

Binding Theory

CAS LX 422 ~ GRS LX 722 Intermediate Syntax

Lecture 14

Constraints on coreference

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|-----|----|---|-----------------------|
| (1) | a. | John _i saw <u>himself</u> _i . | Anaphors |
| | b. | * John _i saw <u>himself</u> _j . | |
| (2) | a. | * John _i saw <u>him</u> _i . | Pronouns |
| | b. | John _i saw <u>him</u> _j . | |
| (3) | a. | * He _i saw <u>John</u> _i . | Referring expressions |
| | b. | He _i saw <u>John</u> _j . | |

Binding Theory is essentially trying to explain this pattern of judgments. The subscripts represent the referent of these DPs. Identical indices entail identical referents. Nonidentical indices allow for nonidentical referents.

Assignment of reference

The intuition behind Binding Theory is that there is some assignment of reference mechanism that has structural constraints.

Anaphors (*myself*, *yourself*, *themselves*, *himself*, *herself*), reciprocals (*each other*) don't have intrinsic reference, but instead depend on something else for their reference. They are like variables in an expression of logic.

In logic, a “bound variable” is one that is within the scope of an operator, like so:

$\exists x[\text{left}(x)]$

“There is an x such that $\text{left}(x)$ is true”

$\text{yodeled}(x) \& \exists x[\text{left}(x)]$

“uhhh.. yodeled and someone left?”

Anaphors like *themselves* are like bound variables, they need to be in the scope of something that assigns them reference. “Be in the scope” in logical terms means “be c-commanded by” in syntactic terms.

- ## Anaphors

c-commanded by and co-indexed with

An additional restriction: the **antecedent** has to be close. Within the same clause, more or less. Within the anaphor's **binding domain**.

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Binding domain

Why within the binding domain? Probably something like: reference needs to be established for each clause before it can be spelled out. But it's not obvious. Quantifiers can bind variables across clauses, so there must be something different between this assignment of a constant reference for anaphors and assignment of varying reference to a variable bound by a quantifier.

- (6) [Every boy]_i said [that Pat wants [Tracy to meet him_i]].

Principle A

An anaphor must be bound within its binding domain.

Binding domain

Minimal TP (or something like that).

Pronouns

The index on a pronoun represents what you are pointing at (perhaps mentally). It already has a referent. If reference assignment is triggered reference, a conflict arises.

- (7) a. * John_i saw him_i
b. John_i saw him_j
- (8) a. John_i said [(that) Mary saw him_i]
b. John_i wanted [Mary to see him_i]

Principle B

A pronoun must be free within its binding domain.

Free

Not bound

Referring expressions

Names like *John* are also constrained, kind of like pronouns. They already have a referent, and so can't get another one.

- (9) a. * He_i saw John_i
b. He_i saw John_j
- (10) a. * He_i said [(that) Mary saw John_i]
b. * He_i wanted [Mary to see John_i]

Interestingly, the constraint against binding r-expressions is not limited to just the binding domain; an r-expression can't be bound no matter how far away the binding antecedent is.

Principle C

An r-expression must be free.

Nuances in binding domains: logophors

Nailing down what the binding domain is can be difficult, it's more complicated than just "TP." Also, Principles A and B predict that environments for pronouns and anaphors should be completely nonoverlapping, but yet they seem not to be.

(11) John_i saw a snake near him_i

(12) John_i saw a snake near himself_i

Either binding domains differ, the structures differ, or we aren't actually looking at an anaphor (or pronoun). For example: *himself* might be a "logophor" (an anaphor that can take on reference through some kind of perspective-taking).

(13) Bill_i explained to Judy that writers like himself_i are rare.

(14) Judy explained to Bill_i that writers like himself_i are rare.

Nuances in binding domains: accessible subjects

Whether a DP is a binding domain seems to depend on whether there is something in the specifier of DP. Whether an accessible subject is needed (anaphors) or not (pronouns) matters.

- (15) a. John_i lost [his_i keys]
b. John_i lost [my picture of him_i]
c. * John_i lost [a picture of him_i]
- (16) a. John_i thinks that a picture of him_i is on the wall
b. John_i thinks that a picture of himself_i is on the wall
c. * John_i thinks that my picture of himself_i is on the wall

Moving to subject position

Moving for case (generally “A-movement” or “argument movement” or “movement to argument position”) allows Binding Theory to apply to the new position instead of the original position.

- (17) a. John_i seemed to himself_i [_ to have won the debate]
b. * He_i seemed to him_i [_ to have won the debate]
c. * It seemed to John_i [that himself_i has won the debate]
d. * It seemed to himself_i [that John_i has won the debate]
- (18) a. * He_i was seen by John_i _ in the mirror
b. * John_i was seen by him_i _ in the mirror
c. John_i was seen by himself_i _ in the mirror

Moving to SpecCP

Wh-movement (generally “A-bar-movement” or “non-argument movement” or “movement to non-argument position”) seems unable to dodge Principle B/C violations in the base position, but can still satisfy Principle A in either the base position or a derived position.

- (19) a. Which picture of himself_i did John_i buy _ ?
b. * Which picture of John_i did he_i buy _ ?
c. * Which picture of him_i did John_i buy _ ?
- (20) Which picture of himself_i did John_i think Mary bought _ ?
- (21) Which picture of him_i did John_i think Mary bought _ ?
- (22) * Which picture of him_i did Mary think John_i bought _ ?

Structural ambiguity

(23) John read that Mary built a time machine before she disappeared.

- a. J read before D: M built TM
- b. J read: M built TM before D

The sentence in (23) is ambiguous. But the sentence in (24) is not ambiguous.

(24) John read that she built a time machine before Mary disappeared.

- a. J read before D: M built TM
- b. * J read: M built TM before D

Binding theory is not learnable

Constraints on possible interpretations like Principle B are essentially not learnable. The sentences like (25a) are grammatical, children will hear them. What they won't hear is an *interpretation* like (25a), though they'll hear (25c) which is different only in that it has an extra embedded clause.

- (25) a. John_i saw him_j. Pronouns
 b. * John_i saw him_i.
 c. John_i said Mary saw him_i.

Given that, it must be part of UG, a universal property of human language.

Parameterization of Binding Theory

Languages differ in terms of how Binding Theory works. Mandarin *ziji* can be bound “long-distance” but *ta-ziji* cannot. In general, it seems that morphologically simple anaphors can be bound long-distance, but only by subjects, while morphologically complex anaphors can be bound only locally but not restricted to subjects.

- (26) a. Zhangsan_i renwei [Lisi_k hai-le ziji_{i/k}]
Z think L hurt self
‘Zhangsan_i thought that Lisi_k hurt himself_{k/him_i}’
b. Zhangsan_i renwei [Lisi_k hai-le ta-ziji_{*i/k}]
Z think L hurt self
‘Zhangsan_i thought that Lisi_k hurt himself_k’
- (27) Ivan_i sprosila Boris_k o sebe_{i/*k}
I asked B about self
‘Ivan_i asked Boris_k about himself_i’

A somewhat unsatisfying conclusion

Binding Theory predicts the basic cases, but has a great deal of nuance and depth that go beyond the basic cases. Understanding the contours of the constraints on coreference requires a great deal of intricate study within and across languages.

Even so, we can use the basic cases to diagnose structure. The distinction between anaphors, pronouns, and r-expressions, Principles A, B, C, a general understanding of “binding domain.” Knowing how these work in the simple cases will be an important part of the syntactic toolbox going forward.