Chapter 11

Non-Referential NPs, Existentials, and Extraposition
Where We Are, and Where We’re Going

• Last time, we met the passive *be*.

• We also saw that passive *be* is just a special case -- that *be* generally introduces [PRED +] constituents.

• Today, we’ll start with another *be*, which occurs in existential sentences starting with *there*, e.g. *There is a monster in Loch Ness*.

• Then we’ll look at this use of *there*.

• Which will lead us to a more general examination of NPs that don’t refer, including some uses of *it* and certain idiomatic uses of NPs.
The Entry for \textit{be} from Last Time

\[
\left\langle \textit{be}, \begin{bmatrix}
\textit{be-}lxm \\
\text{ARG-ST} \\
\text{SEM}
\end{bmatrix}
\right\rangle,
\left\langle 1, \begin{bmatrix}
\text{SYN} \\
\text{VAL} \\
\text{SEM} \\
\text{INDEX}
\end{bmatrix}
\right\rangle,
\left\langle \end{bmatrix}
\begin{bmatrix}
\text{HEAD} \\
\text{FORM pass} \\
\text{SPR} \\
\text{COMPS}
\end{bmatrix}
\right\rangle
\left\langle \text{INDEX } s \right\rangle,
\left\langle \text{RESTR } \langle \rangle \right\rangle
\]
Existentials

- The *be* in *There is a page missing* cannot be the same *be* that occurs in sentences like *Pat is tall* or *A cat was chased by a dog*. Why not?

- So we need a separate lexical entry for this *be*, stipulating:
  - Its SPR must be *there*
  - It takes two complements, the first an NP and the second an AP, PP, or (certain kind of) VP.
  - The semantics should capture the relation between, e.g. *There is a page missing* and *A page is missing.*
Lexical Entry for the Existential *be*

\[
\langle \text{be} , \text{exist-be-lxm} \rangle
\]

\[
\text{ARG-ST} \left[ \text{NP FORM there} , 2 \right]
\]

\[
\text{SEM} \left[ \text{INDEX } s , \text{INDEX s} \right]
\]

\[
\text{PRED} + \left[ \text{SPR} \langle 2 \rangle , \text{VAL} \left[ \text{COMPS} \langle \rangle \right] , \text{SEM} \langle \rangle \right]
\]

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Questions About the Existential *be*

- What type of constituent is the third argument?
- Why is the third argument [PRED +]?
- Why is the second argument tagged as identical to the SPR of the third argument?
- What is the contribution of this *be* to the semantics of the sentences it occurs in?
- Can all [PRED +] predicates appear as the third argument in existentials?
- How do we rule out *There was a greyhound a good runner*?
The Entry for Existential *there*
Questions About Existential *there*

- Why do we call it a pronoun?
- Why don’t we give it a value for NUM?
- What does this entry claim is *there*’s contribution to the semantics of the sentences it appears in? Is this a correct claim?

\[
\begin{array}{c}
\text{SYN} \\
\text{SEM} \\
\text{pron-lxm}
\end{array}
\begin{array}{c}
\left[\begin{array}{c}
\text{FORM} \\
\text{AGR} \\
\text{PER} \\
\text{3rd}
\end{array}\right]
\end{array}
\begin{array}{c}
\left[\begin{array}{c}
\text{there}
\end{array}\right]
\end{array}
\begin{array}{c}
\left[\begin{array}{c}
\text{MODE} \\
\text{INDEX} \\
\text{RESTR}
\end{array}\right]
\end{array}
\begin{array}{c}
\left[\begin{array}{c}
\text{none}
\end{array}\right]
\end{array}
\begin{array}{c}
\left[\begin{array}{c}
\langle \rangle 
\end{array}\right]
\end{array}
\begin{array}{c}
\text{there ,}
\end{array}
\end{array}
\]
Other NPs that don’t seem to refer

- *It sucks that the Giants lost the series.*
- *It is raining.*
- *Andy took* advantage *of the opportunity.*
- *Lou kicked* the *bucket.*
What we need to deal with examples like

*It follows that you are wrong*

- A lexical entry for this dummy *it*
- An analysis of this use of *that*
- Entries for verbs that take clausal subjects (as in *That you are wrong follows*)
- A rule to account for the relationship between pairs like *That you are wrong follows* and *It follows that you are wrong*
The Entry for Dummy *it*

\[
\langle it, \begin{array}{l}
pron-lxm \\
SYN \\
SEM
\end{array} \begin{array}{l}
\text{FORM} \quad it \\
\text{AGR} \quad 3\text{sing} \\
\text{MODE} \quad \text{none} \\
\text{INDEX} \quad \text{none} \\
\text{RESTR} \quad \langle \rangle 
\end{array} \rangle
\]
Questions About Dummy *it*

- How does it differ from the entry for dummy *there*? Why do they differ in this way?
- Is this the only entry for *it*?
A New Type of Lexeme: Complementizers

\[
\begin{align*}
\text{comp-lxm :} & \quad \left[ \begin{array}{c}
\text{SYN} \\
\text{VAL} \\
\text{ARG-ST} \\
\text{SEM}
\end{array} \right] \\
& \quad \left[ \begin{array}{c}
\text{HEAD} \\
\text{AGR} \\
\text{INDEX} \\
\text{RESTR}
\end{array} \begin{array}{c}
\text{comp} \\
\text{3sing} \\
\langle \rangle \\
\langle \rangle
\end{array}\right]
\end{align*}
\]
Questions About the Type \textit{comp-lxm}

- Why does it stipulate values for both SPR and ARG-ST?
- Why is its INDEX value the same as its argument’s?
- What is its semantic contribution?

\begin{align*}
\text{comp-lxm} : & \begin{bmatrix}
\text{SYN} & \begin{bmatrix}
\text{HEAD} & \begin{bmatrix}
\text{AGR} & \text{3sing}
\end{bmatrix}
\end{bmatrix}
\end{bmatrix} \\
\text{ARG-ST} & \begin{bmatrix}
\text{VAL} & \begin{bmatrix}
\text{SPR} & \langle \rangle
\end{bmatrix}
\end{bmatrix} \\
\text{SEM} & \begin{bmatrix}
\text{INDEX} & s \\
\text{RESTR} & \langle \rangle
\end{bmatrix}
\end{align*}
The Type \textit{comp}
The Lexical Entry for Complementizer *that*

\[
\langle \text{that}, \begin{bmatrix}
\text{comp-lxm} \\
\text{ARG-ST} \\
\text{SEM}
\end{bmatrix}
\begin{bmatrix}
\langle \left[ \text{FORM fin} \right] \rangle \\
\left[ \text{MODE prop} \right]
\end{bmatrix}\rangle
\]
...and with inherited information filled in

\[
\begin{align*}
\text{SYN} & : \left[\begin{array}{c}
\text{comp-lxm} \\
\text{HEAD} & \left[\begin{array}{c}
\text{comp} \\
\text{AGR} & \text{3sing}
\end{array}\right] \\
\text{VAL} & \left[\begin{array}{c}
\text{SPR} & \langle \_ \rangle
\end{array}\right]
\end{array}\right] \\
\langle \text{that} , \rangle \\
\text{ARG-ST} & : \left[\begin{array}{c}
\text{S} \\
\text{FORM} & \text{fin} \\
\text{INDEX} & \text{s}
\end{array}\right] \\
\text{SEM} & : \left[\begin{array}{c}
\text{INDEX} & \text{s} \\
\text{RESTR} & \langle \_ \rangle
\end{array}\right]
\end{align*}
\]

Question: Where did [FORM cform] come from?
Structure of a Complementizer Phrase

\[
\begin{align*}
\text{CP} & \quad \text{HEAD} 2 \\
\text{VAL} & \quad \text{SPR} \langle \rangle \\
\text{COMPS} & \quad \langle \rangle \\
\end{align*}
\]

C

\[
\begin{align*}
\text{word} & \quad \text{HEAD} 2 \\
\text{FORM} & \quad \text{comp} \\
\text{cform} & \quad \langle \rangle \\
\text{SPR} & \quad \langle \rangle \\
\text{COMPS} & \quad \langle 1 \rangle \\
\end{align*}
\]

\[
\begin{align*}
\text{that} & \\
\text{the Giants lost}
\end{align*}
\]
Sample Verb with a CP Subject

Note: the only constraint on the first argument is semantic
A Problem

• We constrained the subject of *matter* only semantically. However...
  - CP and S are semantically identical, but we get:
    *That Bush won matters* vs. *Bush won matters*
  - Argument-marking PPs are semantically identical to their object NPs, but we get:
    *The election mattered* vs. *Of the election mattered*
• So we need to add a syntactic constraint.

\[
\begin{align*}
\langle \text{matter}, \text{ARG-ST} \rangle & \quad \langle \text{S} \rangle \\
\text{SEM} & \quad \text{INDEX} \quad s \\
\text{RESTR} & \quad \langle \text{RELN} \left[ \text{SIT \, matter} \right] \rangle \\
\end{align*}
\]

• S and PP subjects are generally impossible, so this constraint should probably be on *verb-lxm*. 
The Extraposition Lexical Rule

\[
\begin{array}{c}
\text{INPUT} \quad \left\langle X, \left[\begin{array}{c}
\text{SYN} \\
\text{VAL} \\
\text{COMPS}
\end{array}\right]\left[\begin{array}{c}
\text{SPR} \\
\left[\begin{array}{c}
A
\end{array}\right]
\end{array}\right]\left[2\right]\right]\right\rangle
\\
\text{OUTPUT} \quad \left\langle Y, \left[\begin{array}{c}
\text{SYN} \\
\text{VAL} \\
\text{COMPS}
\end{array}\right]\left[\begin{array}{c}
\text{SPR} \\
\left[\begin{array}{c}
A \\
\left[2\right]
\end{array}\right]
\end{array}\right]\oplus\left[2\right]\right]\right\rangle
\end{array}
\]

- Why is the type \textit{pi-rule}? \\
- Why doesn’t it say anything about the semantics? \\
- Why is the COMPS value \([A]\), not < >?
Extraposition with Verbs whose COMPS Lists are Nonempty

• *It worries me* that war is immanent.

• *It occurred to Pat* that Chris knew the answer.

• *It endeared you to Andy* that you wore a funny hat.
Another Nonreferential Noun

\[ \langle \text{advantage} , \begin{bmatrix}
\text{massn-lxm} \\
\text{SYN} [\text{HEAD} [\text{FORM advantage}]] \\
\text{SEM} [\text{MODE none}] \\
\text{INDEX none} \\
\text{RESTR } \langle \rangle
\end{bmatrix} \rangle \]
The Verb that Selects *advantage*
Our analyses of idioms and passives interact...

• We generate

  Advantage was taken of the situation by many people.
  Tabs are kept on foreign students.

• But not:

  Many people were taken advantage of.

• That would require another lexical entry, in which take advantage of is a transitive verb (with spaces in its written form).