

CAS LX 422 /
GRS LX 722
Intermediate Syntax

6

C-command, binding
(4-4.3)

Mary saw him

A pronoun like *him* refers to somebody in (our mental model of) the world.

A pronoun refers to somebody or something that's been part of the conversation, or that you are pointing at.

When you hear a pronoun and want to interpret it, you have to resolve its reference.

John arrived. Mary saw him.

Here, *him* is likely to refer to John.

Though we could be pointing at Bill, in which case *him* refers to Bill.

The person who *hears* this has to figure it out.

The person who *says* this knows who they meant.

And had the grammar that generated the sentence.

Indices

To describe what the speaker intended (that is, which sentence the speaker actually used), we use an *index* on each referent.

1) John_i arrived. Mary_j saw him_i.

2) John_i arrived. Mary_j saw him_k.

The index represents what you are "pointing at" (perhaps just mentally).

Two noun phrases that share an index *necessarily* share the same reference. They are coreferential.

Seeing him in the mirror

Regard: Ike_i, Jim_j, Kristin_k.

1) There's Ike_i. Kristin_k saw him_j in the mirror.

2) There's Jim_j. Kristin_k saw him_j in the mirror.

3) There's Ike_i. Jim_j saw him_i in the mirror.

4) There's Jim_j. *Jim_j saw him_j in the mirror.

What's wrong with that last one?

Seeing himself in the mirror

Right, ok. Jim_j saw *himself*_j in the mirror.

For some reason, when *Jim* is the subject and *him* is an object, *him* can't refer to *Jim*. Furthermore:

1) Jim_j's father_k saw him_{i/j/*k} in the mirror.

2) Jim_j's father_k saw himself_{k/*j/*i} in the mirror.

3) Jim_j's father_k said that Mary_m saw him_{i/j/k} in the mirror.

4) Mary_m introduced Jim_j to him_{i/*j}.

5) Mary_m introduced Jim_j's father_k to him_{i/j/*k}.

Binding Theory

Binding Theory consists of three Principles that govern the allowed distribution of DPs.

Pronouns: *he, her, it, she, ...*

Anaphors: *himself, herself, itself, ...*

R-expressions: *Pat, the student, ...*

R-expressions and anaphors

R-expressions are DPs like *Pat*, or *the professor*, or *an unlucky farmer*, which get their meaning by referring to something in the world. Most DPs are like this.

An anaphor does *not* get its meaning from something in the world—it depends on something else in the sentence.

- 1) John saw himself in the mirror.
- 2) Mary bought herself a sandwich.

Pronouns

A pronoun is similar to an anaphor in that it doesn't refer to something in the world but gets its reference from somewhere else.

- 1) John told Mary that he likes pizza.
 - 2) Mary wondered if she agreed.
- ...but it doesn't *need* to be something in the sentence.
- 3) Mary concluded that he was crazy.

Constraints on coreference

- 1) John_i saw himself_i.
- 2) *Himself_i saw John_i.
- 3) *John_i's mother saw himself_i.

It is impossible to assign the same referent to *John* and *himself* in the (2) and (3). What is different between the good and bad sentences?

John's mother

John's mother is an DP.

- 1) [John's mother]_i saw herself_i.
- 2) She saw John.

But it's a DP that is made up of smaller pieces (*John's* and *mother*).

So what is the internal structure of the DP *John's mother*?

[_{DP} John's mother]

Remember that pronouns come in three distinguishable forms (in English):

<i>I, he, she</i>	nominative
<i>Me, him, her</i>	accusative
<i>My, his, her</i>	genitive

The genitive case forms seem to have pretty much the same kind of "possessive" meaning that *John's* does.

- So, let's suppose that *John's* is the genitive case form of *John*.

[DP John's mother]

Another point about *John's mother* is that it seems that the head should be *mother*.

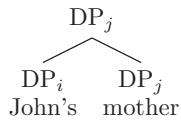
John's sort of modifies *mother*.

Sort of like an adjective does... sort of like an adverb does for a verb...

Let's suppose that *John's* is just adjoined to the NP *mother*.

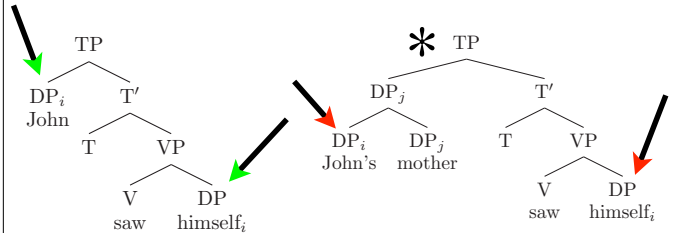
Only for now! To be revised before too long.

This is kind of hard to draw clearly.



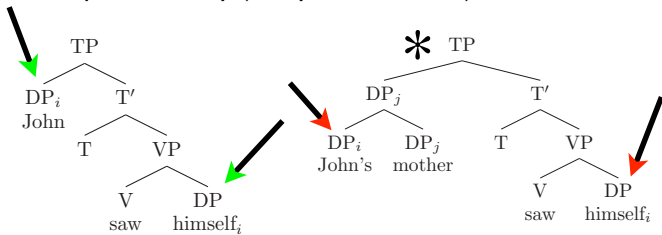
Command domains

What is the difference between the relationship between *John* and *himself* in the first case and in the second case?



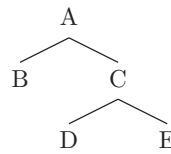
Command domains

We think of the position that *John* occupies in the first tree as being a position from which it "commands" the rest of the tree. It is hierarchically superior in a particular way. (Really, "non-inferior")



Tree relations

A node X c-commands its sisters and the nodes dominated by its sisters.



B c-commands C, D, E.

D c-commands E.

E c-commands D.

C c-commands B.

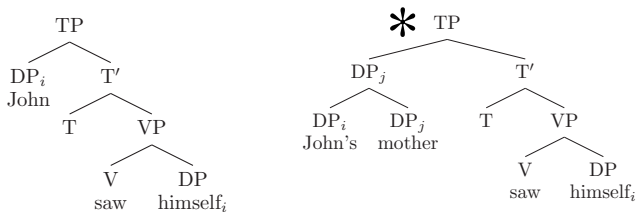
A c-commands nothing.

Binding

A binds B iff

A c-commands B

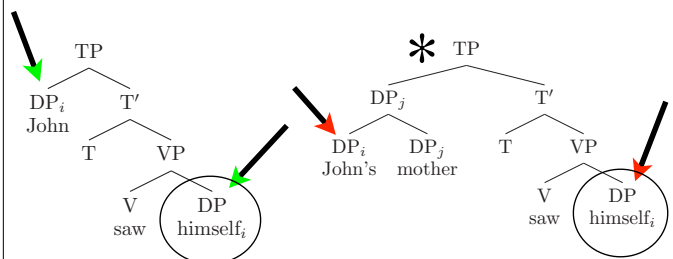
A is coindexed with B "if and only if"



Principle A

Principle A of the Binding Theory (preliminary)

An anaphor must be bound.



A is for anaphor? That's good enough for me.

Principle A

We now know why these are ungrammatical too:

- 1) *Himself_i saw John_i in the mirror.
- 2) *Herself_i likes Mary_i's father.
- 3) *Himself_i likes Mary's father_i.

There is nothing that c-commands and is coindexed with *himself* and *herself*.

The anaphors are not bound, which violates Principle A.

Binding domains

But this is not the end of the story; consider

- 1) *John_i said that himself_i likes pizza.
- 2) *John_i said that Mary called himself_i.

In these sentences the DP *John* c-commands and is coindexed with (=binds) *himself*, satisfying our preliminary version of Principle A—but the sentences are ungrammatical.

Binding domains

- 1) John_i saw himself_i in the mirror.
- 2) John_i gave a book to himself_i.
- 3) *John_i said that himself_i is a genius.
- 4) *John_i said that Mary dislikes himself_i.

What is wrong? *John* binds *himself* in each case. What is different?

In the ungrammatical cases, *himself* is in an embedded clause.

Binding domains

Principle A of the Binding Theory (revised)

An anaphor must be bound in its binding domain.

Binding Domain (preliminary)

The binding domain of an anaphor is the smallest clause containing it.

It seems that not only does an anaphor need to be bound, it needs to be bound nearby (or locally).

Pronouns

- 1) *John_i saw him_i in the mirror.
- 2) John_i said that he_i is a genius.
- 3) John_i said that Mary dislikes him_i.
- 4) John_i saw him_j in the mirror.

How does the distribution of pronouns differ from the distribution of anaphors?

It looks like it is just the *opposite*.

Principle B

Principle B of the Binding Theory

A pronoun must be free in its binding domain.

Free

Not bound

- 1) *John_i saw him_i.
- 2) John_i's mother saw him_i.



B is for bpronoun, that's good enough for me.

Principle C

We now know where pronouns and anaphors are allowed. Consider the following.

- *Stuart_i saw him_i in the mirror.
- Stuart_i's mother saw him in the mirror.
- *He_i saw Stuart_i in the mirror.
- His_i mother saw Stuart_i in the mirror.

Principle C

What's going wrong with these sentences? The pronouns are unbound as needed for Principle B. What are the binding relations here?

- *He_i likes John_i.
- *She_i said that Mary_i fears clowns.
- His_i mother likes John_i.
- His_i mother said that John_i fears clowns.



Principle C

Binding is a means of assigning reference.

R-expressions have intrinsic reference; they can't be assigned their reference from somewhere else.

R-expressions can't be bound, at all.

Principle C of the Binding Theory
An R-expression must be free.

C is for r-expression, that's... oh, never mind.

Binding Theory

Principle A

An anaphor must be bound in its binding domain.

Principle B

A pronoun must be free in its binding domain.

Principle C

An R-expression must be free.

Binding

X binds Y iff X c-commands Y and X and Y are coindexed (a.k.a.: "Y is bound by X").

Free

Not bound

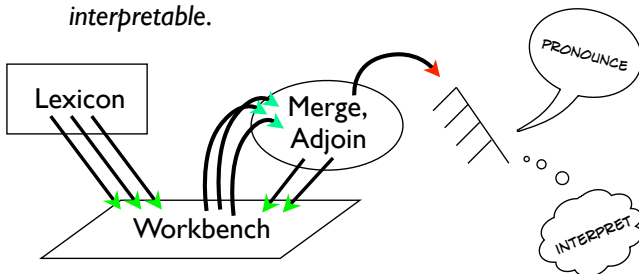
Binding Domain

The binding domain of an anaphor is the smallest clause containing it.

Constraints on interpretation

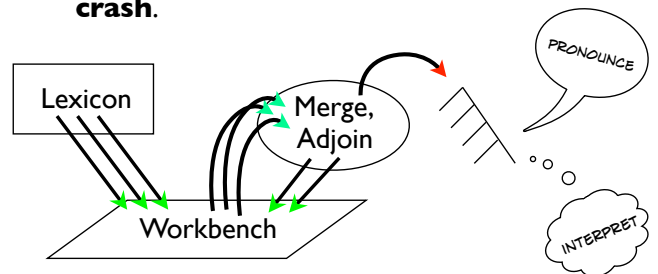
Binding Theory is about interpretation.

Only a structure that satisfies Binding Theory is *interpretable*.



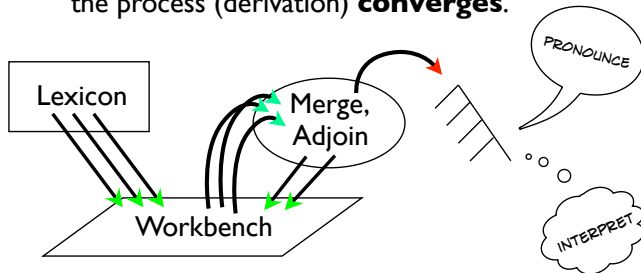
Constraints on interpretation

If we put together a tree that isn't interpretable, the process (derivation) is sometimes said to **crash**.



Constraints on interpretation

If we succeed in putting together a tree that is interpretable (satisfying the constraints), we say the process (derivation) **converges**.



I hadn't seen anyone ever lift a finger yet.

Pat didn't invite anyone to the party.

*Pat invited anyone to the party.

Pat does not know anything about syntax.

*Pat knows anything about syntax.

Pat hasn't ever been to London.

*Pat has ever been to London.

Pat hasn't seen *Forrest Gump* yet.

*Pat has seen *Forrest Gump* yet.

Pat didn't lift a finger to help.

*Pat lifted a finger to help.

Pat didn't have a red cent.

*Pat had a red cent.

Licensing

NPIs (Negative Polarity Items) are permitted, given "license to appear" by a negative expression. Without a licenser, an NPI is not possible.

- 1) John didn't invite Mary/anyone to the party (, did he?)
- 2) John invited Mary/*anyone to the party (, didn't he?)
- 3) Nobody invited Mary/anyone to the party (, did they?)

NPIs are licensed by negation in a sentence.

Negative Polarity Items

But it isn't quite as simple as that. Consider:

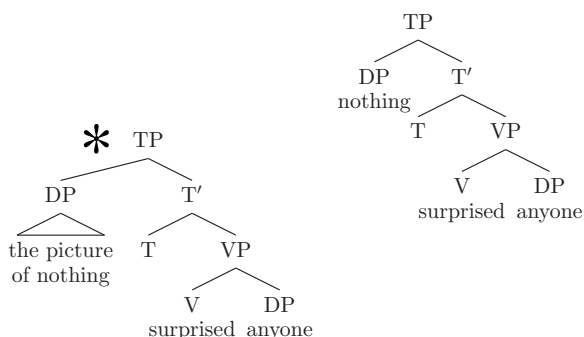
- 1) I didn't see anyone.
- 2) *I saw anyone.
- 3) *Anyone didn't see me.
- 4) *Anyone saw me.

It seems that simply having negation in the sentence isn't *by itself* enough to license the use of an NPI.

Negation has to precede the NPI?

- 5) *The picture of nobody pleased anyone.

Negative Polarity Items



Pondering some apparent early disobedience

Young kids (5-6 years) seem to accept sentences like (1) as meaning what (2) means for adults.

- 1) Mama Bear is pointing to her.
- 2) Mama Bear is pointing to herself.

Suppose that, contrary to appearances, kids *do* know and obey Principle B. Look carefully at the definitions of Binding Theory. If Principle B isn't the problem, what do you think kids are getting wrong to allow (1) to have the meaning of (2)?

- Think in particular about how you decide which index to assign to *her*. What is the implication of having the same index? What is the implication of having different indices?

