Intro to Syntax, PART FIVE

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What we've seen already

- In the very first class, we mentioned the following data:

(1) a. Peter$_i$ forgets to lock the door every time he$_i$ leaves the house.
b. * He$_i$ forgets to lock the door every time Peter$_i$ leaves the house.

(The notation *blah$_i$* indicates *reference* — imagine every individual in the world is assigned a unique index: (1b) is only ungrammatical when *he* refers to the same individual as *Peter*; it is perfectly grammatical if the *referent* of *he* is different.)

- The phenomenon in (1b) is known as a ***disjoint reference*** effect:
  - The sentence is grammatical, but only if the DPs in question refer to different individuals, not if they *corefer*

[– This formulation assumes that there are only two options: either the reference of two DPs is *disjoint*, or they *corefer*
– Once plural DPs are considered, a third possibility emerges: *partial overlap*
– We will temporarily ignore plural DPs — but their behavior is actually the reason for choosing the term *disjoint* (rather than *distinct* or *different*) *reference*]

What we've seen already

- We asked if the *disjoint reference* effect in (1b) — repeated here — could be about *precedence* (i.e., "what comes first")

(1) a. Peter$_i$ forgets to lock the door every time he$_i$ leaves the house.
b. * He$_i$ forgets to lock the door every time Peter$_i$ leaves the house.

  - and we answered by presenting (2a–b):

(2) a. Every time Peter$_i$ leaves the house he$_i$ forgets to lock the door.
b. Every time he$_i$ leaves the house Peter$_i$ forgets to lock the door.

  - *he* and *Peter* can corefer both in (2a) and in (2b)
    ⇒ *precedence* cannot explain why (1b) is bad

➢ **THE GOAL:** develop a theory that predicts when two expressions can/cannot corefer

Starting simple

- While we will eventually be able to handle data like (1–2) — it's prudent to start with cases that are a little simpler:

(3) a. * Peter$_i$ likes him$_i$.
b. * He$_i$ likes Peter$_i$.

  - but notice:

(4) a. Peter$_i$ likes himself$_i$.
b. * Himself$_i$/Heself(?)$_i$ likes Peter$_i$.

➢ there seems to be an additional factor going on when two phrases corefer that are **arguments of the same predicate** (the *-self* morphology)

Starting simple

- Dealing with too many variables at once is not a good idea
  ⇒ we want to neutralize the *-self* issue, for the time being
- One way of achieving this is by putting the two coreferring DPs in separate clauses:

(5) a. i. Peter$_i$ thinks [that Lois likes him$_i$].
  ii. Peter$_i$ thinks [that he$_i$ likes Lois].
  b. i. * He$_i$ thinks [that Lois likes Peter$_i$].
  ii. * He$_i$ thinks [that Peter$_i$ likes Lois].

- Another possibility is using "complex" DPs as complements of the verb (instead of "simple" DPs, like *him(self)*):

(6) a. John$_i$ likes [his$_i$ sister].
  b. * He$_i$ likes [John$_i$ sister].

Precedence, or not?

- Putting aside that issue of *-self* morphology, it seems that *precedence* would still handle this data just fine
  - e.g., a constraint that would require a DP to come *before* any coreferential pronouns
- ➢ But remember, we've already seen data that doesn't obey a *precedence*-based generalization
  ⇒ What to do…?

Precedence, or not?

- Logical possibilities:
  I. Some cases obey a *precedence*-based generalization, and some don't
    ⇒ we need to uncover two things:
    (i) the principle that governs whether *precedence* will be obeyed
    (ii) the principle that governs coreference in the "other" cases
  II. There is an entirely different constraint, which in some cases looks like *precedence*, but is really about something else entirely
- Generative syntax has generally pursued approaches of type (II)
  - for some examples of approaches of type (I), see Jackendoff (1990), Janke and Neeleman (2009), Williams (1997)

(NOTE: These authors opt for a type-(I) approach over a type-(II) approach because of data from domains we probably won't have time to discuss, here.)

Precedence, or not?

⇒ Let's look at some more data!

- We want to tease apart *precedence* from other potential explanations
- So far, the second of two coreferential DPs has been "buried" within some larger structure
  - an embedded clause (as in (5)), or a "complex" DP (as in (6))
- ➢ While this was necessary to avoid the *-self* issue, this is also a potential confound
  - since it conflates linear position with other properties — structural properties — that are not necessarily related
- ⇒ To balance things out, we should try placing the first of two coreferential DPs inside a larger structure, as well

Precedence, or not?

⇒ compare (5a–b), repeated here, with (7a–b):

(5) a. i. Peter_i thinks [that Lois likes him_i].
  ii. Peter_i thinks [that he_i likes Lois].
 b. i. * He_i thinks [that Lois likes Peter_i].
  ii. * He_i thinks [that Peter_i likes Lois].

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(7) a. i. [Peter_i's mother] thinks [that Lois likes him_i].
  ii. [Peter_i's mother] thinks [that he_i likes Lois].
 b. i. [His_i mother] thinks [that Lois likes Peter_i].
  ii. [His_i mother] thinks [that Peter_i likes Lois].

➢ What is the contrast between (5b) and (7b) all about?

- **ATTEMPT #1:** There is something fundamentally different about a pronoun like *his* (compared to a pronoun like *he*), which prevents it from triggering a *disjoint reference* effect

Precedence, or not?

- ➢ Alas, this is simply not true; compare (8a) with (8b):

(8) a. John$_i$'s stories about his$_i$ travels
b. * his$_i$ stories about John$_i$'s travels

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(5) b. i. * He$_i$ thinks [that Lois likes Peter$_i$].
ii. * He$_i$ thinks [that Peter$_i$ likes Lois].

(7) b. i. [His$_i$ mother] thinks [that Lois likes Peter$_i$].
ii. [His$_i$ mother] thinks [that Peter$_i$ likes Lois].

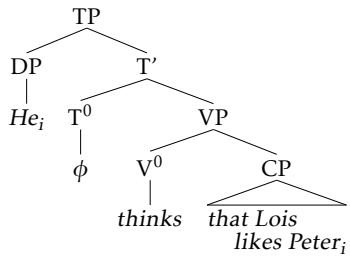
- **ATTEMPT #2:** *mother* has been introduced **in between** *his* and *Peter*
  - ➢ if this were enough, then (5b.i) would already be grammatical
    - – since there, *Lois* is **in between** *he* and *Peter*

- Remember, in developing examples like (7b) we were trying to "bury" the first of two coreferential DPs within a larger syntactic structure

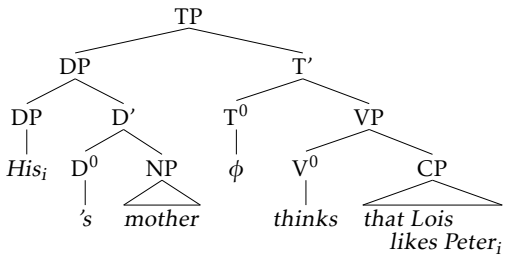
c-Command

⇒ the relevant difference between (5b) and (7b) is whether the pronoun (*he*/*his*) is "buried" in additional structure, or not:

(9) *



(10)



DEFINITION

a node α ***c-commands*** its sister, and everything dominated by its sister

[a node γ ***dominates*** a node δ **iff** there is a monotone downward path (i.e., a path that only goes down, never up) in the tree going from γ to δ]

Non-Coreference Rule

- In (9), *he **c-commands** Peter*
- In (10), *his* does not ***c-command** Peter*

⇒ We can formulate the following rule:

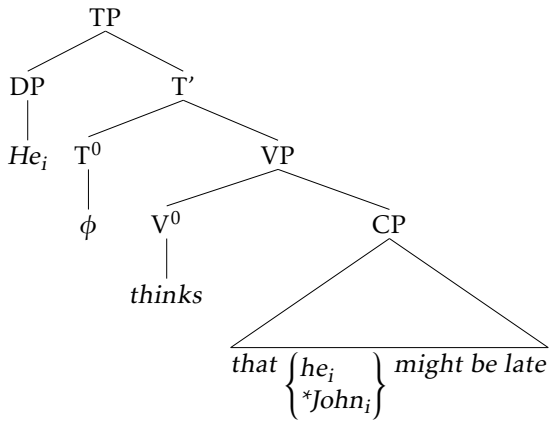
NON-COREFERENCE RULE (version 1)
if α and β are DPs, and α *c-commands* β, then: α and β cannot corefer

- PROBLEM:

(11) He_i thinks that he_i might be late.
(cf. * He_i thinks that John_i might be late.)

Non-Coreference Rule

(12)



Non-Coreference Rule

Let us define the following term:

DEFINITION *(subject to revision)*
***R-expression*:** any DP that is neither a *pronoun*, nor a *pronoun* with *-self-morphology*

- We can now use this term to revise our NON-COREFERENCE RULE:

NON-COREFERENCE RULE (version 2)
if α and β are DPs, β is an *R-expression*, and α *c-commands* β, then: α and β cannot corefer

⇒ we can account for the pattern in (11), repeated here:

(11) He_i thinks that he_i might be late.
(cf. * He_i thinks that John_i might be late.)

Non-Coreference Rule

Let's look at some **predictions** made by this NON-COREFERENCE RULE:

I. Other ways of "burying" a DP within another DP should have the same effect as (7b)[=(10)], repeated here:

(7) b. i. [His$_i$ mother] thinks [that Lois likes Peter$_i$].
ii. [His$_i$ mother] thinks [that Peter$_i$ likes Lois].

- This prediction is borne out:

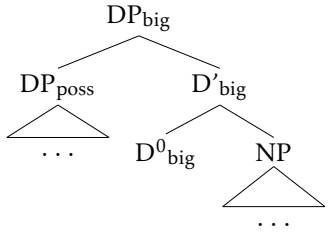
(13) a. * He$_i$ ensured [John$_i$ would lose the election].
b. i. [The rumors [about him$_i$]] ensured [John$_i$ would lose the election].
ii. [The rumors [that he$_i$ was irresponsible]] ensured [John$_i$ would lose the election].

Non-Coreference Rule

II. Possessors (e.g., *his*) **should** be able to trigger a *disjoint reference* effect

- a possessor in [Spec,DP] does not c-command anything outside of the (bigger) DP
- ➢ but it **does** c-command the NP, and everything within the NP:

(14)



- We have already seen that this prediction is borne out:

(15) a. [$_{DP_{big}}$ John$_i$'s [$_{NP}$ stories about his$_i$ travels]] *[=(8a)]*
b. * [$_{DP_{big}}$ his$_i$ [$_{NP}$ stories about John$_i$'s travels]] *[=(8b)]*

Non-Coreference Rule

III. If *c-command* is all that is relevant to the NON-COREFERENCE RULE, it should be able to operate across arbitrarily long distances

(16) a. * He$_i$ thinks that John$_i$ has won.
b. * He$_i$ thinks Susan knows that John$_i$ has won.
c. * He$_i$ thinks Mary mentioned that Susan knows that John$_i$ has won.
⋮ ⋮

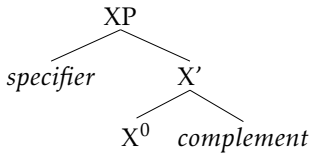
⇒ This prediction is also borne out

Consequences

What we have uncovered here has some interesting consequences:

I. There no longer seems to be any formal role for *precedence*
   - There are no cases left that our NON-COREFERENCE RULE gets wrong, and that require a *precedence*-based explanation.
   - Whatever *precedence* effects we thought we were seeing were just a side-effect of *c-command* — coupled with the fact that in English, the *specifier* of an XP normally precedes the *complement*:

(17) *ENGLISH PHRASE-STRUCTURE*



Consequences

- NOTE: it is often observed that unless special context is provided, a *pronoun-first* order (as in (18b)) is **pragmatically** dispreferred, relative to a *pronoun-second* order (as in (18a)):

(18) a. John_i's mother likes him_i.
   b. ? His_i mother likes John_i.

➢ Regardless of whether such a pragmatic constraint exists, we have seen that incorporating it into our model of speakers' *competence* would be **redundant**:
   - it cannot account for the full range of empirical facts
   - those facts that it **does** capture, are also captured by our NON-COREFERENCE RULE
     - which does not mention *precedence* or linear order

Consequences

II. If our formulation of the NON-COREFERENCE RULE is correct, we have essentially constructed a ***c-command "detector"***

⇒ giving us a unique window into the syntactic structure of utterances
   - When faced with a new construction:
     we can investigate its syntactic structure by placing pronouns and R-expressions in different positions
     - and testing whether they can corefer

➢ As we will see, this is actually only one of a whole family of phenomena that are sensitive to *c-command*

A new perspective: Constraints on the distribution of DPs

- There is another way of looking at our NON-COREFERENCE RULE:

NON-COREFERENCE RULE (version 2)

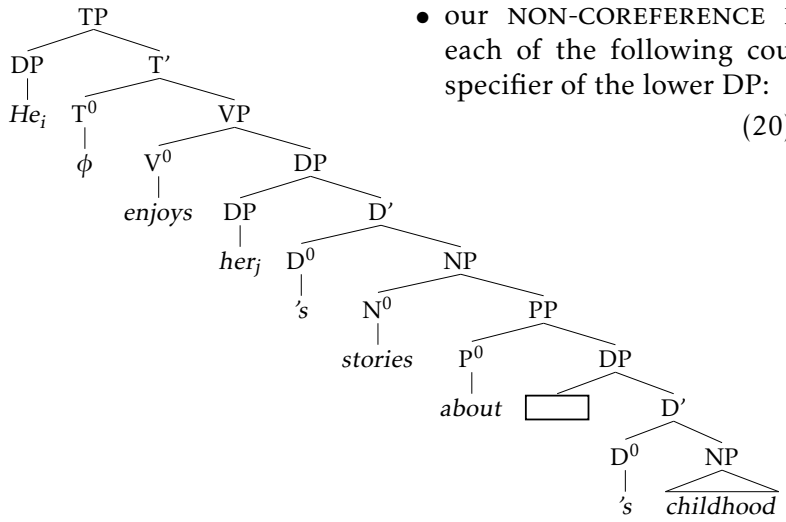
if α and β are DPs, β is an *R-expression*, and α *c-commands* β, then: α and β cannot corefer

  - ➢ as a condition on **where R-expressions can/cannot appear**
  - ○ Given a syntactic structure, with all other DPs in place (and their referential indices fixed):
    - – it tells us whether an R-expression, with a particular referential index, can appear in a particular syntactic position

A new perspective: Constraints on the distribution of DPs

For example:

(19)



- our NON-COREFERENCE RULE tells us whether each of the following could/couldn't occupy the specifier of the lower DP:

(20) a. * John_i
b. * Mary_j
c. Sam_k

A new perspective: Constraints on the distribution of DPs

- In that sense, the NON-COREFERENCE RULE constrains/regulates the distribution of *R-expressions*
- While the distribution of pronouns (as well as pronouns with *-self* morphology) is freer, we've already seen that it is not entirely free:

(21) a. John_i likes $\left\{\begin{array}{l}*\text{him}_i \\ \text{himself}_i\end{array}\right\}$.

b. John_i thinks that Mary likes $\left\{\begin{array}{l}\text{him}_i \\ *\text{himself}_i\end{array}\right\}$.

$\Rightarrow$ we therefore need something to regulate the distribution of these expressions, as well

A new perspective: Constraints on the distribution of DPs

- Let us first classify DPs into 3 types:

A. ***anaphors*:** must get their reference from some other element in the sentence
EXAMPLES: *himself*, *herself*, *themselves*
(22) John$_i$ likes himself$_{i/*j}$.
NOTE: This is decidedly from the use of the term *anaphor(a)* in other fields (e.g., literary analysis).

B. ***pronouns*:** can get their reference from some other element in the sentence, but don't have to
EXAMPLES: *he*(/*him*/*his*), *she*(/*her*), *they*(/*them*/*their*)
(23) Mary$_i$ thinks that she$_{i/j}$ will win.

C. ***R-expressions*:** come with their own reference "built-in"
EXAMPLES: *John*, *Mary*, *the children*, *the Roman empire*

Binding principles

- We already know what regulates the distribution of ***R-expressions***:
  - what we called the NON-COREFERENCE RULE
- ➢ We will now rename this **PRINCIPLE C**
  (corresponding to "C" on our list of DP-types — namely, *R-expressions*)

PRINCIPLE C
an *R-expression* cannot be *c-commanded* by a coreferential DP

⇒ we need a **PRINCIPLE A** and a **PRINCIPLE B**
  - to constrain the distribution of *anaphors* and *pronouns*, respectively

Binding principles

- Let's start by trying to formulate **PRINCIPLE A** — which would regulate the distribution of *anaphors*
  - Recall (21a–b), repeated here:

(21) a. John_i likes $\left\{\begin{array}{l}\text{*him}_i \\ \text{himself}_i\end{array}\right\}$. b. John_i thinks that Mary likes $\left\{\begin{array}{l}\text{him}_i \\ \text{*himself}_i\end{array}\right\}$.

PRINCIPLE A *(attempt #1)*
an *anaphor* must corefer with another argument of the same predicate

  - While this seems like a **necessary** condition on the distribution of *anaphors*, it is not a **sufficient** condition

(24) $\left\{\begin{array}{l}\text{He} \\ \text{*Himself} \\ \text{*Heself(?)}\end{array}\right\}$ likes John.

Binding principles

  - It might be tempting, at this point, to revert to a *precedence*-based account, if only just for the asymmetry between (24) and (21a)

[Interestingly, there is some empirical support for this particular move, in the specific context of same-clause coreference; see Jackendoff (1990), Janke and Neeleman (2009), Williams (1997).]

    - Something along the lines of "an *anaphor* must corefer with a *preceding* argument of the same predicate"

but...

  - RECALL: **PRINCIPLE C** involves *c-command*, in a way that **cannot** be reduced to *precedence*
    - as we demonstrated in detail, while it was still called the "NON-COREFERENCE RULE"

Binding principles

⇒ in the interest of uniformity, we will try to have all of these principles refer to *c-command*
  - rather than some referring to *c-command* and some to *precedence*

(again, given that stating **PRINCIPLE C** in terms of *precedence* was shown to be impossible)

PRINCIPLE A *(attempt #2)*
an *anaphor* must corefer with a *c-commanding* argument of the same predicate *(follows Reinhart and Reuland 1993)*

Binding principles

- Now let's try to formulate **PRINCIPLE B** — which would regulate the distribution of *pronouns*
  - Consider (21a–b), repeated here, once more:

(21) a. John_i likes $\left\{\begin{array}{l}\text{*him}_i \\ \text{himself}_i\end{array}\right\}$. b. John_i thinks that Mary likes $\left\{\begin{array}{l}\text{him}_i \\ \text{*himself}_i\end{array}\right\}$.

  - As a starting point, we could try the "opposite" of **CONDITION A**:

PRINCIPLE B *(attempt #1)*

a *pronoun* must **not** corefer with a *c-commanding* argument of the same predicate
(again, follows Reinhart and Reuland 1993)

Binding principles

- This works perfectly, so long as the DPs in question are *singular*
- Consider (25):

(25) We like $\left\{\begin{array}{l}\text{*me} \\ \text{*myself}\end{array}\right\}$. *[Lasnik 1981, 1989]*

  - Clearly, *we* and *me* don't *corefer* — their references are different
    - but their references *overlap*

➢ This is the reason why, from the very beginning, we chose the term ***disjoint reference***, rather than just ***different reference***

PRINCIPLE B *(attempt #2)*

a *pronoun*'s reference must be *disjoint* from every *c-commanding* argument of the same predicate

(follows Lasnik 1981, 1989, Reinhart and Reuland 1993)

Binding principles

Summary:

PRINCIPLE A

an *anaphor* must corefer with a *c-commanding* argument of the same predicate

PRINCIPLE B

a *pronoun*'s reference must be *disjoint* from every *c-commanding* argument of the same predicate

PRINCIPLE C

an *R-expression* cannot be *c-commanded* by a coreferential DP

Binding principles

- These principles (**A**+**B**+**C**) are known as the ***binding principles***
  - ***binding*** refers to the situation where one DP α shares an index with, and *c-commands*, another DP β
- But as we've seen, this name is a little bit misleading, since **PRINCIPLE B** is about more than just *c-command* + index-sharing
  - that, in fact, was our *version #1* of **PRINCIPLE B**
- It is about *disjointness*, which is a stronger notion than just "not sharing the same index"

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