Scope Ambiguity in Syntax and Semantics

Ling324
Reading: *Meaning and Grammar*, pg. 142-157
Is Scope Ambiguity Semantically Real?

(1) Everyone loves someone.
   a. Wide scope reading of universal quantifier:
      \( \forall x [\text{person}(x) \rightarrow \exists y [\text{person}(y) \land \text{love}(x, y)]] \)
   b. Wide scope reading of existential quantifier:
      \( \exists y [\text{person}(y) \land \forall x [\text{person}(x) \rightarrow \text{love}(x, y)]] \)
Could one semantic representation handle both the readings?

- \( \exists y \forall x \) reading entails \( \forall x \exists y \) reading.

\( \forall x \exists y \) describes a more general situation where everyone has someone who s/he loves, and \( \exists y \forall x \) describes a more specific situation where everyone loves the same person.

- Then, couldn’t we say that *Everyone loves someone* is associated with the semantic representation that describes the more general reading, and the more specific reading obtains under an appropriate context? That is, couldn’t we say that *Everyone loves someone* is not semantically ambiguous, and its only semantic representation is the following?

\[
\forall x [ \text{person}(x) \rightarrow \exists y [ \text{person}(y) \land \text{love}(x, y) ] ]
\]

- After all, this semantic representation reflects the syntax:

  In syntax, *everyone* c-commands *someone*.

  In semantics, *everyone* scopes over *someone*.
Arguments for Real Scope Ambiguity

• The semantic representation with the scope of quantifiers reflecting the order in which quantifiers occur in a sentence does not always represent the most general reading.

(2)  a. There was a name tag near every plate.
    b. A guard is standing in front of every gate.
    c. A student guide took every visitor to two museums.

• Could we stipulate that when interpreting a sentence, no matter which order the quantifiers occur, always assign wide scope to every and narrow scope to some, two, etc.?
Arguments for Real Scope Ambiguity (cont.)

- But in a negative sentence, $\neg \forall x \exists y$ reading entails $\neg \exists y \forall x$ reading.

  (3) Everyone does not love someone.
   
   a. Wide scope reading of universal quantifier:
      $\neg \forall x [\text{person}(x) \rightarrow \exists y [\text{person}(y) \land \text{love}(x, y)]]$
   
   b. Wide scope reading of existential quantifier:
      $\neg \exists y [\text{person}(y) \land \forall x [\text{person}(x) \rightarrow \text{love}(x, y)]]$

  Thus, stipulating that every always scopes over other quantifiers won’t work.

- Intonation can disambiguate scopal interpretation possibilities.

  (4) a. Everyone loves SOMEone.
   
   b. EVERYone loves someone.

  Each intonational pattern may be a reflection of a certain scopal interpretation.

  ⇒ All these facts lead to the conclusion that scope ambiguity is real and that different scope interpretations need to map onto different semantic representations.
Representing Scope Ambiguity in Syntax

- In general, a sentence that is semantically ambiguous is also syntactically ambiguous.

  \[(5)\] a. John saw a man with a pair of binoculars.
  
  b. Competent women and men hold all the good jobs in the firm.

- What about sentences with scope ambiguity? Those sentences do not seem to be syntactically ambiguous.

  \[(6)\] a. Everyone loves someone.
  
  b. A professor talked to every student.
Representing Scope Ambiguity in Syntax (cont.)

- Model of the grammar

  Lexical Resources

    Syntactic derivation

    Surface Structure

      Syntactic derivation

      PF

      LF

      Semantics
Representing Scope Ambiguity in Syntax (cont.)

- Syntactic movement takes place at LF, as well as at S-structure. S-structure movement is overt, and LF movement is covert.

- In sentences with quantifiers, the quantified expressions move at LF. This movement is called Quantifier Raising (QR).

QR allows for sentences with scope ambiguity to have ambiguous syntactic structure at LF.

\[ \forall x[\text{person}(x) \rightarrow \exists y[\text{person}(y) \land \text{love}(x, y)]] \quad \exists y[\text{person}(y) \land \forall x[\text{person}(x) \rightarrow \text{love}(x, y)]] \]