1 Adjuncts

Last week’s lectures used patterns of acceptability judgments to argue that words impose subcategorization requirements on their complements. Consider *slay* in its transitive frame [NP]. In an example like (1), the subcategorization requirement is met by the complement NP *the dragon*.

(1) Saint George slew [NP the dragon] with a sword.

But what can be said about the PP *with a sword*? This phrase is not required by the subcategorization frame of *slay*. Rather, it is an adjunct — of which there can be many. Example (2) has just five PP adjuncts, but (as anyone who has ever played Clue can tell you) any limitation on the number of possible adjuncts has more to do with the subject under discussion than with the grammar of the language.

(2) St. George slew the dragon [PP with a sword] [PP on Tuesday] [PP in the parlour] [PP with the maid] [PP while rakishly smoking a cigarillo]

1.1 Do-so substitution

One can diagnose whether or not a phrase is a verbal adjunct using do-so substitution. If a phrase need not be included as part of the sequence being replaced by *do so*, then it is an adjunct. Otherwise, if it must be included to preserve acceptability, then it is a complement. Example (3) shows a positive result from this test, indicating that *out of love* is an adjunct.

(3) a. Lancelot pursues Guinevere out of love and Arthur *does so*, too.
   b. Lancelot pursues Guinevere out of love and Arthur *does so* out of political necessity.

Example (4) shows a negative result from this test, indicating that the proper name *Arthur* is not serving as an adjunct. This is consistent with the [NP NP] subcategorization frame for *give*.

(4) a. The Lady of the Lake gives Arthur his sword and Merlin *does so*, too.
   b. *The Lady of the Lake gives Arthur his sword and Merlin *does so* the round table

1.2 Adjectival adjuncts

There can be any number of pre-nominal adjectives in English. They share this free iterability property with postverbal PP adjuncts.

(5) The little red light’s not blinking on my big black plastic Japanese cordless phone.
1.3 Adjunctions in X-bar theory

Let’s extend the X’ schema to handle adjuncts. They can come either on the left of a head (e.g. adjectives before a noun) or on the right of a head (e.g. PP modifiers). In at least the verbal case, they come after any subcategorized complements. To capture these properties in our theory of phrase structure, introduce a new structure-building rule that merges in an adjunct at the X’ level. The mother node dominating these two children will have the same category as the non-adjunct daughter.

![Diagram](image)

Figure 1: X’ schema extended to handle adjuncts

The extended X’ schema in figure 1 notates the complement/adjunct distinction using the tree-structural difference between sister-of-X and sister-of-X’. For instance, in example 6 the first PP of poems is a complement of the N book, whereas the second PP with the glossy cover is attached as an adjunct.

(6) NP Det the N’ N’ N book PP of poems PP with the glossy cover

Note well that book of poems with the glossy cover is an N’, the same syntactic category as the smaller [N’-book of poems]. The merge rules that permit such an N’ to embed a smaller N’ exhibit recursion on the symbol N’. 

All tree branches must instantiate one of these rule-types where V, W, X, Y, Z range over syntactic categories, the comma abstracts over linear ordering and parentheses indicates optionality.

<table>
<thead>
<tr>
<th>Rule Type</th>
<th>Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>head-complement</td>
<td>X’ → X, (Z)</td>
</tr>
<tr>
<td>xbar-specifier</td>
<td>XP → (Y), X’</td>
</tr>
<tr>
<td>adjunct1</td>
<td>X’ → X’, W</td>
</tr>
<tr>
<td>adjunct2</td>
<td>XP → XP, V</td>
</tr>
</tbody>
</table>

Figure 2: Concise statement of two-level X’-bar theory

The head X is sometimes referred to as an X⁰ because it constitutes the zeroth bar level. X’=X¹ is the first bar level. X² is known as XP, the “maximal projection” of the head.
2 Relativization

Relative clauses can be analyzed with a transformational movement rule not entirely unlike the one for information questions. Movement of the Wh-word is motivated by a relativization feature on C.

```
input: NP
  | Det
  | the
  | N
  | sorceress
  | C_{+Rel}
  | IP
  | NP
    | Merlin
    | I_{Past}
    | VP
    | V
    | NP
      | taught
      | N
      | who

output: NP
  | Det
  | the
  | N
  | sorceress
  | C_{+Rel}
  | IP
  | NP
    | Merlin
    | I_{Past}
    | VP
    | V
    | NP
      | taught
      | t
```

Figure 3: Relativization transformation

The idea that the landing site is the specifier of CP is supported by examples where both C and its specifier are filled. English, at least nowadays, appears not to allow this option.

(7) Dutch

I k w eet n i e t w i e o f J a n g e z i e r h e e f t
I k n o w n o t w h o m w h e t h e r J a n s e e n h a s

“I don’t know whom Jan has seen”

(8) Bavarian German

I w o a s s n e d w a n n d a s s X a v e a k u m m t
I k n o w n o t w h e n t h a t X a v e a c o m e s

“I don’t know when Xavea is coming”

Relativization can target any grammatical relation. When launched from subject position, the movement does not actually cross any overt words and is said to be “string-vacuous.”

(9) a. the girl who t got the right answer is clever
b. the dog which Penny bought t today is very gentle
c. the man who Stephen explained the accident to t is kind
d. the ship which my uncle took Joe on t was interesting
3 Coordination

Let's put words like *and* and *or* in a syntactic category Con and observe three properties.

1. any category X, X’ or XP may be coordinated by Con
2. the coordinated elements are typically share the same syntactic category
3. the conjoined result typically has the same category as the conjoined phrases

Property 1 is demonstrated for maximal projections of N,V,A,P by the coordination test examples from October 11th repeated here as (11) and for intermediate projections V’,A’ and P’ in (12).

(11) a. [NP Jane’s shoes] and [NP the books in the living room] take up too much space.
    b. During lecture, Mark [VP got bored] and [VP started playing with his Treo].
    c. The really [AP depressed] and [AP angry] postdoc decided to jump off a bridge.
    d. They chased the getaway car [PP around the corner] and [PP down the alley]

(12) a. Sir Gawain rarely [VP goes out] and [VP gets wasted]
    b. Morgan Le Fay favors the very [A’ bright blue] and [A’ dull green] gown.
    c. Arthur chased Sir Lancelot right [P’ out of Britain] and [P’ into France].

One might begin to analyze these constructions using a “flat” coordination schema as in O’Grady p184 figure 5.27. But doing so would force yet another extension of X-bar theory. Instead, let’s assume that the second conjunct attaches to the first by XP-adjunction as in (13) where V = ConP.

\[
\text{IP} \\
\text{NP} \\
\text{NP} \quad \text{ConP} \\
\text{Agravain} \quad \text{Con’} \\
\text{uncover the betrayal} \\
\text{Con} \quad \text{NP} \\
\text{and} \quad \text{Mordred}
\]

The examples in (14) are consistent with the second conjunct’s being a head-initial ConP, rather than the first conjunct forming a constituent with Con at its rightmost edge. That grouping is not independently moveable the way ConP seems to be.

(14) a. John bought a book and a newspaper yesterday.
    b. John bought a book and a newspaper yesterday, and a newspaper.
    c. *John bought a newspaper yesterday a book and.

This “Adjoined ConP” approach [Munn 1993] is compatible with the occasional exception to Property 2 where unlike categories are acceptably coordinated. For instance, in example (15) the copula *is* has two different transitive subcategorization frames [AP] and [PP]. Coordinating those two in either order results in an acceptable complement.

(15) a. Pat is either asleep or at the office
    b. Pat is either at the office or asleep
However, some verbs are more restrictive. The verb *talk*, for example, can take a PP complement but not a CP. Examples (16a) suggests that when the first conjunct fits the subcategorization requirement, the fact that the second conjunct does not is actually not fatal. Reversing the order, as in (16b) leads to unacceptability.

(16)  
\begin{enumerate}
\item We talked about Mr. Colson and that he had worked at the White House.
\item *We talked about that Mr. Colson had worked at the White House and about Mr. Colson
\end{enumerate}

The analysis in both cases is that the subcategorization requirement is satisfied by the first conjunct, whose syntactic category projects when second conjunct adjoins onto it. The analysis extends straightforwardly to iterated conjunction (figure 4).

4 Homework

1. Go to the [Companion Website](#) select Syntax and click on Modifiers. Turn in answers on Thursday to the exercise on modifiers. You will only need the first three X' schema given in figure 2.

2. Read section 3.2 on structural ambiguity (pp 219–220)

3. Read the section on garden-path sentences (pp452–453)

References