24.903 Language & Structure III: Semantics and Pragmatics
Spring 2003, 2-151, MW 1-2.30
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1 Object Quantifiers

(1) a. [$_{DP}$ Every linguist] [$_{VP}$ offended Paul].
b. Paul [$_{VP}$ offended [$_{DP}$ every linguist]].

- Type Mismatch
- What is the second argument of *every* in (1b) and how is it derived?
- Ambiguity

(2) Some philosopher offended every linguist.
a. Reading 1: There is a philosopher who offended every linguist.
b. Reading 2: Every linguist was offended by some philosopher or the other.

2 Type Raising

(3) Ordinary Quantifiers, type $(et)t$
a. $[\![\text{somebody}_1]\!] =$
$\lambda f \in D_{et}[\exists x \in D.f(x) = 1]$
b. $[\![\text{everybody}_1]\!] =$
$\lambda f \in D_{et}[\forall x \in D.f(x) = 1]$

(4) Type Raised Quantifiers, type $(eet)et$
a. $[\![\text{somebody}_2]\!] =$
$\lambda f \in D_{eet}[\lambda x \in D.\exists y \in D.f(y)(x) = 1]$
b. $[\![\text{everybody}_2]\!] =$
$\lambda f \in D_{eet}[\lambda x \in D.\forall y \in D.f(y)(x) = 1]$

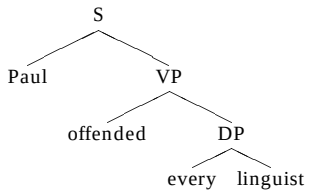
- Systematic Type-Ambiguity - Type Raising Rules
- Further Type-Raising

(5) Ann introduced everybody to Maria.

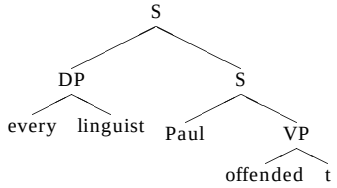
- Separating the Restrictor from the Quantifier - the denotations of *every*, *some*, *a* etc.

3 Repairing Type Mismatch by Movement

Before Movement

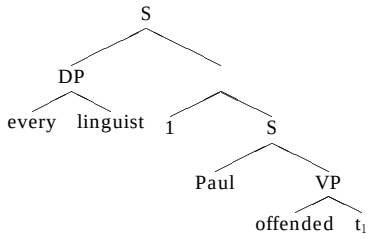


After Movement of the Quantifier Phrase (i.e. Quantifier Raising):



But this structure is not interpretable as it stands.

A modification that is interpretable:



(6) Predicate Abstraction Rule (PA):
Let α be a branching node with daughters β and γ, where β dominates only a numerical index i. Then, for any variable assignment function a, $[\![\alpha]\!]^a = \lambda x \in D.[\![\gamma]\!]^{a^{x/i}}$.

4 Arguments for Quantifier Raising

4.1 Ambiguities: Inverse Scope

Sentences with more than one Quantifier Phrase are often ambiguous:

(7) a. Somebody offended everybody.
b. Alan gave a present to every student.
c. No student read two books by Tarski.
d. Exactly two students read every book by Church.

Sometimes one of the readings entails the other -
in such cases, we can talk about a weak reading and a strong reading

4.1.1 The Inadequacy of Type Raising

- The type-raising approach does not generate multiple readings.

- The QR approach generates multiple readings.

4.1.2 'Inverse Linking'

(8) One apple in every basket is rotten.

4.1.3 The Role of Syntax

(9) a. Patsy gave a student every book.

b. Some teacher thinks [that every student likes him].

c. Some Englishman wrote the poem [that every student memorized].

→ perceived as unambiguous

Scrambling Languages (Japanese, Korean, Hindi etc.)

(10) Hindi

a. Subject - Object - Verb

Mona-ne Ravi-ko ḍā:ṭaa
Mona-Subj Ravi-Obj scolded

b. Object - Subject - Verb

Ravi-ko Mona-ne ḍā:ṭaa
Ravi-Obj Mona-Subj scolded

Mona scolded Ravi.

(11) Hindi

a. Subject - Object - Verb

[kisi laṛkii]-ne [har laṛke]-ko ḍā:ṭaa
some girl-Subj every boy-Obj scolded

'Some girl scolded every boy.' (only: $\exists > \forall$)

b. Object - Subject - Verb

[har laṛke]-ko [kisi laṛkii]-ne ḍā:ṭaa
every boy-Obj some boy-Subj scolded

'Some girl scolded every boy.' (both: $\exists > \forall, \forall > \exists$)

Mona scolded Ravi.

4.2 Antecedent Contained Deletion

Handling VP-Ellipsis

(12) a. I [$_{VP_1}$ read *War and Peace*] [before you **did** [$_{VP_2}$ ___]
VP$_2$ = 'read *War and Peace*' (≈ VP$_1$)

b. I [$_{VP_1}$ went to Tanglewood] even though I wasn't supposed **to** [$_{VP_2}$ ___].
VP$_2$ = 'go to Tanglewood' (≈ VP$_1$)

c. John will [$_{VP_1}$ leave tomorrow] and Mary **might** [$_{VP_2}$ ___]
VP$_2$ = 'leave tomorrow' (≈ VP$_1$)

Ellipsis Resolution = copying / checking for identity

Antecedent-Contained Deletion

(13) I [$_{VP_1}$ read [every [$_{NP}$ book [$_{CP}$ that you **did** [$_{VP_2}$ ___]]]]]

• Copying leads to infinite regress.

• Checking for identity leads to non-isomorphy.

→ QR gives us the right structures.

4.3 Quantifiers that Bind Pronouns

Interpreting Bound Reflexives:

(14) a. Mary blamed herself.
b. Mary blamed Mary.
(14a) = (14b)

However:

(15) a. Every student blamed herself.
b. Every student blamed every student.
(15a) ≠ (15b)

(16) a. No student blamed herself.
b. No student blamed no student.
(16a) ≠ (16b)

Bound Pronouns:

(17) a. No man noticed the orc next to *him*.
b. Every woman bought a book that *she* liked.

• QR + indexation allows us to derive the right meanings.

• To bind a pronoun, a QP must QR.

• Our current system (Predicate Abstraction, indices on Pronouns / Reflexives) yields the right results.

4.4 Conditions on Binding

(18) α binds β iff:

a. C-command:
α c-commands β.

b. Co-indexation:
α is co-indexed with β.

c. Locality:
There is no γ which satisfies (a) and (b) that is closer to β.

(19) **Strong Crossover**:
A pronoun cannot be co-indexed with a trace that it c-commands.

(20) a. *He$_i$ likes [every student]$_i$.
($\neq$ Every student likes himself.)

b. *the student [who$_i$ [he$_i$ likes t$_i$]]
($\neq$ the student [who$_i$ [t$_i$ likes himself$_i$]])

(21) **Weak Crossover**:
A QP cannot bind a pronoun that it does not c-command in surface syntax.

(22) Her$_i$ mother loves [every student]$_i$.
($\neq$ [Every student]$_i$ is loved by her$_i$ mother.)

(23) **Condition B**:
A pronoun cannot be bound by a c-commanding phrase that is in the same minimal finite clause.

(24) a. *John$_i$ /[Every student]$_i$ likes him$_i$.
($\neq$ John$_i$ /[Every student]$_i$ likes himself$_i$)

b. John$_i$ /[Every student]$_i$ thinks that Mary likes him$_i$.

c. *the student [who$_i$ [t$_i$ likes her$_i$]]
($\neq$ the student [who$_i$ [t$_i$ likes herself$_i$]])

d. the student [who$_i$ [t$_i$ thinks [that Mary likes her$_i$]]]