphemes in that their position in the sentence is relatively free; however, they cannot appear on their own. Another property of clitics is that they cannot be conjoined. We will see both of these properties in the data below. In Romance languages, object pronouns typically appear as clitics, we call these pronominal clitics. Let’s consider some examples that illustrate these properties.

(1) a. Pietro  la  mangia  [Italian]
Pietro  3SG.FEM  eat.3SG  ‘Pietro is eating it.’

b.  ti  qːas  tiru  [Sardinian]
2.SG.DAT  3.SG.FEM.ACC  throw.1SG  ‘I throw them to you.’

The bold-faced entities in (1) are clitics. Recall that we mentioned that clitics cannot stand alone. Regular DPs can form an utterance by themselves, while clitics need a host of some kind. The host acts like a phonological anchor for the clitic to latch on to. Consider the following example.

(2) Pierre  me  voit  [French]
Pierre  me  see.3SG  ‘Pierre sees me.’

In (2) me is a clitic like la is in (1). If someone asks the question, Qui est-ce que Pierre a vue? (‘Who did Pierre see?’) A full DP such as Marie is an appropriate answer, but me on its own is ungrammatical. One must answer moi, which is the non-clitic form of me in French.

Another property of clitics is that they cannot be conjoined. This is shown in the following example.

(3) * O  João  viu-  o  e  a  [Portuguese]
DET  João  saw  3.SG.M.ACC  and  3.SG.F.ACC  ‘João sees him and her.’

Again, to express this idea non-clitic forms of the pronominal clitics would have to be used.

One way to classify clitics is based on whether they attach to their host to the left or to the right. Clitics that attach to the right are called enclitics and clitics that attach to the left are called proclitics. Furthermore, mesoclitics

Most people are familiar with the Romance languages French, Spanish, Italian, Portuguese and Romanian. In this interchapter, we will see many examples from other lesser known Romance languages and dialects. Catalan is spoken in Eastern Spain, in and around the area of Barcelona. Galician is spoken in the north-west corner of Spain, directly north of Portugal. It is actually more closely related to Portuguese than to Spanish. Ligurian and Piedmontese are spoken in northern Italy. Sardinian is a Southern Romance language spoken on Sardinia. You may be surprised to learn that Sardinian is not a dialect of Italian.
appear word-internally (between a stem and other affixes). The term *endoclitic* refers to a clitic that appears directly inside the root, thus splitting it into two. Endoclitics are not found in Romance languages. Consider the following examples. (Note that the clitic is in **boldface** and the host is underlined.)

(4)  

a. Maria  **la**  comió     
Mary  3.SG.F.ACC  ate
‘Mary ate it.’

b. Maria  quiere  **comer la**
Mary  wants  eat.INF  3.SG.F.ACC
‘Mary wants to eat it.’

c. Maria  **come-lo-ia**
Mary  eat- 3.sg.m.acc  condit.3.sg
‘Mary would eat it.’

These three examples illustrate a proclitics, enclitic and mesoclitic, respectively.

We mentioned that pronominal clitics in Romance languages are typically objects; however, French also has subject pronominal clitics. Compare Portuguese with French below.

(5)  

a. tu e eu  vamos ao cinema     
you and I  go.1.PL.to.the cinema  
‘You and I are going to the cinema.’

b. *tu et j’  allons au cinéma     
you and I  go.1.PL.to.the cinema
(‘You and I are going to the cinema.’)

c. Toi et moi, **nous**  allons au cinéma.     
you and I  we go.1.PL.to.the cinema
‘You and I are going to the cinema.’

The fact that the subject pronominal forms cannot be conjoined shows that they are clitics and not standard pronouns. Piedmontese and Ligurian also exhibit subject clitics (data from Cochi & Poletto, 2002). Note that the subject clitic in the French example above is a proclitic to the verb, while the clitics in the following examples are enclitics to the complementizer.
a. A venta che Majo ch’a mangia pi’tant [Piedmontese]
it necessary that Majo that’3.SG.M.NOM eat.3SG more
‘It is necessary for Majo to eat more.’

b. Sperem che Gianni ch’u lese questu libru [Ligurian]
hope.1PL that Gianni that’3SG.M.NOM read.3SG this book
‘We hope that Gianni reads this book.’

Properties of Clitics:

i. cannot appear alone (must have a host)
ii. cannot be conjoined

The next topic we discuss is clitic climbing. Clitic climbing is a phenomenon in most Romance languages French being a notable exception) where the clitic that is the object of an embedded infinitive can appear in the matrix clause. Clitic climbing can take place only if the matrix verb is a modal or the verb want. Consider the following examples. Thus, although the clitic lo is thematically related to the verb mangiare (‘eat’) in (7)a, it can appear as a proclitic to the modal puo (‘can’) in the following example.

(7)  a. Gianni puo mangiar-lo [Italian]
      Gianni can eat-INF-3.SG.M.ACC
      ‘Gianni can eat it.’

b. Gianni lo puo mangiare
      Gianni 3.SG.M.ACC can eat.INF
      ‘Gianni can eat it.’

c. en Pere va intentar veure-les [Catalan]
    det Peter aux try.inf see.inf-3.pl.f.acc
    ‘Peter tried to see them.’

d. en Pere les va intentar veure
    det Peter 3.pl.f.acc aux try.inf see.inf
    ‘Peter tried to see them.’
Clitic Climbing: A phenomenon in which a clitic that is thematically related to one verb is cliticized to a structurally higher verb, modal or auxiliary.

The last topic we consider is clitic doubling, a robust phenomenon in many Romance languages. Consider the following examples.

(8)  

(a) le³ di el libro a Juan¹
3.SG.DAT give.1SG.PST the book to Juan
‘I gave the book to Juan.’

(b) L¹-am vazut pe Max¹ la film.
3.SG.M.ACC-have.1SG see.PART PE Max at.the movies
‘I saw Max at the movies.’

In (8), the clitic doubles a full DP, which means that both a full DP and a clitic that is co-indexed with the DP are present in the sentence. There are many semantic and syntactic factors that affect the distribution of clitic doubling, which you can learn about in the readings below.

Further Reading

Kayne, R. (1975) This monograph is one of the earliest generative analyses of French grammar. In contains an detailed discussion of clitics.

Monachesi, P. (2005) This monograph discusses the verbal complex in Romance languages in detail and includes in depth treatment of pronominal clitics.

Strozer J. (1976) This dissertation offers an in depth discussion and analysis of clitics in Spanish.
Chapter 9 Nonfinite Complementation

By the end of this chapter you should be able to:

- distinguish between raising and control verbs
- draw tree structures for both
- explain how DPs get Case and θ/roles in raising and control structures
- explain how Case is assigned in both types of structures
- be familiar with the phenomena of partial control, split control and non-obligatory control
- be familiar with control into subjunctive clauses (Balkan languages) and serial verb constructions
- be aware of some of the problems with PRO and the movement-based analysis solution to these problems.

9.1 Raising versus Control

So far we have not considered the structure of infinitives. We have the tools to construct the tree for a sentence such as *Mary decided that John should buy a new suit* but not *Mary wants John to buy a new suit*. The second sentence has an infinitive, *to buy*. Before we embark on the main goal of this chapter, let us consider the notion of an infinitive by looking at a few examples.

(1) a. Petra managed to fix the toaster.
    b. Travis tried to cook an omelette.
    c. Gerry told Alice to wait for five minutes.

(2) a. Petra fixed the toaster.
    b. Travis cooked an omelette.
    c. Gerry expected that Alice would wait for five minutes.

Looking just at example (1)a, we see that the verb *manage* appears with the past tense morpheme. The embedded verb appears with what we call an infinitival marker, *to*. We observe that infinitives cannot appear with tense morphology.

(3) * Petra managed to fixed the toaster.

Furthermore, agreement morphology cannot appear on the infinitive, either. Although English exhibits extremely impoverished verbal agreement, the third person singular form appears with the agreement marker *–s*, as shown on the matrix verb in the following example, but cannot appear on the embedded infinitive.

(4) * Petra manages to fixes five toasters a day.
What we observe is that tense and agreement features are in complementary distribution with the infinitive marker to. We suggest, then, that since to marks the lack of tense and agreement, it is the head of T and has the feature [-tense].

Let us consider some constituency tests to sharpen this idea further. Consider the following data.

(5)  
   a. John decided to [eat some spaghetti] and [drink some wine].
   b. Eat anchovies, John never would __, even though Ashleigh tried to __.

The first example shows that eat some spaghetti and drink some wine are constituents, and in fact look like run-of-the-mill vP constituents. The second example confirms this. This is an example of vP fronting, which strands the auxiliary at the end of the sentence. In a non-finite clause, it strands the infinitival marker to. These facts fall into place under the assumption that to is a tenseless T head. Thus, we have the following partial structure so far. The subject position (specifier of vP) is left empty as it is the topic of the next discussion.

(6)  

We will now consider the structure of infinitivals in detail. If we examine the following two pairs of sentences, we may initially suspect that a and b are structurally isomorphic, as are a’ and b’. That is, we suspect that each pair has the same structure and that the only difference between them is the matrix verb in each case.

(7)  
   a. Mary wants John to enter the race.  a’. Sally appears to live in a small apartment.
   b. Mary told John to enter the race.  b’. Sally decided to live in a small apartment.

One important similarity in each pair is that the understood subject of the infinitive is the same. In (7)a and b, we understand John to be the one entering the race. In (7)a’ and b’, we understand Sally to be the one living in the small apartment. There are, however, several structural differences between these two pairs of sentences. Let’s examine these first, then try to derive the different properties structurally.
9.1.1 Idiom Tests

Idioms are a useful diagnostic for many syntactic tests. It is important to note that idioms must appear as a unit upon initial merge. So, although they may be separated by a movement operation, they are still initially merged as a constituent to get the idiomatic reading. For our purposes, we require an idiom with a subject - these are not too common, but there are a few.

The idiom test must be executed with care. What we are trying to see is how the understood subject is related to the infinitival clause, hence the need for idioms with subjects. Here are the steps to formulating a test sentence.

a. Identify the DP that is coreferential with the subject of the infinitival clause.

   Mary wants John to enter the race.

b. Identify the infinitival clause and the corresponding portion of an idiom. That is, the TP without the subject.

   Mary wants John to enter the race. All hell broke loose.

c. Change the verb of the idiom to an infinitive.

   …to break loose

d. Replace the infinitival clause of the test sentence with the infinitival form of the idiom.

   Mary wants John to enter the race.
   Mary wants John to break loose.

e. Replace the understood subject of the embedded infinitival clause with the subject of the idiom.

   Mary wants John to break loose.
   Mary wants all hell to break loose.

Here is a summary of the test:

Mary wants John to enter the race. All hell broke loose.
To interpret the results of the test we see if the idiomatic reading is retained. Consider the following results. In (8), both the idiomatic and literal meanings are available. The first sentence, for example, could mean that Mary wants some secret to become known. In (9), however, the idiomatic meanings are not available.

(8)  
  a. Mary wants the cat to be out of the bag.  
  b. Mary wants the shit to hit the fan.  
  c. Mary wants all hell to break loose.  
  d. Mary wants tabs to be kept on John’s spending habits.

(9)  
  a. * Mary told the cat to be out of the bag.  
  b. * Mary told the shit to hit the fan.  
  c. * Mary told all hell to break loose.  
  d. * Mary told tabs to be kept on John’s spending habits.

In order for the idiomatic reading to hold, the idiom must be merged as a constituent. This suggests that the cat is part of the embedded clause in (8)a, but part of the matrix clause in (9)a. More specifically, we propose that the DP that appears immediately after the verb want is merged as the subject of the infinitive, while the DP that appears immediately after the verb tell is merged in the matrix clause. This can be represented schematically as follows.

(10)  
   a. … want [DP to-infinitive]  
   b. … told [DP] [to-infinitive]

   Before moving on to the next test, let’s test the other pair of sentences in (7). In these sentences, Sally is interpreted as the understood subject of the infinitive, so we replace Sally with the subject of the idiom. Here are the results. Note that a verb like appear usually requires an embedded state, so the infinitive has been changed to the perfect by the addition of have. Making changes in the aspect of the embedded clause does not affect the interpretation of the results.

(11)  
   a. The cat appears to be out of the bag.  
   b. The shit appears to (have) hit the fan.  
   c. All hell appears to have broken loose.  
   d. Tabs appear to have been kept on John’s spending habits.

(12)  
   a. * The cat decided to be out of the bag.  
   b. * The shit decided to hit the fan.  
   c. * All hell decided to break loose.  
   d. * Tabs decided to be kept on John’s spending habits.
These results are similar to the ones above. Thus, the subject of *appear* must originate in the embedded infinitival clause to ensure that the idiom is merged as a constituent, while the subject of *decide* is not.

(13)  
   a.  … appear [ DP to-infinitive]  
   b.  … [DP] decide [to-infinitive]  

9.1.2 Expletive Subjects

Before you read this section, you may wish to review the discussion on expletives on page 127. Recall crucially that expletives do not receive a θ-role. Consider, now, the following contrast. With *want*, the embedded subject can be an expletive, while with *tell*, it cannot.

(14)  
   a.  John wants it to rain  
   b.  John wants there to be chocolate available during the break.

(15)  
   a.  * John told it to rain.  
   b.  * John told there to be chocolate available during the break.

Notice that an expletive is available as a subject in the infinitival clauses in the sentences in example (14), but not in (15), as long as the embedded predicate is consistent with an expletive subject. Thus, in the sentences in (14) it cannot be the case that the subject of the infinitive receives a θ-role from *want*, or the expletive would not be able to appear in this location. In (15), however, the fact that expletives are excluded from this position can be explained if we assume that the subject of the infinitive gets a θ-role from the matrix verb *tell*. Thus, we propose the following θ-role assignment relations for these two verbs.

(16)  
   a.  … *want* DP to-infinitive  
      θ-role (depending on nature of to-infinitive)  
   b.  … *told* DP to-infinitive  
      θ-role

Again, we get similar results with *appear* and *decide*.

(17)  
   a.  It appears to have rained.  
   b.  There appears to be chocolate available during the break.
9.1.3 Downstairs Active/Passive Synonymy Test

This final test is based on the fact that active and passive sentences have the same set of truth conditions. Thus, the two sentences *Mary ate the orange* and *The orange was eaten by Mary* must either both be true or both be false. It is impossible that one is true while the other is false. With this background in mind, let us consider the following data.

(19)  
   a. The doctor examined the patient. = The patient was examined by the doctor.  
   b. Mary wants the doctor to examine the patient. = Mary wants the patient to be examined by the doctor.  
   c. Mary told the doctor to examine the patient. ≠ Mary told the patient to be examined by the doctor.

(19)a. is the test sentence that shows us that the active and passive sentences are synonymous. Under *want* in (19)b, the truth conditions do not change between the active and the passive versions; however, under *tell* in (19)c, the two sentences are not synonymous. This is also shown by the following data. The sentence in (20)a is contradictory and the sentence in (20)b means that Mary wants a contradictory situation to hold. The sentence in (20)c, however, is perfectly logical.

(20)  
   a. # The doctor examined the patient, but the patient wasn’t examined by the doctor.  
   b. # Mary wants the doctor to examine the patient, but Mary doesn’t want the patient to be examined by the doctor.  
   c. Mary told the doctor to examine the patient, but Mary didn’t tell the patient to be examined by the doctor.

Again, we similar results for *appear* and *decide*. There is a slight difference in meaning with *appear*; however, this contrasts with the stark difference in meaning with *decide.*

(21)  
   a. The doctor examined the patient. = The patient was examined by the doctor.  
   b. The doctor appears to have examined the patient. = The patient appears to have been examined by the doctor.  
   c. The doctor decided to examine the patient. ≠ The patient decided to be examined by the doctor.
We can make sense of these facts if the embedded subject under want is part of the embedded clause, but not the embedded subject under tell. In the next section, we will bring these facts together to understand the structure of non-finite clauses. For reasons that will become clear shortly, verbs such as decide and tell are called control predicates, and verbs such as want (as shown here) and appear are called ECM and raising predicates, respectively. The name ECM stands for Exceptional Case Marking, which is explained below.

<table>
<thead>
<tr>
<th>Control</th>
<th>Raising/ECM</th>
</tr>
</thead>
<tbody>
<tr>
<td>• idiomatic readings not retained</td>
<td>• idiomatic meanings retained</td>
</tr>
<tr>
<td>• expletives not permitted</td>
<td>• expletives permitted</td>
</tr>
<tr>
<td>• meaning changes under passivization</td>
<td>• meaning does not change under passivization</td>
</tr>
</tbody>
</table>

9.2 Deriving the Structural Properties of Control and Raising/ECM Structures

Before we attempt to derive the structural properties of these two kinds of predicates, let’s review their thematic properties in more detail.

(22) Mary wants the doctor to examine the patient.

In this example, examine assigns <theme> to the object the patient; examine assigns <agent> to the subject the doctor; want takes a proposition as an argument, but does not assign a θ-role to the doctor. Want also assigns an <experiencer> θ-role to the its subject, Mary. Now, let’s consider the same sentence with tell.

(23) Mary told the doctor to examine the patient.

Again, examine assigns <theme> to the object the patient; examine assigns <agent> to the subject the doctor; tell assigns and <recipient> θ-role to the doctor, and takes a proposition as an internal argument. It appears that the doctor violates the Theta Criterion as it has been assigned two θ-roles. How can we account for the differences between these two predicates and the supposed violation of the Theta Criterion in the second sentence? Let’s assume for predicates such as want that the embedded subject is merged in the embedded clause.

(24) Mary wants [the doctor to examine the patient].

Here, the doctor receives a θ-role from the embedded verb (from the embedded v, to be precise) but not from the matrix verb. This also allows for the possibility for an expletive subject. If there is no embedded v (as with seem) or if the embedded predicate is a weather verb, then an expletive subject is available. This is because the nature of the embedded subject depends entirely on the embedded predicate. Note also that idiomatic readings are retained since the entire idiom is merged as a constituent.

(25) John wants [the cat to be out of the bag]
Additionally, the embedded clause can be passivized without affecting the core meaning because both arguments in the embedded clause are θ-marked the same way in both the active and passive sentences. We will show these effects in more detail shortly.

Conversely, we assume for predicates such as tell that the argument in question is merged in the matrix clause as an argument of the matrix verb that is coreferential with a phonologically empty subject, which we call PRO. We call this type of construction a control construction because the matrix object (in the case of the verb tell) or matrix subject (in the case of the verb decide as we shall see shortly) controls the identity of PRO, the embedded subject.

(26) Mary told John$^1$ [PRO$^1$ to win the race].

Here, John receives a θ-role from the matrix predicate and the empty category PRO receives a θ-role from the embedded verb. In this construction, there is no possibility for an expletive subject, since this argument obligatorily receives a θ-role from the matrix verb. Recall that expletives cannot bear a θ-role as they are not referential. Also, idiomatic readings are not possible since the idiom cannot be merged as a constituent. Also, DPs in the idiom cannot receive θ-roles since they are not referential. In the idiom the cat’s out of the bag there is no actual cat, thus it cannot receive a θ-role. The lack of referentiality on pieces of idioms is shown by the following examples.

(27) a. The cat’s out of the bag … *It’s meowing really loudly.
   b. The shit hit the fan … *We’d better clean it up.
   c. John tried to keep tabs on Bill’s spending habits, (*but they kept falling off).

Thus, sentences such as #John told the cat to be out of the bag are ungrammatical under the idiomatic reading because the idiom chunk the cat bears a θ-role from the verb tell, thereby conferring referentiality onto it. Thus, the only way we can understand this sentence is if there’s a real cat.

Finally, passivization does affect meaning, since the θ-roles are assigned differently. Consider the following examples. In (28)a, tell assigns an <recipient> θ-role to the doctor and in (28)b the same verb assigns this θ-role to the patient. Since Mary is clearly talking to two different people in these situations, there is a change in the core meaning between the active and the passive versions of these sentences. As well, v assigns an <agent> θ-role to PRO in (28)a, while by assigns an <agent> θ-role to the doctor in (28)b. Finally, examine assigns a <theme> θ-role to the patient in (28)a and to PRO in (28)b.

(28) a. Mary told the doctor$^1$ [PRO$^1$ to examine the patient]
b. Mary told the patient\[ PRO to be examined by the doctor\]

Contrast this again with the results of passivization under want. Here, want does not assign a \( \theta \)-role to either the doctor or to the patient. Rather, it takes the infinitival clause as a propositional argument. In the embedded clause, \( v \) assigns an \(<agent>\ \theta\)-role to the doctor in (29)a, while in (29)b, the preposition by assigns an \(<agent>\ \theta\)-role to the doctor. In both sentences examine assigns a \(<theme>\ \theta\)-role to the patient.

(29) a. Mary wants [the doctor to examine the patient].

b. Mary wants [the patient to be examined by the doctor]

If you compare the results in (28) to the results in (29), you will notice that the \( \theta \)-roles are assigned to different DPs in the two sentences in (28), while the \( \theta \)-roles are assigned to the same DPs in the sentences in (29). Thus the synonymy under want and the lack of it under tell is accounted for.

We will now discuss Case assignment in these two types of constructions. First, recall that nominative Case is assigned by finite T. Here is the crucial set of data again.

(30) a. *John/*he/*him to win the race would be amazing.

b. For John/*he/him to win the race would be amazing.

The subject of an infinitive cannot obtain nominative Case from T and so requires something else to assign Case to it. In this example, the preposition for assigns Case (realized as accusative case). In the sentence John wants Mary to win the race, the matrix \( v \) associated with the verb want, assigns accusative Case to the embedded subject, again because the embedded T is non-finite and cannot assign nominative Case. This type of case assignment is called \emph{Exceptional Case Marking} (ECM), so we call verbs like want in this situation ECM verbs.

Let us now consider the structure of control and raising/ECM constructions. Many control verbs allow a \( wh \)/phrase in the embedded infinitival clause, while raising and ECM verbs do not. Consider the following data.

(31) a. John told Mary [when to wash the dishes].

b. John decided [when to wash the dishes].

(32) a. * John wants [when (for) Mary to wash the dishes].

b. * John appear [when to have won the race].

These data suggest that control verbs select a full CP complement since they require a SpecCP position to host the \( wh \)/phrase. The raising/ECM verbs cannot host a \( wh \)/phrase, suggesting that a CP projection is absent in the infinitival clause.
The next line of evidence depends on distinguishing between two kinds of movement. One kind of movement takes place to satisfy EPP. In English, we saw that the subject DP moves to the specifier of TP – the subject position – to satisfy EPP. In passives, the object moves to this position. This kind of movement happens in all clauses in English and in many other languages. The specifier of TP is the canonical position for the subject, one of the primary kinds of grammatical arguments of the clause. We call this movement A-movement, where A stands for ‘argument’. A-movement tends to be restricted to taking place within the clause. That is, A-movement cannot raise a DP from one clause up to a higher clause. Consider the following data. Note that in the grammatical examples, the DP John remains within the same CP.

(33)  
   a.  \[[CP \text{John}, [\mathit{\text{v}} \mathit{\text{t}} \text{likes chocolate}]].\]  
   b.  \[[CP \text{It seems } [CP \text{that John}, [\mathit{\text{v}} \mathit{\text{t}} \text{likes chocolate}]].],\]  
   c.  \*[\[[CP \text{John, seems } [CP \mathit{\text{t}} \text{that } [\mathit{\text{v}} \mathit{\text{t}} \text{likes chocolate}]].],\]  
   d.  \*[\[[CP \text{John, seems } [CP \mathit{\text{t}} \text{that it is likely to } [\mathit{\text{v}} \mathit{\text{t}} \text{like chocolate}]].],\]  

This contrasts with wh-movement. Recall that a wh-phrase can move up several clauses.

(34) \[[CP \text{What, does John think } [CP \mathit{\text{t}} \text{that Alice said } [CP \mathit{\text{t}} \text{that Mary bought } \mathit{\text{t}}]].].\]

We say that wh-movement is a kind of A’-movement (pronounced ‘A bar-movement’). A’-movement is not clause-bounded. The specifier of CP is not an argument position. It is a position for wh-phrases. It turns out that these two kinds of movement have very different properties; however, the only one we discuss here is clause-boundedness. To recap, A-movement is clause-bounded and A’-movement is not. One way this has been captured is to say that movement cannot target an A’-position (such as the specifier of CP) and then move up to a higher A-position (such as the specifier of TP). Notice that it is exactly this kind of movement that takes place in the ungrammatical examples in (33). In other words, A-movement cannot escape the CP. With this in mind, let us consider an example of a raising verb.

(35) John appears to like spinach.

Recall that the diagnostics above showed that the subject John originates in the embedded infinitival clause. Since the subject raises to an A-position, the specifier of TP, this is an example of A-movement. To maintain consistency with the distinction between A-movement and A’-movement just discussed, we assume that there is no CP projection in the infinitival clause of a raising or ECM verb.

<table>
<thead>
<tr>
<th>Verb Type</th>
<th>Non-finite Complement</th>
</tr>
</thead>
<tbody>
<tr>
<td>control</td>
<td>CP</td>
</tr>
<tr>
<td>raising/ECM</td>
<td>TP</td>
</tr>
</tbody>
</table>
Now we will turn our attention to the actual trees for these constructions. Let us first look at the structure of an ECM sentence. Note that John receives a θ-role from the embedded v (dotted line) and is assigned Case by the matrix v (dashed line). Note further that there is no CP projection in the infinitival clause. The ECM verb selects a bare TP complement.

(36)

Turning now to control constructions, we see that the control verb takes a full CP as a complement. The subject of the embedded clause is PRO, which receives a θ-role from the embedded v. PRO requires an antecedent and is coreferential with the indirect object of the matrix clause, John.
Let us now turn to the other constructions we discussed above. Consider the following pair of sentences.

(38)  
 a. John appears to like spinach.  
 b. John decided to eat some spinach.
Recall that *appear* does not assign an external θ-role. In the sentence *It appears that John likes spinach* the expletive *it* does not refer to anything in the real world. Thus, the θ-role of the subject of *appear* in (38)a must come from the embedded verb. Since the subject position of *appear* is not a θ-position, we can expect to find expletives and idiom chunks here, since these are both elements that cannot appear with θ-roles. *Decide* on the other hand, does assign a θ-role to its subject, thus expletives and idiom chunks are not available here.

The first sentence is called a *raising* construction because the matrix *John* originates in the embedded clause and raises to the subject position of the matrix clause. The DP *John* is first merged as the external argument in the specifier of the lower vP, where it receives an external θ-role. This DP then moves to the specifier of the embedded TP to satisfy EPP. It cannot receive Case here, however, since non-finite T is not a Case assigner and there is no vP in the matrix clause to assign Case via ECM. The DP *John* must raise to the specifier of the matrix TP, where it is assigned nominative Case. The tree for this sentence is shown in (39).

The second sentence is another example of control. The matrix subject is coreferential with the embedded PRO. PRO receives a θ-role in the embedded clause, but bears no Case. The matrix subject obtains a θ-role and Case in the matrix clause. The tree for this sentence is shown in (40).

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(39)

---

(40)
So far we have proposed that verbs that take non-finite complements come in two varieties – control and raising/ECM. We have also looked at examples where *want* is an ECM verb. Consider, however, the following data.

(41) a. John wants to win the game.  
     b. John wants Mary to win the game.

The structure of these two constructions are obviously different. Note that the understood subject of the infinitive in the first sentence is John and the understood subject of the infinitive in the second sentence is Mary. Let’s run our diagnostics to see the results.
We conclude that expect is a control verb in *John wants to win the game* but an ECM verb in *John wants Mary to win the game*. Although most verbs pattern neatly into one of the two types, there are a few verbs that pattern as both.

9.3 Types of Control and Raising

Next we discuss different sub-types of raising/ECM and control. As the terminology suggests, raising and ECM are slightly different phenomena. In this section we will pinpoint these differences. First, however, we discuss three different kinds of control.

Control is classified according to the grammatical role of the overt DP that identifies PRO. Example (44)a is an example of object control because PRO is coreferential with the indirect object of *persuade*. For ditransitive control verbs, this is by far the most common type of control. Example (44)b shows subject control because PRO is coreferential with the subject of *decide*. Since transitive control verbs have only one DP argument they are all necessarily of this type. Example (44)c shows subject control with a ditransitive control verb. We will not concern ourselves with the choice of controller. For the most part, we will assume it is lexically determined by the verb (persuade is an object control verb, promise is a subject control verb, etc.) See the box on the right for more information on verbs like persuade.

*Arbitrary control* refers to control in which the identity of PRO is vague or open. Consider the following example. There is no specific person that PRO refers to. Arbitrary PRO can often be replaced by one in similar constructions with no significant change in meaning.

Finally, there are two types of raising verbs as mentioned above. Consider the following examples.
Example (46)a shows a raising verb (also called ‘raising to subject’) while example (46)b shows an exceptional Case marking (ECM) verb. (Note that ECM verbs are also called ‘raising to object’ verbs; hence the cover term raising verb for these two types.) Review the structures above for these two types of raising verbs.

9.3.1 Further Properties of Control

So far, we haven’t said much about how the choice of controller is determined, other than the subject/object distinction that seems to be partially lexically determined. Consider the following sentences.

(47) a. [John\(^1\)’s father]\(^2\) tried PRO\(^{12}\) to win the race.
    b. John\(^1\) said that Mary\(^2\) decided PRO\(^{12}\) to wash the dishes.

In (47)a, we see that the controller must c-command PRO. In (47)b, we see that the controller must be sufficiently local – specifically, the controller must be in the clause immediately above the clause that contains PRO. These properties of control are mediated by a module of grammar known as **Control Theory**. This is also one of the most contentious areas of syntax. Some people have tried to reduce control to simple binding principles, based on c-command, but there are problems with that approach. Consider the following example. In this sentence, Mary clearly does not c-command PRO. This is just one example of the challenges that Control Theory has to face.

(48) PRO\(^1\) to perjure herself in court would damage Mary\(^1\)’s case.

Aside from the types of control we have been discussing so far, there is another type of control known as **partial control**. This is when the controller is a subset of the understood subject of the infinitive. Partial control requires a brief digression into collective predicates. Many predicates, when intransitive must take a plural subject. When transitive, they may take a singular subject and a singular object. Consider the following examples. Thus, **meet**, **kiss**, and **gather** must take a plural subject when used intransitively.

(49) a. John and Mary met in the lobby.
    b. John met Mary in the lobby.
    c. * John met in the lobby.
    d. John and Mary kissed.
    e. John kissed Mary.
    f. * John kissed.
    g. The children gathered outside.
    h. * The child gathered outside.
Also, the adverbial modifier *together*, can appear only with plural subjects and not with singular subjects.

(50)  
   a. John and Mary went to the opera together.  
   b. * John went to the opera together.  

Now consider the following pairs of control sentences and their non-control counterparts.

(51)  
   a. John wants to win the race.   a’. John won the race.  
   b. Mary wants to go to Montreal. b’. Mary went to Montreal.  
   c. Susan wants to meet in the lobby.  c’. * Susan met in the lobby.  
   d. Alice prefers to go to the opera together.  d’. * Alice went to the opera together.  
   e. Bobby wants to gather in the courtyard. e’. * Bobby gathered in the courtyard.  

Examples (51)a and b illustrate the usual kind of subject control discussed above. In examples (51)c-d, however, we observe the phenomenon of *partial control*. We can represent this phenomenon as follows, where PRO\(^1+\) means “Susan and others”.

(52)  
Susan\(^1\) wants PRO\(^1+\) to meet in the lobby  

A rough paraphrase of (52), then, is “Susan wants herself and the others to meet in the lobby.” Not all control verbs are capable of expressing partial control. Consider the following examples, where partial control is ungrammatical. The exact characterization and analysis of partial control is a matter of ongoing research.

(53)  
   a. * Patricia tried to meet in the lobby  
   b. * Sean managed to go to the opera together.  

Finally, we illustrate *split control*. This is similar to partial control, except the antecedent of PRO is split between two members in the sentence. This is represented by the superscript 1+2 on PRO, indicating that PRO refers to both antecedents labelled 1 and 2.

(54)  
   a. Mary\(^1\) persuaded Peter\(^2\) PRO\(^1+2\) to kiss in the library.  
   b. Susan\(^1\) told Alice\(^2\) that it would be better PRO\(^1+2\) to arrive at the party together.  

The same set of verbs that can exhibit partial control generally can also exhibit split control, but not always in the same syntactic environment. We will not worry about the analysis of these other types of control as this is the goal of much current research.
9.3.2 Wanna-Contraction

When *want* is used as a control verb, English allows the sequence *want to* to be undergo contraction to *wanna*.

(55)  
   a.  What do you want to eat?  
   b.  What do you wanna eat?  

Consider, however, the following contrast.

(56)  
   a.  Who do you want to win the election?  
   b.  * Who do you wanna win the election?  

Many speakers find *wanna* contraction either ungrammatical or significantly degraded in (56)b. Why is *wanna*-contraction not available here? If we consider the structures of these sentences in more detail we begin to see how this asymmetry arises.

(57)  
      wanna-contraction available  
   b.  Who, do you want [TP t[^1] to win the election]?  
      wanna-contraction unavailable  

The crucial difference here is that *wanna*-contraction can take place in control constructions but not in ECM constructions. That is, for some reason, the presence of a trace blocks the *wanna* contraction, but the presence of PRO does not.

9.4 Control in Other Languages

9.4.1 Balkan Languages

The Balkan languages constitute what is called a *Sprachbund* - a set of geographically related, but genetically unrelated languages that share enough properties to be considered a unit. Balkan languages include Romanian, Greek, Albanian, Bulgarian and other languages and dialects. One defining property of Balkan languages is the lack of

A *Sprachbund* (German for language union) is a group of languages that share many common properties because of their geographical location. These languages are either not closely related genetically, or not related at all. Languages within a sprachbund come to share grammatical properties because of the high degree of contact among their speakers. In this section, we discuss the Balkan Sprachbund, which consists of Romanian, Greek, Albanian and Bulgarian. In addition to the properties discussed here, Balkan languages also exhibit post-nominal determiners – a property that other closely related languages do not share. Other common sprachbunds include the following:

- Thai, Vietnamese, Sino-Tibetan
- Northwest Coast Sprachbund (from California to Alaska) – includes Salish, Wakashan and Chimakuan languages.
infinitives. In light of the lack of infinitives in these languages, it is reasonable to wonder how control works. Balkan languages generally employ subjunctive verb forms where English uses infinitives. The embedded clauses are often introduced by a subjunctive mood marker.

(58) a. θelo na fyo [Modern Greek]
    want.1SG SBJ go.1SG
    ‘I want to go.’

    b. Ion vrea sâ manince [Romanian]
    Ion want.3SG SBJ eat.3SG
    ‘Ion wants to eat.’

    c. Jani do të hajë [Albanian]
    Jani want.3SG SBJ eat.3SG
    ‘Jani wants to eat.’

Romanian and Albanian also allow for a special subjunctive complementizer, whereas Modern Greek does not.

(59) a. *θelo oti na fyo [Modern Greek]
    want.1SG COMP SBJ go.1SG
    ‘I want to go.’

    b. Ion vrea ca sâ manince [Romanian]
    Ion want.3SG COMP SBJ eat.3SG
    ‘Ion wants to eat.’

    c. Jani do që të hajë [Albanian]
    Jani want.3SG COMP SBJ eat.3SG
    ‘Jani wants to eat.’

The following example shows that raising verbs appear with subjunctive verb forms, also.

(60) I fitities fenonde na ñjavazun poli [Modern Greek]
    the students seem.3PL SUBJ read.3PL a lot
    ‘The students seem to study a lot.’
Much current research into control and raising in Balkan languages is concerned with whether the embedded subject position contains PRO, pro, or a DP-trace.

Languages without non-finite verb forms (such as Balkan languages) often use subjunctive verb forms to express notions of raising and control.

9.4.2 Portuguese Inflected Infinitives

Recall that infinitives are devoid both of tense and agreement.

(61)  to fix           *to fixed          *to fixes

Portuguese has inflected infinitives (also called personal infinitives in descriptive Portuguese grammars), however, that bear agreement marking, but no tense marking. Here is the paradigm for this construction on the verb comer (‘eat’) (Raposo, 1987).

(62)  eu comer-Ø       nós comer-mos
      tu comer-es     vós comer-des
     ele/ela comer-Ø  eles/elas comer-em

‘for me to eat, for you to eat, for him/her to eat, etc.’

Inflected infinitives exist alongside uninflected infinitives, and the two kinds of infinitives are largely in complementary distribution. In object complement clauses, we find standard control constructions with uninflected infinitives. As in the English control constructions above, the controller is an argument of the matrix verb. The infinitive cannot be inflected in this environment.

(63)  a. Os meninos decidiram comer a sopa.
      the children decided.3PL eat.INF the soup
      ‘The children decided to eat the soup.’

      b. * Os meninos decidiram comer-em a sopa.
         the children decided.3PL eat.INF-3.PL the soup
         (‘The children decided to eat the soup.’)
Inflected infinitives are found when the subject of the embedded proposition is not an argument of the matrix clause. Thus, these inflected infinitival constructions correspond to the class of raising/ECM constructions. Here, inflected infinitives are obligatory, and the uninflected form cannot be used.

(64) a.  Eu lamento [os deputados ter-em trabalhado pouco].
I lament the deputies have.INF-3.PL worked little
‘I lament the deputies having worked little.’

b.  * Eu lamento [os deputados ter trabalhado pouco].
I lament the deputies have.INF worked little
(‘I lament the deputies having worked little.’)

Finally, inflected and uninflected infinitives can both be found in subject non-finite constructions. Consider the following examples. Note that the subject of inflected infinitives takes nominative Case. An in depth study of these constructions would have to account for the appearance of nominative subjects here and the lack of them in English.

(65) a.  Será difícil [eles aprovar-em a proposta].
will.be difficult they.NOM approve.INF-3.PL the proposal
‘It will be difficult for them to approve the proposal.’

b.  * Será difícil [eles aprovar a proposta].
will.be difficult they.NOM approve.INF the proposal
(‘It will be difficult for them to approve the proposal.’)

c.  Será difícil [PRO aprovar a proposta].
will.be difficult PRO approve.INF the proposal
‘It will be difficult to approve the proposal.’

Inflected Infinitives:

i) found in European Portuguese and some other Romance languages.

ii) person and number marking, but no tense marking

iii) take nominative subjects
9.4.3 Serial Verb Constructions

A serial verb construction consists of a string of verbs without any (or with very little) connective morphology. They have a common subject and usually share aspect and tense features. They are common in the languages of West Africa, but are found in some Asian languages as well as in some Oceanic languages. Unlike control constructions in which each verb has its own subject, serial verb constructions consist of a concatenated string of verbs which predicate a single subject. Recall a typical control construction, in which the subject of want and wash are John and PRO, respectively.

(66) John wants [PRO to wash the dishes]

In a serial verb construction, all the verbs typically share one common subject. To start, let's look at an example from Thai (see p. 219).

(67) kháw rúp wíŋ khâam pay
he hurry run cross go
‘He hurriedly ran across.’ (Smyth, 2002: 82)

The bold-faced words in (67) all appear independently as verbs. They are strung together here to give the meaning shown. In this example, the events described by the verbs are interpreted simultaneously.

The following examples are from Degema, a Niger-Congo language spoken in Nigeria (Kari, 2003). Here the events depicted by the verbs are interpreted sequentially. Thus, serial verb constructions generally have two options in the internal organization of the events. They can be interpreted either simultaneously or sequentially.

(68) a. Ivioso ó=kotu me (ō)=kperi inûm. Ivioso 3.SG.SUBJ.NEG=call me (3.SG.SUBJ)=tell something
‘Ivioso did not call me and tell (me) something.’

b. Ivioso ó=kotu ôyi ô=kpéri inûm. Ivioso 3.SG.SUBJ.NEG=call him 3.SG.SUBJ=tell something
‘Ivioso did not call him and tell him something.’

Notice that the subject agreement on the embedded verb is optional in (68)a, but obligatory in (68)b.
9.5  *An alternative analysis of control (advanced)*

Historically, PRO was considered to be Caseless or to have *null* Case; however, we will not go into these proposals here. Also, PRO exists only in the control constructions considered here. Following Occam’s Razor, some researchers have proposed to do away with PRO in favour of an analysis that makes use of available resources. An analysis that captures the same set of facts with fewer stipulations is always preferred. The proposal, then, is that control structures are formed by raising, just as ECM and raising constructions are. The following example contains a typical control verb. Here, instead of *John* controlling a PRO in the embedded clause, *John* has raised from the embedded clause.

(69)  

\[ \text{John tried to win the race.} \]

This approach requires us to either abandon or modify the Theta/Criterion, since *John* has two \( \theta \)-roles in (69). Let’s examine the ramifications of this proposal. First, consider the following ungrammatical sentence.

(70)  

* \[ \text{John decided that } t_i \text{ likes tuna.} \]

Again, *John* has two \( \theta \)-roles, which we would formerly argue makes this sentence ungrammatical. However, *John* has also checked Case twice, which is also a violation of the Case Filter. Since there is already a mechanism in place to account for the ungrammaticality of (70), namely the Case Filter, it would superfluous to have a second mechanism in place that achieves the same effect. This is one of the arguments in favour of dispensing with the Theta Criterion.

Consider also the following data.

(71)  

a.  \[ \text{John}^1 \text{ thinks that Mary}^2 \text{ appears to have won the race.} \]

b.  \[ \text{John}^1 \text{ thinks that Mary}^2 \text{ decided to enter the race.} \]

In both the raising and the control structure, the identity of the subject of the embedded infinitival is restricted to the immediately superordinate clause. Despite the numerous differences between raising and control that we saw at the beginning of this chapter, similarities such as these have led some researchers to propose a uniform analysis for the two constructions. Since we already have a mechanism of raising in place, which can account for (71)a, it is natural to analyze the control structure in (71)b with raising as well.

There are some challenges to reducing control to movement, however. First, phenomena such as partial control and split control are problematic for a raising analysis of control, since there is no obvious way to account for the plural reading in the embedded clause. Consider the following examples.
(72) a. John wants to drive to Montréal together.
   b. * John, arrived in Montréal together.

(72)a, can be paraphrased as: John wants John and other(s) to drive to Montéal together. If a plural interpretation can be associated with the extraction site (the site of the trace), then (72)b should be able to mean something like John and others arrived in Montreal together. This reading, however, is not available. Also, there are cases of control where c-command does not hold between the controller and the controlled site. In the following example, it is unclear how Steve could have moved from the extraction site. (Note, we show the extraction site as e so as to be neutral to the choice between t and PRO.)

(73) e\(^1\) talking out loud like that during the opera was rather gauche of Steve\(^1\).

Whether Control Theory will be able to be completely abandoned in favour of simple raising and binding will have to wait for further research. Much current research is devoted to a better understanding of control and ECM constructions, both in English and cross-linguistically, in order to determine what the best analysis of these constructions is.

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**Key Concepts**

**Infinitive:** The form of a verb with no tense or agreement morphology. Infinitives lack the ability to assign Nominative Case.

**Control:** A non-finite clause in which the identity of the null subject is identified by another overt DP, usually in a higher clause.

**PRO:** The empty subject in a control construction.

**ECM:** Exceptional Case Marking. A construction in which the subject of an infinitive is assigned Accusative Case by the v in the superordinate clause.

**raising (to subject):** A construction in which the subject of an infinitive raises to the subject position of a tensed verb in a higher clause.

**subject control:** A control construction in which the identity of PRO is determined by the subject in the higher clause: John\(^1\) decided PRO\(^1\) to eat the apple.
object control
A control construction in which the identity of PRO is determined by the object in the higher clause: 
*John told Mary*₁ PRO₁ to eat the apple.*

arbitrary control
A control construction in which the identity of PRO is arbitrary or determined by context: 
*John thinks it’s important PROcapt to eat an apple every day.*

partial control
A control construction in which PRO is coreferential to a group which contains an argument in the higher clause: 
*John₁ decided PRO₁ + to meet in the lobby.*

split control
A control construction in which the identity of PRO is determined by two arguments in the higher clause: 
*John₁ convinced Mary₂ PRO₁+₂ to kiss in the library.*

serial verb construction-SVC
A construction which consists of a sequence of verbs with the same subject and tense properties. SVCs may contain additional internal arguments within the string of verbs, but no tense or complementizer morphology is found.

Further Reading

Boeckx, C. et al. (2010)
This book summarizes the most current research on analyzing control as movement, discussed in the final section of the chapter.

This volume is a definitive source for the history of the analysis of raising and control. Much of the material in the earlier chapters of this volume can be tackled once this chapter is mastered.

This is a minimalist analysis of control that assumes that PRO exists. The reader is cautioned that Landau presents a highly technical analysis. It might be worthwhile to work through some more foundations of Minimalism before attempting this work.

Perlmutter, D. & S. Soames (1978)
This is the original source of many of the diagnostics between raising and control that are still used to this day.

Postal, P. (1974)
This volume deals with early observations and analyses of raising and control constructions.

Roussou, A. (2001)
This article is a comprehensive discussion on control into subjunctive clauses in Balkan languages.

Exercises

1. Draw trees for the following sentences. Make sure to run the diagnostics discussed at the beginning of this chapter.
   
a. John told Mary to buy some apples.
b. Sally expects Marjorie to buy a new computer
c. Ferdinand expects to pass the exam.
d. Susan forgot to wash the car yesterday.
e. Shelly wants the bus to stop in front of her house.
f. Which car does John expect Susan to buy?
g. Which car does John want Susan to buy?
h. Who was told to wash the dishes?
i. Susan expects the floor to be mopped after the pigs leave the house.
j. The patient was persuaded to be examined.
k. John was told to wash the dishes.
l. I expected the dishes to be washed.
m. The dishes were expected to be washed.

2. Consider the following sentence from Krio (and English-based Creole, spoken in Sierra Leone)

   Olu  fes  di buk   gi  mi.    Olu  fetch  the book  give  me    ‘Olu brought the book to me.’

No clausal morphology (such as complementizers, mood markers, etc.) can intervene between di buk and gi. What kind of structure is this? Draw a plausible tree structure for this sentence.

3. Consider the following German data (from Wurmbrand, 2001):

   a. weil der Lastwagen und der Traktor zu reparieren versucht wurden since the.NOM truck and the.NOM tractor to repair try.PART were.3PL
   ‘since somebody tried to repair the truck and the tractor.’

Assume the following structure for infinitives with an auxiliary:

```
... TP
  T      AuxP
    to   Aux
        be
```
b. * weil der Lastwagen und der Traktor zu reparieren geplant wurden  
   since the.NOM truck and the.NOM tractor to repair plan.PART were.3PL  
   (‘since somebody planned to repair the truck and the tractor.’)

The first sentence is called a ‘long passive’ and can be translated more literally as ‘the truck and the tractor were tried to repair’ which is, of course, ungrammatical in English, but ok in German. Related to this is the following contrast in West Flemish:

a. da Marie ee proberen van hem een brief te schrijven  
   that Mary has try.INF COMP him a letter.ACC to write  
   ‘that Mary tried to write him a letter’

b. da Marie ee proberen hem een brief te schrijven  
   that Mary has try.INF him a letter.ACC to write  
   ‘that Mary tried to write him a letter’

c. * da Marie hem, ee proberen van t, een brief te schrijven  
   that Mary him has try.INF COMP a letter.ACC to write  
   ‘that Mary tried to write him a letter’

d. da Marie hem, ee proberen t, een brief te schrijven  
   that Mary him has try.INF a letter.ACC to write  
   ‘that Mary tried to write him a letter’

In the last two sentences, the DP [hem] moved by scrambling up to the higher clause. Assume that scrambling cannot cross a CP, and do not worry about the landing site of scrambled elements. It is not important to solve this question. Account for the German and West Flemish data. To accomplish this, consider the following questions. Does try in West Flemish select a CP or TP complement? How does Case get assigned to the embedded direct objects? What structures do you think are involved in the German and West Flemish infinitival complements? (Note, the interchapters on scrambling and V2 in Germanic may be useful to you to solve this problem.)

4. Consider the following French data. Recall that French has V-to-T movement as diagnosed by adverb placement.

a. Pierre mange souvent des pommes.  
   Pierre eats often of the apples  
   ‘Pierre often eats apples.’
b. Pierre veut manger des pommes.
   Pierre wants eat.INF of.the apples
   ‘Pierre wants to eat some apples.’

c. Pierre veut souvent manger des pommes
   Pierre wants often eat.INF of.the apples
   ‘Pierre wants to eat apples often.’

Assume that *veut* (‘want’) is a control verb in French. How would you account for the last sentence? Draw a tree for it.
Scrambling is a cover term used to describe any movement of an XP away from its canonical position. In this respect, topicalization in English can be considered a form of scrambling, since the usual SVO order is subverted.

(1) a. John read this book. [canonical SVO order]
   b. This book, John read. [canonical SVO order subverted]

Topicalization is not usually referred to as scrambling, since there is a clear motivation for the movement in topicalization, hence the specific name for this phenomenon. Scrambling sometimes takes place for discourse factors (new vs. old information, emphasis, contrast, etc.), but sometimes the motivation for scrambling is not well understood. Often, native speakers will tell you that there is no detectable difference in meaning between scrambled and non-scrambled sentences.

English is often referred to as a configurational language, meaning that the grammatical roles of the participants in a sentence are determined by word order. Thus, in a sentence such as John showed Mary Fred we understand that John is the <agent>, Mary is the <experiencer> and Fred is the <theme>. That is Fred is the one who got shown to Mary. Changing the word order changes the meaning of the sentence in English. Consider, now, the following Japanese data (see p. 38).

(2) a. Kinoo Taroo-ga Ginza-de susi-o tabeta
   yesterday Taro-NOM Ginza-LOC sushi-ACC eat.3SG.PST
   ‘Yesterday, Taro ate sushi in Ginza.’

b. Taroo-ga Ginza-de kinoo susi-o tabeta
   Taro-NOM Ginza-LOC yesterday sushi-ACC eat.3SG.PST
   ‘Yesterday, Taro ate sushi in Ginza.’

c. Susi-o kinoo Taroo-ga Ginza-de tabeta
   sushi-ACC yesterday Taro-NOM Ginza-LOC eat.3SG.PST
   ‘Yesterday, Taro ate sushi in Ginza.’

We observe several possible word orders for the Japanese sentence, with virtually no difference in meaning. The listener is able to recover the thematic relations in scrambled Japanese sentences because Japanese heavily marks the grammatical function of its arguments (nominative, accusative, locative), whereas English doesn’t. Thus, we understand that Taro is the subject, regardless of his position in the sentence because of the nominative marker. Likewise, we also understand that the sushi was eaten because of the accusative marker and that the event took place in Ginza because of the locative marker.
In general, languages that overtly mark the grammatical functions on their arguments are more likely to exhibit scrambling.

The mechanism responsible for scrambling is still a hotly debated topic. One proposal proceeds as follows (Miyagawa, 2002). Case in Japanese can be checked in situ. As such, the subject does not need to raise to SpecTP to get Case - T can do this while the subject is in its thematically related position. The EPP still requires an overt XP to appear in SpecTP, however. In Japanese, any XP can raise to SpecTP. This is but one of many explanations that have been put forth for scrambling. The following tree structure illustrates the possibilities in which EPP can be satisfied under this approach.

(3)

Scrambling is attested across a wide variety of languages and language families. German, Dutch, Persian, Hindi, Russian, Korean, Tongan, just to name a few. Thus, scrambling cannot be associated with a small group of geographically or genetically related languages. The following example from Dutch illustrates scrambling again.
(4) a. Maar we moeten eerst de vogels waarschuwen.
   *But we must first the birds warn*
   ‘But we have to warn the birds first.

b. Maar we moeten de vogels eerst waarschuwen.
   *But we must the birds first warn*
   ‘But we have to warn the birds first.’

As with German, Dutch is an SOV language. In the canonical word order the direct object is adjacent to the verb. In (4), the object has scrambled and appears higher in the clause, to the left of the adverb.

**Further Reading:**

Karimi, S. (ed) (2003) This volume is a collection of several recent papers dealing with scrambling from a wide variety of languages and families.

Kidwai, A. (2000) This is an in-depth study of scrambling in Hindi-Urdu. The author argues that all scrambling can be analyzed as XP-adjunction. The arguments use various diagnostics discussed in this book and also involves some more advanced argumentation.

Hindi-Urdu is an Indo-European language spoken principally in India and Pakistan, as well as numerous expatriate communities in Canada, USA, Great Britain and Hong Kong. Hindi and Urdu are two mutually intelligible dialects. Urdu is spoken in Pakistan and parts of neighbouring India, while Hindi is spoken in India. Hindi-Urdu was originally believed to be unrelated to the European languages; however, in 1786 Sir William Jones delivered a paper in which he showed that Sanskrit, the precursor to modern Hindi-Urdu was indeed related to Greek and Latin. He also suggested that Persian was also related to this group of languages, a prediction that turned out to be correct. It was because of Sir William Jones’ discovery that the name Indo-European is used today. See Masica (1991) for more information on Hindi-Urdu and other related languages.
Chapter 10  Reflexivity

By the end of this chapter you should:

- understand principles A, B and C of the Binding Theory
- explain the distribution of anaphors and pronouns in English
- have a basic understanding of long-distance anaphora
- have a basic understanding of how Romance pronouns and anaphors differ from English pronouns and anaphors
- have a basic understanding of how reflexives and reciprocals can vary across language
- have a basic understanding of obviation
- know what levels of representation the principles of BT apply at
- be able to construct arguments for the above
- understand the basic concepts of Reflexivity
- know the difference between a SE anaphor and a SELF anaphor.
- have an idea of the different uses of the Romance se morpheme.

10.1 Binding Theory

In this chapter, we will discuss how reflexive sentences are constructed. A sentence is reflexive if two of the arguments are co-referential. That is, if they refer to the same individual. As an initial illustration, consider the following three reflexive sentences.

(1)  a. John saw himself.  I saw myself  [English]

     b. Zhangsan kan-le ziji  wo kan-le ziji  [Mandarin, see p. 85]
        Zhangsan see-PRFV SELF  I see-PRFV SELF
        ‘Zhangsan saw himself.’  ‘I saw myself.’

     c. Kehte waˀhadatgęˀ  waˀkadatgę’  [Onondaga, see p. 110]
        Kehte waˀ-ha-atat-kęˀ  waˀ-k-atat-kęˀ
        Kehte FACT-he-REFL-see-PUNC  FACT-I-REFL-see-PUNC
        ‘Kehte saw himself.’  ‘I saw myself.’

Early discussions on reflexivity were concerned with the distribution of reflexive pronouns (anaphors) and and regular pronouns. The following chart shows the anaphors and pronouns of English. It’s a bit of an unfortunate terminological accident that anaphors and pronouns
together are usually referred to also as pronouns. We will use the term ‘pronominal D(eterminer)’ for the set of anaphors and pronouns in this textbook. Anaphors come in two varieties. There are reflexives and reciprocals. Reflexives appear with both singular and plural antecedents; however, reciprocals appear with only plural antecedents.

\[
\text{pronominal Ds} \\
\text{anaphors} \\
\text{reflexives} \quad \text{reciprocals} \\
\quad \text{myself} \quad \text{each other} \\
\quad \text{yourself} \quad \text{one another} \\
\quad \text{herself} \\
\quad \text{themselves} \\
\quad \text{ourselves} \\
\text{pronouns} \\
\quad \text{me} \\
\quad \text{you} \\
\quad \text{her} \\
\quad \text{us} \\
\quad \text{you (also ‘youse’, ‘you guys’, or ‘y’all’ in colloquial speech)}
\]

10.1.1 The Distribution of Anaphors

Consider the following sentences.

(2)  
\begin{align*}
\text{a. } & \text{I saw myself.} \\
\text{b. } & \text{You saw yourself.} \\
\text{c. } & \text{John saw himself.} \\
\text{d. } & \text{Mary saw herself.} \\
\text{e. } & \text{We saw ourselves.} \\
\text{f. } & \text{You saw yourselves.} \\
\text{g. } & \text{John and Mary saw themselves.} \\
\text{h. } & \text{* I saw yourself.} \\
\text{i. } & \text{* You saw myself.} \\
\text{j. } & \text{* John saw themselves.} \\
\text{k. } & \text{* Mary saw himself.} \\
\text{l. } & \text{* We saw myself.}
\end{align*}

To indicate coreference between the subject and the object of the same verb in English, an anaphor is used, as the sentences on the left show. The anaphor and its antecedent must agree in person, number and gender. The set of person, number and gender features is commonly referred to as \textit{phi-features}. Thus, in (2)j \textit{John and themselves} agree in person, but not in number. In (2)k, \textit{Mary and himself} agree in person and number, but not in gender. One way in which coreference is tracked in natural language is by identity in phi-features.

Consider, now, the following data. Note carefully how the numbers are used. In (3)a \textit{herself} can refer to \textit{Mary} (\textsuperscript{1}), but not to anyone else (\textsuperscript{2}). In (3)c \textit{herself} can refer to \textit{Mary} (\textsuperscript{1}), but not to \textit{Susan} (\textsuperscript{3}) or anyone else (\textsuperscript{4}). In (3)c, \textit{her} cannot refer to \textit{Mary} (\textsuperscript{1}) or \textit{Susan} (\textsuperscript{2}), but only to someone else (\textsuperscript{4}), who would be previously mentioned in the discourse or understood from context. See the discussion on superscripting on page vii for more details.
(3) a. Mary\textsuperscript{1} saw herself\textsuperscript{1/2} in the mirror. 
   b. Mary\textsuperscript{1} saw her\textsuperscript{1/2} in the mirror. 
   c. Mary\textsuperscript{1} believes herself\textsuperscript{1/2/3} to like Susan\textsuperscript{2}. 
   d. Mary\textsuperscript{1} believes her\textsuperscript{1/2/3} to like Susan\textsuperscript{2}.

We can draw several observations from these data. We see that the antecedent for anaphors must be present in the sentence. This is not the case for pronouns. Furthermore, the antecedent must precede the anaphor. Thus, in (3)c, *herself* must be coreferential with *Mary* but cannot be coreferential with *Susan*. Consider now the following example.

(4) [Mary\textsuperscript{1}'s sister]\textsuperscript{2} saw herself\textsuperscript{1/2} in the mirror.

The anaphor is coreferential with *Mary's sister* and not with *Mary*. If we consider the structure for this sentence, we observe that the DP *Mary's sister* c-commands the anaphor, but the DP *Mary* does not. Thus, it appears that it is not sufficient for the antecedent to precede the anaphor – it must c-command it.

(5)

Thus, the antecedent for the anaphor c-commands it and is coreferential with it. We refer to this relationship as binding. Specifically, the antecedent is said to bind the anaphor.
For now, let’s concentrate on the distribution of anaphors and take a look at the distribution of pronouns later. So far, we know that the antecedent of an anaphor must bind it. Let’s see if this is sufficient, however. Consider the following data.

\[(6)\]

\[\text{a. } \text{Mary}^1 \text{ thinks that Bill likes herself}^4. \quad \text{b. } \text{Mary}^1 \text{ thinks that Bill likes her}^3.\]

Here, we see that Mary cannot serve as an antecedent for the anaphor in a lower clause. These data suggest that the antecedent must be in the same clause as the anaphor. Let’s refer to domain in which the antecedent and the anaphor must appear as the \textit{binding domain}. So, it seems so far that the binding domain for an anaphor is the clause that contains the anaphor. This is not quite right, however. Consider the following data.

\[(7)\]

\[\text{a. } \text{John believes [TP himself to have won the race].} \quad \text{b. } \text{Mary expects [TP herself to do well on the exam].}\]

Depending on how one defines ‘clause’, the antecedent for the anaphor is outside of the clause that contains the anaphor in each of the sentences in (7); nevertheless, they are both grammatical. Thus, it seems that the binding domain must consist of the anaphor and the smallest finite clause. In (7)a the smallest finite clause that contains the anaphor is the entire sentence. Consider the following example.

\[(8)\]

\[\text{Bill}^1 \text{ said that } \text{John}^2 \text{ believes himself}^{1/2} \text{ to have won the race.}\]

In (8) the smallest domain that contains both the anaphor and a finite clause is the \textcolor{red}{red underlined} portion. It seems so far that the binding domain is the smallest finite clause, but we will clarify this below. Indeed, in this example, John is located within this domain and can serve as the antecedent. Bill is located outside this domain and cannot serve as the antecedent. From chapter 8 we know that there are various kinds of non-finite clauses. Consider the following data from both raising/ECM and control constructions.

\[(9)\]

\[\text{a. } \text{John}^1 \text{ seems [TP himself to have injured himself}^4. \quad \text{b. } \text{John}^1 \text{ expects [TP Bill}^2 \text{ to look at himself}^{1/2} \text{ in the mirror}.} \quad \text{c. } \text{John}^1 \text{ persuaded Bill}^2 \text{ [CP PRO}^2 \text{ to look at himself}^{1/2} \text{ in the mirror}.}\]

Here, we see that the anaphor is bound by the matrix subject in (9)a, by the embedded subject in (9)b, and by the matrix object or PRO in (9)c. If we consider PRO to be a syntactically real element, then the binding domain is the smallest clause with a subject other than the anaphor itself, where the clause is a TP. The term \textit{accessible subject} refers to the subject of the clause that is the binding domain. Remember, the accessible subject cannot be the anaphor itself. (See the further reading section for more details on accessible subjects.)
We will come back to the examples above very shortly. First, we will consider some more data dealing with DPs. Consider the following examples.

(10)  

a. John likes [DP that picture of himself].  
b. * John likes [DP Mary’s picture of himself].

In (10)a, the anaphor behaves as expected and takes John as an antecedent. In (10)b, however, John cannot be the antecedent for the anaphor. Here, the binding domain appears to be just the DP, when it has a possessor. Recall from Chapter 4 that the possessor of a DP functions the same as the subject of a sentence. We can say that the possessor is the ‘subject’ of the DP. Thus, we conclude that the binding domain for an anaphor is the smallest domain that contains the anaphor and an accessible subject (a subject other than the anaphor). Recall that we must exclude the possibility that the subject is the anaphor because of the data in (7).

Let’s see how this formulation of the binding domain works so far. Looking at the data in (10) first, the smallest domain that contains both the anaphor and an accessible subject in (10)a is the entire sentence. Thus, the binding domain is the sentence and the antecedent for the anaphor must appear somewhere in this domain, which it does. Likewise, for (10)b, the smallest domain that contains both the anaphor and a subject is the DP, which does not contain the antecedent for the anaphor, thus the sentence is ungrammatical. Finally, let’s consider (7)a. The smallest domain that contains both the anaphor and a subject other than the anaphor again is the entire sentence. The antecedent is present in this domain, so the sentence is grammatical. We can now state the distribution of anaphors, which is called Principle A, as follows.

**Principle A:** An anaphor must be bound in its binding domain

To repeat, the binding domain of an anaphor is the smallest domain that contains the anaphor and an accessible subject. Below we will revise the definition of the binding domain slightly to account for pronouns the full DPs.

Let us run through some of the sentences above to determine exactly how Principle A treats the anaphors. Consider the tree diagram for (7)a.
The red portion of the sentence contains both the anaphor (underlined) and an accessible subject (in the solid circle). This is the binding domain. Principle A states that the anaphor must be bound in its binding domain. The antecedent John is located inside the binding domain, and it binds the anaphor. Thus, Principle A is satisfied. As this tree shows, the anaphor himself is bound by its antecedent John in its binding domain. Thus, this sentence satisfies Principle A and the sentence is grammatical. Consider now the tree for (10)b and try to understand why this sentence is ungrammatical. Again, the binding domain, shown in red, is the smallest domain that includes both the anaphor (underlined) and an accessible subject (in the solid circle). The antecedent, John, is shown in blue.
Thus, the anaphor is not bound by the antecedent within its binding domain and thus does not satisfy Principle A. Note that the antecedent does bind the anaphor (since it c-commands it and is coreferential with it); however, it binds it from outside the binding domain, in violation of Principle A. We turn now to the distribution of pronouns.

10.1.2 The Distribution of Pronouns

Dealing with the distribution of pronouns is much easier, now that we know the distribution of anaphors. Generally, pronouns and anaphors exhibit complementary distribution. Let’s look at some examples we saw earlier.

(13) a. Mary\(^1\) knows that Susan\(^2\) likes her\(^1\)\(^2\)\(^3\).
    b. Mary\(^1\) knows that Susan\(^2\) likes herself\(^1\)\(^2\)\(^3\).
The pronoun *her* is allowed in exactly the opposite set of environments in which we find anaphors. Recall that anaphors must be bound within their binding domains. We can state the distribution of pronouns as follows, then.

---

**Principle B:** A pronoun must be free in its binding domain

---

Recall from above that we defined the binding domain in terms of anaphors. We could try to formulate a separate binding domain for pronouns; however, recall that we are trying to capture the complementarity of pronouns and anaphors. Instead, we simply calculate the binding domain of the position we are interested in. The position we are interested in is the particular node that corresponds either to the anaphor (as in the previous section) or to the pronoun (as in this section). If the node contains an anaphor as in the data in the previous section, then we compute the binding domain of the anaphor. In this section, we are interested in the binding domain of a pronoun. So, we calculate the binding domain of the node in which the pronoun in question appears. We show some illustrations of this concept below.

---

**Binding Domain:** The binding domain of a node is the smallest domain that contains the node and an accessible subject.

---

Let's work through a couple of examples. In (13)a above, the binding domain for the pronoun is the embedded TP. This is the smallest domain that contains the pronoun and an accessible subject. The pronoun must be free within this domain, meaning it cannot be bound by *Susan*. Thus, the pronoun is free to co-refer to any DP, except *Susan*.

Consider, now, (14) below. It is useful to refer to the structure for this sentence. The smallest domain that contains the pronoun and a subject is the TP. Although the pronoun is coreferential with a DP contained within the binding domain, it is not **bound** within the binding domain. This is because the antecedent for the pronoun does not c-command it. Recall that in order to bind something, you must c-command it.

(14) John¹’s sister bought him¹ a present.
Considering (16) below, now, the binding domain for the pronoun is the DP John’s painting of her. This is the smallest domain that contains both the pronoun and an accessible subject. The antecedent Mary is clearly outside of the binding domain, so the pronoun is free within its own domain, thus satisfying Principle B.

(16) Mary\(^4\) thinks that John’s painting of her\(^4\) will be sold for $50,000,000.

Before moving on, we have to be clear on our concept of an accessible subject. Consider the following sentence.

(17) John\(^1\) thinks that he\(^1\) should enter the race.

According to our definitions the binding domain of the pronoun he is the smallest domain that contains the node in question (he) and an accessible subject. An accessible subject is any subject other than an anaphor for which we are computing the binding domain. The form he is a...
pronoun, not an anaphor, so it counts as an accessible subject. Thus, the binding domain is the embedded TP. The antecedent for the pronoun is located outside this binding domain. Therefore the pronoun is not bound within its binding domain and Principle B is respected.

In some languages, possessive pronouns have both pronominal and anaphoric forms. Consider the following Danish examples (data thanks to Charlotte Reinholtz).

(18) a.  Peter\textsuperscript{1} mistede sin\textsuperscript{1/2} bog.
Peter lost his book
‘Peter\textsuperscript{1} lost his\textsuperscript{1} book.’

b.  Peter\textsuperscript{1} mistede hans\textsuperscript{1/2} bog.
Peter lost his book
‘Peter\textsuperscript{1} lost his\textsuperscript{2} book.’

c.  Peter\textsuperscript{1} mener at Anders\textsuperscript{2} mistede hans\textsuperscript{1/2/3} bog.
Peter thinks that Andrew lost his book
‘Peter\textsuperscript{1} thinks that Andrew\textsuperscript{2} lost his\textsuperscript{1/2/3} book.’

d.  Peter\textsuperscript{1} mener at Anders\textsuperscript{2} mistede sin\textsuperscript{1/2/3} bog.
Peter thinks that Andrew lost his book
‘Peter\textsuperscript{1} thinks that Andrew\textsuperscript{2} lost his\textsuperscript{1/2/3} book.’

These data show that the Danish possessive form sin functions as an anaphor as it is sensitive to Principle A. Specifically, it must be bound within its binding category. Also, the Danish possessive form hans functions as a pronoun as it is sensitive to Principle B. It must be free in its binding category.

Finally, we turn to a discussion of non-pronominal DPs.

10.1.3 The Distribution of R-Expressions

An R-expression (Referring-expression) takes its reference independently of any linguistic antecedent. In other words, it already comes attached to a referent in the universe of discourse. These are basically all nouns and DPs containing a noun: Peter, Montreal, Mozart, the guy sitting in the corner drinking a martini, Macau, the unicorn with the green hat that Sally was talking to yesterday, etc. R-expressions, of course, can be real or imaginary. Note that the referent for an R-expression can be universal as in the sun. More commonly, however, there is no universal referent for an R-expression. Thus, the referent of the name Mary changes depending on which Mary is being talked about.

Consider the following data. We observe that R-expressions cannot be bound either inside or outside of their binding domain, no matter how far the antecedent is from the R-expression. In other words, R-expressions must be free everywhere.
The distribution of R-expressions is captured by the following principle.

**Principle C:** An R-expression must be free everywhere.

Looking at the data in (19) we might be led to the simpler conclusion that R-expressions cannot appear with a coreferential pronoun to its left. Consider, however, the following data. Note that the second sentence usually requires special emphasis on *his*.

(20)  
a. Those pictures of him\(^1\) really embarrassed John\(^1\).  
b. His\(^1\) mother loves John\(^1\).

In both of these examples, the R-expression *John* appears with a coreferential pronoun to its left; however, the pronoun does not bind the R-expression because it does not c-command it. These results lead us to conclude that our formulation of Principle C is on the right track.

### 10.1.4 Logophoricity

The term *logophor* is has two distinct uses: (1) any pronominal type element resembling an anaphor, but that does not function as a reflexive, and (2) a long-distance anaphor. Here, we will investigate the first type of logophor. These include emphatic uses, hypercorrection, and reference to a topic. Some of these utterances may seem odd out of context, but they are all representative of the logophoric use of anaphors.

(21)  
a. I, myself, would like to go to Paris. emphatic  
b. John fixed the toaster, himself. emphatic  
c. Please fill these forms out and return them to myself. hypercorrection  
d. As for Alice, John put a picture of herself on the wall. reference to topic

In Old English, the *self*-pronoun forms were used strictly as logophor, such as for emphasis in cases where co-reference is unexpected. There was no morphological distinction between anaphors and pronouns in Old English. Consider the following data.
Note that the first two examples are translated with an anaphor in modern English, but that there is no special self-form to mark reflexivity. In the third example, the self-form is present to mark emphasis. The Old English pattern still persists in some colloquial varieties of English.

(23) I’m gonna buy me a new plasma TV. [colloquial English]

The term logophor is also used to refer to a pronoun that must take a long-distance antecedent. These will be discussed in section 10.3.1.

10.2 Wh-Movement, Raising and LF (advanced)

Here, we look at the interaction between Binding Theory and movement, both wh-movement and raising. Consider the following sentences, the first one of which you may recall from Chapter 8.

(24) a. Which picture of himself does John like?

b. John seems to himself to have won the race.

Recall that we claimed that the condition on anaphor binding could be met at any point in the derivation. Let’s look at the trees for these sentences to how this works. Note that the experiencer PP to himself involves a construction that we haven’t dealt with in this book, so we will not concern ourselves with the precise structure here.
(25) a. John seems to himself to have won the race.

As the tree shows, the anaphor is bound by its antecedent before \textit{wh}-movement takes place; however, in the subject raising construction, the anaphor is not bound until after \textit{John} raises to its surface position. Thus, it seems that Principle A must be satisfied before \textit{wh}-movement takes place, but after raising takes place.

At this point, it seems as though our original claim that Principle A can be satisfied at any point during the derivation stands. This is not quite correct, though. Consider the following sentence.

(26) John expects himself to seem to Bill to have won the race.

Here, Principle A clearly cannot be satisfied before raising, or we would expect that coreference between \textit{himself} and \textit{Bill} to be available. In this sentence, however, the anaphor can refer only to John. Thus, it seems that Principle A must be satisfied after raising, even though it can be satisfied before \textit{wh}-movement.

Before we solve this paradox, let us examine the following additional cases.

(27) a. *[Which picture of John\textsuperscript{1}], does he\textsuperscript{1} like \textit{t}_{i}?

b. *He\textsuperscript{1} seems to John\textsuperscript{1} to have \textit{t}_{i} won the race.
In (27)a, Principle C is violated when the DP is first merged as a sister to the verb *like*. In this position, the R-expression *John* is bound by the pronoun *he*, in violation of Principle C. In (27)b, Principle C is clearly violated after raising takes place. Again, it seems as though Principle C is evaluated before *wh*-movement, but after raising to subject.

This paradox is resolved by assuming that the Principles of Binding Theory are evaluated at LF, and by assuming that *wh*-movement can undergo an operation called *reconstruction* at LF. Reconstruction is a lowering operation at LF in which a *wh*-phrase moves back down to one of its trace positions. Furthermore, we assume that raising to subject cannot undergo reconstruction.

Let us now consider some sentences in which Principle A is satisfied by reconstruction at LF.

(28) Which picture of himself\(^1\)\(^2\) does John\(^1\) think that Bill\(^2\) likes?

As the following tree shows, the DP *which picture of himself* can reconstruct either to the specifier of the intermediate CP, where the anaphor is bound by *John* within its binding domain, or it can reconstruct to its original merged position, where it received a θ-role. In this case, the anaphor is bound by *Bill* in its binding domain. Example (27)a shows us that reconstruction is obligatory. In this sentence, the DP *which picture of John* reconstructs to the only position available, where the R-expression *John* is bound by the pronoun, in violation of Principle C. If reconstruction were not obligatory, then we would expect (27)a to be grammatical, contrary to fact.
Finally, consider the following sentence, which contains both *wh*-movement and raising to subject. The DP *which picture of himself* can reconstruct to the trace position from which *wh*-movement took place, but not to its original merged position, because this is an instance of raising to subject.
(30) [Which picture of himself\(^{1/2}\)] does John\(^1\) expect \(t\) to seem to Bill\(^2\) to \(t\), be the best in the exhibition?

This is \(wh\)-movement and can undergo reconstruction

This is raising to subject and is unavailable for reconstruction

Thus, only the higher trace position is available for reconstruction and only the DP \(John\) is an available antecedent. At LF, the DP \(which\ picture\ of\ himself\) cannot reconstruct to the lower trace position, thus \(Bill\) will not bind the anaphor.

10.3 Cross-linguistic Patterns of Anaphora and Binding

The Binding Theory developed above has been quite successful at capturing many cross-linguistic generalizations; however, these theories as they stand are problematic in the face of data from other languages. In this section, we discuss some problematic data for the Binding Theory to see what consequences it has on the theory developed so far. In some cases, adjustments to the theory are possible in order to account for the additional data. In other cases, the data will force us to reconsider seriously the theory we've developed here.

10.3.1 Long-Distance Anaphora

Many languages exhibit anaphors that can bind at a longer distance than English anaphors. Consider the following data from Mandarin and Cantonese (see p. 19 for more information on Cantonese and p. 85 for more information on Mandarin).

(31)  

a. Zhangsan\(^1\) renwei Lisi\(^2\) zhidaow Wangwu\(^3\) xihuan ziji\(^{1/2/3}\) [Mandarin, (Cole et al., 1990)]

Zhangsan thinks Lisi knows Wangwu likes SELF
‘Zhangsan thinks that Lisi knows that Wangwu likes himself.’

b. Aa-soe\(^1\) waa di hoksaang\(^2\) deoi zigei\(^{1/2}\) mou seonsam [Cantonese, (Matthews & Yip, 1994)]

a-sir say CL students toward SELF not have confidence
‘The teacher thinks the students don’t have any confidence in themselves/him.’

The forms \(ziji\) and \(zigei\) can refer to any of the DPs higher in the sentence. Thus, \(ziji\) and \(zigei\) are known as a **long-distance anaphors**.

In addition, Mandarin and Cantonese also make use of the following anaphors. The first column contains the Mandarin anaphors. The second column contains the Cantonese anaphors. The third column is the English equivalents of these.
These anaphors are morphemically complex and manifest different properties. Consider the following example.

(33)  
\[ \text{Zhangsan}^1 \text{ renwei Lisi}^2 \text{ zhidao Wangwu}^3 \text{ xihuan ta/ziji}^{1/2/3} \]  
[Mandarin]  
Zhangsan thinks Lisi knows Wangwu likes 3SG-SELF  
‘Zhangsan thinks that Lisi knows that Wangwu likes himself.’

When the morphemically complex anaphor is used, it can function only as a local anaphor, subject to Principle A of the Binding Theory discussed above. Long-distance anaphors have a number of interesting properties. They can be blocked by an intervening 1\textsuperscript{st} or 2\textsuperscript{nd} person pronoun.

(34)  
\[ \text{Zhangsan}^1 \text{ renwei wo zhidao Wangwu}^2 \text{ xihuan ziji}^{1/2} \]  
[Mandarin]  
Zhangsan thinks I know Wangwu likes SELF  
‘Zhangsan thinks that Lisi knows that Wangwu likes himself.’

Finally, consider the following data.

(35)  
\[ \text{Zhangsan}^1 \text{ gaosu Lisi}^2 \text{ Wangwu}^3 \text{ xihuan ziji}^{1/2/3} \]  
Zhangsan told Lisi Wangwu likes SELF  
‘Zhangsan told Lisi that Wangwu likes him/self.’

The long-distance anaphor can refer to either the embedded or matrix subject, but not to the matrix object. Long-distance anaphors are said to be subject-oriented. In sum, long-distance anaphors exhibit the following properties.

**Long Distance Anaphors**

- monomorphemic
- subject oriented
- exhibit blocking effects with 1\textsuperscript{st} and 2\textsuperscript{nd} person pronouns

Korean exhibits a complex array of reflexive forms (see p. 93 for more information on Korean). In many cases, these are all interchangeable; however, some of these forms have long-distance properties as described above. First, consider the forms below.
(36) a. caki himself/herself (generally used only with 3rd person)
b. casin self
c. caki-casin himself/herself (generally used only with 3rd person)
d. nay-casin myself (nay = 1st person)
e. ney-casin yourself (ney = 2nd person)
f. ku-casin himself/herself (ku = 3rd person)

These forms are referred to as pronoun+casin

Consider the following example (Kim & Yoon, 2009). Here, all four forms are available in this context.

(37) John-un (caki/casin/caki-casin/ku-casin)-uy yackem-ul cal molun-ta
John-TOP (CAKI/CASIN/CAKI-CASIN/3-CASIN)-GEN weakness-ACC well unaware-DECL
‘John doesn’t know his own weaknesses well.’

As mentioned in the list above, caki and caki-casin prefer third person antecedents, although it is not completely ungrammatical, and some speakers accept all four forms below in at least some contexts. This property of Korean reflexives is still a matter of ongoing research.

(38) Na-nun (caki/casin/caki-casin/nay-casin)-uy swuhak sillyek-ul cal alko-iss-ta
I-TOP (**CAKI/CASIN/**CAKI-CASIN/1.POSS-CASIN)-GEN math ability-ACC well know-PROG-DECL
‘I am well aware of my own ability in math.’

Both caki and casin allow local and long-distance antecedents. Consider the following data (Cole et al., 1990; Cole & Sung, 1994).

(39) Chelswu-nun [Inho/ka casin-ul/caki-lul sarangha-n-ta-ko] sayngkakha-n-ta
Chelswu-TOP Inho-NOM CASIN-ACC/CAKI-ACC love-PRS-DECL-COMP think-PRS-DECL
‘Chelswu thinks Inho likes him/himself.’

The forms caki and casin strongly prefer subjects as antecedents; however, recent research shows that caki at least can take non-subjects as antecedents. Consider the following example (Han et al., 2010).

John-NOM Mary-DAT Tom-NOM CAKI-ACC like-PRES-COMP say-PAST-DECL
‘John told Mary that Tom likes self.’

While caki does prefer either Tom or John as an antecedent in this example, Han et al. show that certain discourse situations allow Mary to serve as an antecedent, at least for some speakers. Not all speakers find coreference between caki and Mary acceptable here, hence the ?%
grammaticality marking. As with polymorphemic anaphors above, caki-casin and pronoun-casin are traditionally considered local anaphors subject to Principle A. Consider the following examples.

(41)  
a. Chelswu¹-nun [Inho²-ka ku-casin¹/²-ul sarangha-n-ta-ko] sayngkakha-n-ta
Chelswu-TOP Inho-NOM 3-CASIN-ACC love-PRS-DECL-COMP think-PRS-DECL
‘Chelswu thinks Inho likes himself/*him.’

b. Chelswu¹-nun [Inho²-ka caki-casin¹/²-ul sarangha-n-ta-ko] sayngkakha-n-ta
Chelswu-TOP Inho-NOM CAKI-CASIN-ACC love-PRS-DECL-COMP think-PRS-DECL
‘Chelswu thinks Inho likes himself/*him.’

Recent research, however, has shown that caki-casin at least can take a long-distance anaphor in some environments. That is, it only has a strong preference rather than an absolute requirement to take a local antecedent (Kim & Yoon, 2009). Consider the following example.

(42)  
Heera¹-nun [tongchanghoy²-ka [caki-casin¹-i taumcwu-ey kyelhonhana-nun sasil]-ul imi palphyohaysst[a]-ko malyassta
Heera-TOP alumni.ass’n-NOM CAKI-CASIN-NOM next.week get.married-REL fact-ACC already announced-COMP said
‘Heera¹ said that the alumni association already announced the fact that she would get married next week.’

Here, some speakers accept the long-distance reading of caki-casin, in which this anaphor is coreferential with Heera outside of the local binding domain. The last property we look at is the tendency for caki to take long-distance antecedents. Consider the following examples (Cole et al., 1990).

(43)  
a. ?? John¹-nun caki¹-lul miweha-n-ta
John-TOP CAKI-ACC hate-PRS-DECL
(‘John hates himself.’)

b. John¹-nun [ Mary²-ka caki¹-lul miweha-n-ta-ko] sayngkakha-n-ta
John-TOP Mary-NOM CAKI-ACC hate-PRS-DECL-COMP think-PRS-DECL
‘John’ thinks Mary hates him¹.’

These data show that caki prefers to take a long-distance antecedent. Note that this is at odds with the genitive use of caki in example (37), which does take a local antecedent. Because caki tends to take a long-distance antecedent, it is sometimes called a logophor. It is not quite like a standard pronoun since it generally requires an antecedent. In sum, the complex properties of Korean reflexives are still a matter of intensive ongoing research.
10.3.2 Romance Pronominal Forms

Consider the following paradigm of accusative pronominal elements from various Romance languages:

<table>
<thead>
<tr>
<th></th>
<th>French</th>
<th>European Portuguese</th>
<th>Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pronoun</td>
<td>anaphor</td>
<td>pronoun</td>
</tr>
<tr>
<td>singular</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>me</td>
<td>me</td>
<td>me</td>
</tr>
<tr>
<td>2nd</td>
<td>te</td>
<td>te</td>
<td>te</td>
</tr>
<tr>
<td>3rd</td>
<td>le</td>
<td>se</td>
<td>o</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>se</td>
</tr>
<tr>
<td>plural</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>nous</td>
<td>nos</td>
<td>nos</td>
</tr>
<tr>
<td>2nd</td>
<td>vous</td>
<td>vos</td>
<td>vos</td>
</tr>
<tr>
<td>3rd</td>
<td>les</td>
<td>se</td>
<td>os</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>se</td>
</tr>
</tbody>
</table>

Notice that for 1st and 2nd person, there is no difference between pronouns and anaphors. Burzio (1991) noticed the same facts for Italian and sought to create a specific definition for ‘anaphor’ and ‘pronoun’. Note that, for English, a definition wasn’t seen as crucial, since the morphology easily tells us what is an anaphor and what is a pronoun. Note that if we are trying to pin down the binding domains for anaphors in different languages, then we cannot simply define an anaphor as something that must be locally bound. This would be circular. Rather, Burzio argued we must find an independent way of determining what is an anaphor and what is a pronoun. Rather than work through Burzio’s proposal, we will simply discuss some of the empirical facts. In addition to the lack of any morphological distinction between 1st and 2nd person pronouns and anaphors, Burzio noticed the following variation for stressed pronominal forms in Romance.

(44)  a. Victor’il a honte de *soi’/lui’il. [French]
     Victor has shame of SELF/him
     ‘Victor is ashamed of himself.’

     b. Gianni’il ha vergogna di * lui’il/’lui’il. [Italian]
     Gianni has shame of him/SELF
     ‘Gianni is ashamed of himself.’

     c. Giuanin’il a-parla sempre d’chiel’il. [Piedmontese]
     Giuanin CL-talks always of him
     ‘Giuanin always talks about himself.’

French does not allow stressed SELF-anaphor in this environment, whereas Italian requires one. Piedmontese doesn’t have an anaphor of this type. No cross-linguistic generalization can be made on this data, thus making it difficult to come up with cross-linguistically valid principles of
Binding Theory. Recall also that there is no morphological distinction between anaphors and pronouns in 1st and 2nd person. Thus, Romance languages present interesting problems to Binding Theory.

Next, we discuss various environments in which we find the morpheme se in Romance languages. This is by no means a complete discussion of this morpheme. Se is a highly underspecified morpheme found in virtually all Romance languages. It’s often claimed that its only feature is [3rd person] since it otherwise does not inflect for gender or number (although in Romanian it inflects for Case). Se can function to mark a predicate as reflexive, as shown in the following Portuguese example.

(45) A Maria viu-se. [Portuguese]
    the.F Mary see.3.SG.PST- SE
    ‘Mary saw herself.’

Many languages exhibit causative/inchoative pairs such as *John melted the butter* (the causative alternant) versus *The butter melted* (inchoative alternant). The inchoative alternants are unaccusative. Consider the following Italian data.

(46) a. Giovanni rompe il vetro. [Italian]
    Giovanni breaks the.M glass
    ‘Giovanni breaks the glass.’

b. Il vetro si rompe. [Italian]
    the.M glass SE breaks
    ‘The glass breaks.’

Here, the theme/patient *il vetro* (‘the glass’) fulfils the same function in both sentences. Example (46)a illustrates the causative alternant, where Giovanni caused the breaking of the glass. Example (46)b illustrates the inchoative alternant, where the glass became broken. The SE morpheme appears in the inchoative alternant.

Romance languages exhibit a form called the *impersonal passive*, which is usually translated into a traditional passive in English. It is a valency reducing phenomenon that demotes the subject and promotes the object. Here is an example from Portuguese.

(47) As toranjas comem-se aqui. [European Portuguese]
    the grapefruit.PL eat.3.PL-SE here
    ‘Grapefruit is eaten here.’

Many languages exhibit a class of verbs referred to as *inherent reflexives*. You can read more about inherent reflexives in the advanced section below on Reflexivity. Briefly, these verbs can only be understood as having self-direction action. The following examples give two prototypical inherent reflexive predicates.

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309
The majority of these verbs must appear with a reflexive pronoun; however, some may appear without, often with a slight change in meaning, but sometimes with no change in meaning. Compare the following pairs of examples. In (49)a, there is no change in meaning. In (49)b, the meaning changes from remember (with se) to remind (without se) with a direct object.

(49) a. i. O João se esqueceu dos livros. [Brazilian Portuguese]
   ‘John forgot the books.’
   ii. O João esqueceu os livros. [Brazilian Portuguese]
       ‘John forgot the books.’

b. i. O João lembrou-se dos livros. [European Portuguese]
    ‘John remembered the books.’
   ii. O João lembrou a Maria dos livros. [European Portuguese]
       ‘John reminded Mary about the books.’

---

Some uses of the Romance se morpheme
- as a true anaphor marking an argument on a verb
- on inchoatives
- on impersonal passives
- on inherently reflexive verbs
10.3.3 Oceanic Reflexives/Reciprocals

Earlier we mentioned that reflexive anaphors and reciprocal anaphors behave uniformly in English. In many languages, however, reflexives and reciprocals behave differently. We will consider data from Niuean, an Austronesian language, which illustrates this asymmetric behaviour. In Niuean, if a non-subject is marked as reflexive, it appears with an optional reflexive marker, nī.

(50) a. Ko e tele nī kia e koa a koa (nī) [Niuean]
   PRS kick EMPH Q ERG-you ABS-you (REFL)
   ‘Are you kicking yourself?’

b. Ne fakafano mai e au e tohi ki a au (nī)
   PST send DIR ERG 1.SG ABS letter to PERS me (REFL)
   ‘I sent a letter to myself.’

Reciprocals are marked quite differently. There is no morpheme on the pronoun; rather, there are two reciprocal markers on the verb.

(51) Kua fe-akitia-aki e Lemani mo Maka a laua.
    PERF RECIP-see-RECIP ERG lemani with maka ABS them.DUAL
    ‘Lemani and Maka see each other.’

Thus, reflexives and reciprocals do not pattern uniformly in all languages.

10.3.4 Verbal Reflexives

Most of the data we have dealt with so far features an anaphoric pronominal element that appears in the same argument position as a non-anaphoric element. Thus, John sees Bill and John sees himself have the same structure. What we have been concerned with is the distribution of anaphors such as himself. Not all languages have a separate anaphor as in English. Some languages use verbal morphology to indicate reflexivity. Consider the following Onondaga data (see p. 110 for more information on Onondaga).

(52) a. waˀgadadaehsę́thwaˀ
    waˀˀ k- atat- aehsę́th- aˀ
    FACT- 1.SG.AG- REFL- kick- PUNC
    ‘I kicked myself.’
10.3.5 Obviation

Obviation is an obligatory disjoint reference in two 3rd person forms. The following French example illustrates this point.

(F53) Jean\(^1\) veut qu’il\(^{1/2}\) parte
Jean\(^1\) wants that he\(^{1/2}\) leave.3SG.SUBJ
‘John\(^1\) wants him\(^{1/2}\) to leave.’

In (53) the pronoun *il* cannot be bound by Jean. This is unexpected under Binding Theory as presented above. Principle B states that a pronoun must be free in its binding domain—but it may be bound from outside its binding domain. The standard explanation for this anomaly is that there is already another way to express co-reference, which is to use an infinitival form as in (54). Many people find this explanation unsatisfying, however, since it does not explain why one form is chosen over another. That is, why is the form in (53) with the coreferential reading blocked by the form in (54)? Why isn’t the form in (54) blocked by the corresponding form in (53)? Another problem people have with this explanation is that it is well-known that many languages have more than one way to express the same or similar concepts. In fact, this is the case for English with the same set of sentences: *John wants to leave* means roughly the same thing as *John wants himself to leave*, where there is a bit of emphasis on *himself*. Even with emphasis, the coreferential reading is not available in (53).

(F54) Jean veut partir.
Jean wants leave.INF
‘John wants to leave.’

Furthermore there are examples where two such similar forms are available. Consider the following examples.

(F55) a. Jean\(^1\) croit qu’il\(^{1/2}\) est malade.
John\(^1\) believes that he\(^{1/2}\) is sick
‘John\(^1\) believes that he\(^{1/2}\) is sick.’

b. Jean croit être malade
John believes be.INF sick
‘John believes he\(^{1/2}\) is sick.’
Here, the availability of the infinitival form with obligatory coreference does not block coreference in (55)a.

Turning our attention to the Algonquian family of North America, we see that obviation is quite a widespread phenomenon. There is a constraint in this language family that there can be only one 3rd person referent in a given stretch of discourse. If another 3rd person entity is introduced, it must be marked \textit{obviative}. (In some sources, this is called \textit{4th} person.) Consider the following examples from Cree (adapted from Ahenakew, 1987). (You can read more about Cree on p. 84.)

(56) a. ni-kî-wâpam-âw ayîkis
    1-PST-see-3SG frog
    ‘I saw a frog.’

b. ana awâsis kî-wâpam-êw ayîkis-a
    that child PST-see-3SG.OBV frog.OBV
    ‘That child saw a frog/some frogs.’

In (56)a, we see the form \textit{ayîkis}, which means ‘frog’. In (56)b, however, the subject is 3rd person. Thus, the object cannot also be 3rd person and is marked obviative. An obviative marker -\textit{a} appears on the noun and in the agreement marker on the verb. The choice as to which DP is proximate and which is obviative depends on pragmatic and discourse factors such as who or what the topic of the discussion is. In the following examples the verbal morphology indicates which argument is the subject and which is the object. When there is a third person proximate DP and an obviative DP the direct marker (\textit{DIR}) means that the proximate DP is the subject, and the inverse marker (\textit{INV}) means that the obviative DP is the subject.

(57) a. ê-wâpam-â-t nâpêw iskwêw-a
    CONJ-see-DIR-3 man woman-OBV
    ‘The man saw the woman.’

b. ê-wâpam-ikw-t iskwêw nâpêw-a
    CONJ-see-INV-3 woman man-OBV
    ‘The man saw the woman.’

\textbf{10.4 Reflexivity (advanced)}

Standard Binding Theory has been quite successful at capturing the distribution of anaphors and pronouns. Binding Theory as presented thus far, however, is problematic in some areas. First, Principles A and B predict that anaphors and pronouns should be in strict complementary distribution. This is now always the case, however. Consider the following example. It appears that either a pronoun or an anaphor can appear in this environment. Recall also the Romance data in (44) above in which French and Italian have opposing requirements on anaphors and pronouns in the same environment.
Max saw a snake near him. As an alternative to Binding Theory, Reinhart and Reuland (1993) developed a new theory of binding called *Reflexivity*. According to this theory, there are three kinds of anaphoric expressions, shown in the following table. There are two types of anaphors: SELF anaphors and SE anaphors, in addition to pronouns. Furthermore, these pronominal forms are encoded with the features [+Reflexivizing] and [+R].

<table>
<thead>
<tr>
<th>SELF anaphors</th>
<th>SE anaphors</th>
<th>pronouns</th>
<th>Reflexivizing</th>
<th>R - Referential Independence</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>-</td>
<td>-</td>
<td>Reflexivizing</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>+</td>
<td></td>
<td>R - Referential Independence</td>
</tr>
</tbody>
</table>

A [+Reflexivizing] pronominal element marks a predicate as reflexive. That is, it indicates that two arguments of the predicate are coreferential. A [+R] pronominal element can take reference independently of an antecedent. Thus, only SELF anaphors can license reflexivity - in other words, a SELF anaphor is needed for reflexive sentences.

Susan saw herself in the mirror. SE anaphors and pronouns do not license reflexivity. A SE anaphor, furthermore, cannot take independent reference. English does not have a SE anaphor, so we will wait to see an example.

In order to understand how Reflexivity works, we will need the following definitions. A *syntactic predicate* is an expression that contains all its syntactic arguments (that is, arguments assigned a θ-role by the predicate) including an external argument (subject). A *semantic predicate* is an expression that contains all its internal arguments at the relevant semantic level. (We will come back to this notion of the relevant semantic level later.) Thus, it is unimportant whether a semantic predicate contains a subject or not, although it may contain a subject. A predicate is reflexive if and only if two of its arguments are co-indexed. A predicate (formed of P) is reflexive-marked if and only if either P is lexically reflexive or one of P’s arguments is a SELF anaphor. English does not have any lexically reflexive predicates, so the only way for a predicate to be reflexive marked in English is for a SELF anaphor to be present. We will see some examples of lexically reflexive predicates later. The distribution of these three types of anaphoric expressions is determined by the following conditions.

**Condition A**  
A reflexive-marked syntactic predicate must be reflexive.

**Condition B**  
A reflexive semantic predicate must be reflexive-marked.

Let’s see how these conditions on reflexivity work. Consider the following example.

* Max criticized him.
The verb in example (60) is reflexive because two of its arguments are co-indexed. Condition B states that a reflexive semantic predicate must be reflexive-marked. Criticize is not lexically reflexive, and there is no SELF anaphor present to mark the predicate as reflexive. Condition B is violated.

Now let’s consider some of the troublesome cases from before.

(61) John saw a snake near him/himself.

Note that the PP near him/himself is an adjunct - not an argument of the verb. As such, the predicate see is not reflexive, since it in and of itself does not contain two co-indexed arguments. The only two arguments of see are John and a snake. Furthermore, this predicate is not reflexive marked because it does not contain a SELF anaphor (the SELF anaphor is contained in an adjunct and not in the predicate itself.) Therefore, conditions A and B have nothing to say about see. Let’s turn now to the adjunct PP near him/himself. The preposition defines a predicate since it assigns its complement Case and a θ-role of <location>. Since it contains no external argument, it is only a semantic predicate and not a syntactic predicate. Furthermore, it is a reflexive-marked semantic predicate, if we consider the version of the PP with himself. Condition A requires reflexive-marked syntactic predicates to be reflexive. The PP is not a syntactic predicate, so Condition A has nothing to say about this PP. Condition B is a condition on reflexive predicates, which this isn't since there's only one argument. So Conditions A and B have nothing to say about the predicate near, either. Thus, the optionality here is not a problem for the theory of reflexivity.

Finally, let’s consider the following sentence.

(62) Mary speaks with *her/herself.

Here, the pronoun is ungrammatical under co-reference. Let’s see why. Note now that the PP is not an adjunct, but is rather an argument of the verb. The preposition does not form its own predicate anymore, and the anaphor is an argument of the predicate speak. Speak is a reflexive predicate since it contains two arguments that are co-indexed. As such, it must satisfy Condition B, which it can do only if one of the arguments is a SELF anaphor.

This brief introduction serves to show how alternative theories of the distribution of anaphors can account for facts that standard BT fails to account for. Let us now turn to SE anaphors and the notion of lexically-reflexive predicates. Consider the following data from Dutch.

(63) Max schaamt zich.

Max shames SE
‘Max is ashamed (of himself).’

_Schaamen_ in Dutch is a lexically reflexive predicate, which means that it’s an inherent property of the predicate that the subject and object are co-referential. As a lexically-reflexive predicate, no SELF anaphor is needed to reflexively mark the _schaamen_ in example (68).
(64)  a.  *Max¹ haat zich¹.  
    Max  hates  SE  
    (‘Max hates himself.’)

        b.  Max¹ haat zichzelf¹.  
    Max  hates  SELF  
    ‘Max hates himself.’

*Haaten* is not a lexically-reflexive predicate. Thus a SELF anaphor is required to reflexively mark the reflexive predicate.

Finally, consider the following sentences.

(65)  a.  *The Queen invited myself for tea.
     b.   The Queen invited both Max and myself/me for tea.
     c.  The Queen¹ invited both Max and herself¹ to our party.
     d.  *The Queen¹ invited both Max and her¹ to our party.

It’s clear why (65)a is ungrammatical. It consists of a reflexive-marked syntactic predicate, but it is not reflexive. Now, turning to (65)b, either the anaphor or the pronoun can appear here. First, let’s consider Condition A when the anaphor is present. Condition A is a condition on reflexive-marked predicates. This predicate has two arguments: *The Queen and Max and myself.* Neither of these is a SELF anaphor. The object Max and myself contains a SELF anaphor, but it is not a SELF anaphor, itself. Thus, this syntactic predicate is not reflexive marked. Condition B is a condition of reflexive semantic predicates. This predicate is not reflexive since it does not contain two coreferential arguments. Therefore Conditions A and B have nothing to say about (65)b.

Turning now to (65)c-d, we see that only the anaphor is permitted in this environment. We must consider the meaning of a semantic predicate in a bit more detail here. At some semantic level. (65)c has the following meaning.

(66)  (The Queen invited Max) AND (The Queen invited herself)

Now, the Conditions come into play. Condition A again has nothing to say, since the syntactic argument in question is *Max and herself/her*, which is not a SELF anaphor. Condition B is a condition on reflexive semantic predicates, which is found in the second conjunct of (66). This semantic predicate is reflexive, since two of its arguments are coreferential. Consequently, it must be reflexive-marked. Thus, the anaphor must be present, as it is in (65)c, rendering (65)d ungrammatical.

**Key Concepts**
**anaphor:** A pronominal element that must take its reference from a linguistic antecedent. Typically, the antecedent must bind the anaphor locally.

**pronoun:** A pronominal element that need not take its reference from a linguistic antecedent. Typically, if an antecedent is present, it cannot bind the anaphor locally.

**R-Expression:** Any expression that can refer to a real world entity on its own.

**Principles A, B, C** Principles the govern the distribution of anaphors, pronouns and R-expressions, respectively.

**binding domain** The smallest domain in which an anaphor must be bound in many languages.

**accessible subject** The subject or possessor of a binding domain that is not the anaphor for which the binding domain is being computed.

**logophor** (i) An anaphor being used to express emphasis rather than reflexivity, or (ii) an anaphor that must take a long-distance (i.e., non-local) antecedent.

**long-distance anaphor** An anaphor that requires a linguistic antecedent, but one need not be local. These are often found in East Asian languages among others.

**obviation** A situation in which there is obligatory disjoint reference between two 3rd person nominals.

**Reflexivity** A theory of the distribution of anaphors and pronouns that depends both on syntactic and semantic properties.

**reconstruction** The process of wh-movement lowering to a trace position at LF

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**Further Reading**

Ahenakew, F. (1987) This is a very reader-friendly pedagogical grammar of Cree, which explains more details about the obviative construction.

Chomsky, N. (1981) This monograph laid the foundation for Government and Binding Theory, including an in depth discussion on classical Binding Theory as described here. As with most of Chomsky’s writings, the reader is cautioned to have a strong foundation before attempting this work.
Cole, P., G. Hermon & L.-M. Sung (1990)  This is one of the earliest generative analyses of long-distance anaphora in Mandarin.

Reinhart, T. & E. Reuland (1993)  This paper is the original source on the theory of Reflexivity.

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**Exercises**

1. For each of the following sentences, determine the binding domain of the anaphor. Then determine whether Principle A is satisfied. If Principle A is violated, explain exactly what is wrong.

   a. John\(^1\) is talking to himself\(^1\).
   b. Mary\(^1\) found a picture of herself\(^1\).
   c. *Jeff\(^1\) lost Susan’s picture of himself\(^1\).
   d. *Harold\(^1\) expects Alice to visit himself\(^1\).
   e. *John’s sister hit himself\(^1\).

2. Explain clearly why the following sentences are ungrammatical.

   a. *Jeff\(^1\) lost Susan’s picture of her\(^1\).
   b. *He\(^1\) expects Alice to visit Harold\(^1\).
   c. *John’s sister thinks Mary hit himself\(^1\).
   d. *John’s sister\(^1\) seems to like her\(^1\).

3. Consider the long distance reflexives in Chinese languages in light of Reflexivity. Do you think the long-distance anaphor is a SELF anaphor or a SE anaphor? How is it different from SELF and SE anaphors discussed here?
Appendix on the Calligraphy of Tree Drawing

Syntactic trees convey a great deal of information to the reader; however, they can only do so effectively if they are drawn clearly. Consider the examples below that contain several common errors made by introductory students of syntax. The two branches dropping down from a node should connect at the top, and the point where the two branches connect should be centred underneath the dominating node. The bottom of each branch should be centred above the daughter nodes.

Avoid the following pitfalls made by novice tree-drawers:

I  Disconnected Branches

Top of lines do not connect

This tree is even worse!
II Height mismatches among sister nodes.

Ideally, sister nodes should appear at the same height on the page. Sometimes this is difficult or even undesirable. The overriding concern is ease of reading the tree. Consider the following examples.

Note that the sister nodes are at the same level.

The sister nodes here are not at the same level, making the tree difficult to read.

This tree is particularly bad as the nodes V and D are at the same level, but are not sisters!
III Squeezing extra-long trees.

Often a tree may be too large to fit on the length of a single page. Do not try to squeeze the tree into the bottom of the page as this can make it difficult to read. Instead, simply continue the tree on the next page or on the right side of the page if your tree is narrow enough.
Glossary

absolutive the case associated with the single argument of an intransitive verb or the direct object of a transitive verb in ergative/accusative languages (p. 180)

accusative case the morphological realization on nouns and pronouns in some languages that singles out that noun as the direct object. In English, accusative case is marked only on pronouns (me, him, her, etc.). Also in English, accusative case is found not only on direct objects, but on indirect objects (I gave him a book) and on the object of a preposition (I spoke to him).

accusative Case the Case that is assigned by v. Only direct objects have accusative Case.

adjunct An adjunct modifies the meaning of another phrase. It provides additional information about the phrase it modifies and is generally optional. In the following examples the adjunct is underlined.

\[\text{the man} \quad \text{the tall man} \quad \text{John ate the apple.} \quad \text{John ate the apple quickly.}\]

argument An argument is a phrase that is subcategorized by a head. It is usually obligatory when the subcategorizing head is a verb. Prototypical arguments include the subject, direct object and indirect object.

benefactive An expression that indicates the entity for whose benefit an event took place. In the following example “his grandmother” is a benefactive: John shovelled the driveway for his grandmother.

case the morphological realization of Case that appears on nouns and pronouns in some languages

Case a feature that is assigned by particular functional heads to DPs

Case Filter the Case Filter states that a DP must be assigned Case once and only once

determiner an element that marks various grammatical properties of a noun such as definiteness and specificity

endocentricity the notion that the head of a phrase is contained within the phrase

ergative Case the Case that is assigned to the subject of a transitive verb in ergative-absolutive languages

epenthesis Epenthesis is a phonological process in which a phone is inserted in a cluster of sounds to break up the cluster. An epenthetic vowel is inserted in a consonant cluster or after a coda consonant. An epenthetic consonant is inserted be-
tween two vowels to break up a sequence of vowels (also called vowel hiatus). By and large, epenthesis does not play a role in syntactic phenomena.

**EPP**

Extended Projection Principle – a principle which holds that the specifier of a head endowed with the EPP must be filled. In English, T has the EPP property, requiring an overt subject in SpecTP.

**external argument**

an argument introduced by v, typically the thematic subject

**internal argument**

an argument that is introduced by V, typically the thematic direct object and indirect object

**Inverse Case Filter**

The Inverse Case Filter states that all Case assigners must assign Case to one and only one DP (or D in the case of bare pronouns) or DP chain.

**joiner vowel**

A joiner vowel is an epenthetic vowel that appears between an incorporated noun and a verb root in Iroquoian languages.

**locative**

The expression of the place or location of an event. Locatives can be expressed by prepositions, postpositions or affixes attached to the nominal, or by applicative morphology on the verb.

**matrix**

of or relating to the main clause or topmost clause. The matrix clause is not dominated by any material. Thus, the matrix CP is the topmost node of the tree. The matrix verb is the verb of the matrix clause.

**obviative**

A phenomenon in which a third person nominal phrase is obligatorily disjoint in reference from another third person nominal phrase. It is found in Algonquian languages and French among other languages.

**subordinate clause**

any clause whose topmost node is dominate by another clause

**superordinate clause**

any clause that dominates another clause

**thematic relation**

one of a small set of roles in which an argument interacts with the event and other arguments of a lexical head examples: <agent>, <patient>, <theme>, etc.

**Theta Criterion**

The Theta Criterion states that every argument is assigned one and only one θ-role.

**theta role (θ-role)**

the set of thematic roles that a lexical head assigns to each of its arguments
unaccusative  
an intransitive verb that takes an internal argument only (such as *arrive* or *go*)
Index

absolutive ........................................................................................................................................ viii, 180, 181, 182, 183, 184, 192, 194, 323
Apuriña ........................................................................................................................................ 77
Aristotle ........................................................................................................................................... 44, 329
Bengali .......................................................................................................................................... 70
Burzio’s Generalization .................................................................................................................. 180, 188, 189
Cantonese .................................................. 20, 47, 76, 86, 87, 119, 126, 127, 142, 188, 189, 190, 218, 219, 220, 223, 244, 245, 304, 332, 333
Chichewa .................................................................................................................................... 87, 88, 332
Chinese ......................................................................................................................................... 172, 219, 249, 318, 329, 330, 331, See also Cantonese, Mandarin
Chukchi ........................................................................................................................................ 194
cleft ............................................................................................................................................... 53, 54, 157
cognate objects ........................................................................................................................... 185, 186, 188, 189, 190
  arbitrary control .......................................................................................................................... 272
  partial control ............................................................................................................................ 273, 274, 280, 282
  split control .............................................................................................................................. 258, 274, 282
Cree ............................................................................................................................................. 84, 85, 86, 313, 317, 329
Danish ....................................................................................................................................... 175, 176, 298
dative shift ................................................................................................................................... 107, 111
Degema ......................................................................................................................................... 173, 279, 331
descriptivism ............................................................................................................................... 15, 18
Dutch .......................................................................................................................................... 175, 176, 287, 288, 315
Dyirbal ........................................................................................................................................ 133, 134, 140, 146, 151, 156, 160, 161, 163, 166, 168, 190, 192, 199, 202, 203, 204, 220, 223, 247, 267, 270, 287
French ........................................................ 16, 20, 85, 96, 125, 126, 127, 134, 135, 136, 137, 138, 141, 146, 149, 152, 161, 186, 206, 207, 208, 246, 250, 254, 255, 256, 257, 284, 308, 312, 313, 324, 331
generic they ................................................................................................................................ 16, 17
Georgian ................................................................................................................................. 194
Greek ........................................................................................................................................ 110, 159, 275, 276
Halkomelem ............................................................................................................................... 155, 184, 334
<table>
<thead>
<tr>
<th>Language</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hindi</td>
<td>30, 50, 287, 288, 331</td>
</tr>
<tr>
<td>Hixkaryana</td>
<td>76, 77, 142, 154</td>
</tr>
<tr>
<td>idiom</td>
<td>261, 262, 264, 265, 270</td>
</tr>
<tr>
<td>idioms</td>
<td>47, 260, 265</td>
</tr>
<tr>
<td>inchoatives</td>
<td>110, 310</td>
</tr>
<tr>
<td>Inuktitut</td>
<td>123, 183, 333</td>
</tr>
<tr>
<td>Irish</td>
<td>76, 134, 142, 146, 147, 149, 155, 156, 157, 158, 214, 332</td>
</tr>
<tr>
<td>Italian</td>
<td>ix, 95, 126, 153, 171, 186, 188, 223, 254, 256, 308, 309, 310, 313</td>
</tr>
<tr>
<td>Khany</td>
<td>181</td>
</tr>
<tr>
<td>light verb</td>
<td>81, 101, 112, 113</td>
</tr>
<tr>
<td>logophor</td>
<td>299, 300, 307, 317</td>
</tr>
<tr>
<td>Malagasy</td>
<td>76, 77, 142, 232</td>
</tr>
<tr>
<td>Mandarin</td>
<td>viii, 76, 77, 85, 86, 87, 112, 142, 161, 171, 172, 199, 200, 202, 204, 218, 223, 224, 231, 289, 304, 305, 318, 331</td>
</tr>
<tr>
<td>middle voice</td>
<td>111, 112, 114</td>
</tr>
<tr>
<td>Mohawk</td>
<td>47, 122, 329</td>
</tr>
<tr>
<td>Nahuatl</td>
<td>122</td>
</tr>
<tr>
<td>Niuean</td>
<td>41, 76, 142, 155, 311, 332</td>
</tr>
<tr>
<td>obviative</td>
<td>ix, 84, 313, 317, 324</td>
</tr>
<tr>
<td>Oneida</td>
<td>vii, 37, 40, 41, 74, 118, 332</td>
</tr>
<tr>
<td>Onondaga</td>
<td>110, 201, 289, 311, 334</td>
</tr>
<tr>
<td>Pāñini</td>
<td>44</td>
</tr>
<tr>
<td>Pari</td>
<td>76, 142</td>
</tr>
<tr>
<td>passive</td>
<td>56, 101, 125, 159, 167, 169, 170, 172, 173, 182, 252, 263, 265, 284, 309</td>
</tr>
<tr>
<td>antipassive</td>
<td>viii, 180, 182, 183</td>
</tr>
<tr>
<td>impersonal passives</td>
<td>170, 310</td>
</tr>
<tr>
<td>pseudo passives</td>
<td>173</td>
</tr>
<tr>
<td>passives</td>
<td></td>
</tr>
<tr>
<td>German long passives</td>
<td>56, 57, 167, 265, 266</td>
</tr>
<tr>
<td>passivization</td>
<td>47, 76, 126, 127, 142, 287, 330</td>
</tr>
<tr>
<td>Portuguese</td>
<td>vii, 47, 96, 126, 127, 153, 170, 254, 255, 277, 278, 308, 309, 310, 332</td>
</tr>
</tbody>
</table>
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