Overview

• Existentials
• Extraposition
• Idioms
Where We Are, and Where We’re Going

• Last time, we met the passive *be*.
• Passive *be* is just a special case -- that *be* generally introduces [PRED +] constituents (next slide).
• 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.
Chapter 10 entry for *be*

\[
\langle \text{be}, \langle 1, \text{val} \text{spr} \langle \text{1} \rangle \rangle \text{comps} \langle \text{1} \rangle \rangle \rangle
\]

\[
\langle \text{ARG-ST} \text{arg-st} \langle 1, \text{val} \text{spr} \langle \text{1} \rangle \rangle \text{comps} \langle \text{1} \rangle \rangle \rangle
\]

\[
\langle \text{sem} \text{index} \rangle
\]

\[
\langle \text{sem} \text{restr} \rangle
\]

\[
\begin{align*}
\text{HEAD} & : \text{verb} \text{form} \text{pass} \\
\text{VAL} & : \text{spr} \langle \text{1} \rangle \\
\text{COMPS} & : \langle \text{1} \rangle \\
\text{INDEX} & : \text{s} \\
\text{RESTR} & : \langle \text{1} \rangle
\end{align*}
\]
Copula (generalized)
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*

\[
\left\langle \text{be} \right\rangle,
\begin{aligned}
\text{ARG-ST} & \left\langle \left[\text{NP there} \right], 2 \right\rangle, \\
\text{SEM} & \left\langle \text{INDEX s} \right\rangle
\end{aligned}
\]

\[
\begin{aligned}
\text{PRED} & + \\
\text{VAL} & \left[\text{SPR} \left\langle 2 \right\rangle\right] \\
\text{COMPS} & \left\langle \right\rangle \\
\text{SEM} & \left[\text{INDEX s} \right]
\end{aligned}
\]
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*?

\[
\begin{align*}
\langle \text{be} , & \quad \text{ARG-ST} \left[ \left[ \text{NP} \right. \right. \\
& \quad \text{FORM} \left[ \text{there} \right] , \quad \left[ \text{val} \right. \\
& \quad \text{SEM} \left[ \text{INDEX} \right. \right. \\
& \quad \text{RESTR} \quad \left[ \left. \right. \right. \right] \\
& \quad \text{exist-be-lxm} \rangle
\end{align*}
\]
The Entry for Existential *there*

\[ \langle \text{there}, \begin{bmatrix} \text{pron-lxm} \\ \text{SYN} \\ \text{SEM} \end{bmatrix} \begin{bmatrix} \text{FORM there} \\ \text{AGR [PER 3rd]} \\ \text{MODE none} \\ \text{INDEX none} \\ \text{RESTR } \langle \rangle \end{bmatrix} \rangle \]
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?

\[
\begin{array}{c}
\langle \text{there} ,
\begin{array}{l}
\text{SYN} \\
\text{SEM}
\end{array}
\rangle
\end{array}
\]

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

• *It sucks that the Rockies 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*

\[
\langle \text{it,} \rangle \\
\begin{array}{c}
\text{SYN} \\
\text{SEM}
\end{array}
\begin{array}{c}
\text{pron-lxm} \\
\text{it}
\end{array}
\begin{array}{c}
\text{HEAD} \\
\text{MODE} \\
\text{INDEX} \\
\text{RESTR}
\end{array}
\begin{array}{c}
\text{FORM} \text{it} \\
\text{AGR} 3\text{sing} \\
\text{none} \\
\langle \rangle \\
\end{array}
\]
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

comp-lxm:

SYN

[HEAD [comp
AGR 3sing]]

VAL

[SPR ⟨⟩]

ARG-ST

[S [INDEX s]]

SEM

[INDEX s]

[RESTR ⟨⟩]
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?
The Type $comp$

**pos**

- [FORM, PRED]
  - agr-pos
  - adj
  - prep
  - adv
  - conj

- **verb**
  - [AGR]

- **nominal**
  - [AUX]
  - [CASE]

- **det**
  - [COUNT]

- **noun**
  - [FORM cform]
The Lexical Entry for Complementizer *that*

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

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

\[
\begin{array}{c}
\text{CP} \\
\text{HEAD} \ [2] \\
\text{VAL} \\
\end{array}
\]

\[
\begin{array}{c}
\text{SPR} \langle \rangle \\
\text{COMPS} \langle \rangle \\
\end{array}
\]

\[
\begin{array}{c}
\text{C} \\
\end{array}
\]

\[
\begin{array}{c}
\text{HEAD} \ [2] \\
\text{FORM cform} \\
\text{SPR} \langle \rangle \\
\text{COMPS} \langle 1 \rangle \\
\text{that} \\
\end{array}
\]

\[
\text{the Giants lost}
\]
Sample Verb with a CP Subject

\[
\begin{align*}
\langle \text{matter} , & \left[ siv-lxm \right] \rangle \\
\text{ARG-ST} & \left[ \text{SEM} \left[ \text{INDEX} \ [1] \right] \right] \\
\text{SEM} & \left[ \text{INDEX} \ s \right] \\
\text{RESTR} & \left[ \text{RELN} \ s \right] \\
\text{MATTERING} & \left[ \text{matter} \ [1] \right]
\end{align*}
\]

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.

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

\[
\begin{align*}
\text{INPUT} & \quad \left\langle X, \left[ \begin{array}{c} \text{SYN} \\downarrow \text{VAL} \\downarrow \text{COMPS} \\downarrow \end{array} \right] \begin{array}{c} \text{SPR} \\downarrow \text{\{2\}CP} \\downarrow A \end{array} \right]\rangle \\
\text{OUTPUT} & \quad \left\langle Y, \left[ \begin{array}{c} \text{SYN} \\downarrow \text{VAL} \\downarrow \text{COMPS} \\downarrow \end{array} \right] \begin{array}{c} \text{SPR} \\downarrow \text{NP\{FORM it\}} \\downarrow A \oplus \{2\} \end{array} \right]\rangle
\end{align*}
\]

• 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 imminent.*
- *It occurred to Pat that Chris knew the answer.*
- *It endeared you to Andy that you wore a funny hat.*
Another Nonreferential Noun

\[ \langle \text{advantage} , \langle \text{massn-lxm} \rangle \rangle \]

- **SYN**: HEAD [FORM advantage 3sing]
  - AGR 3sing
- **SEM**: MODE none
  - INDEX none
  - RESTR \( \langle \rangle \)
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.*

• Why not?
Overview

- Existentials (there, be)
- Extraposition (that, it, LR)
- Idioms