CAS LX 422 ∼ GRS LX 722 Intermediate Syntax
Lecture 14

Binding Theory

1 Constraints on coreference

1.1 Assignment of reference

Constraints on coreference

(1) a. John$_i$ saw himself$_i$. Anaphors
b. * John$_i$ saw himself$_j$.

(2) a. * John$_i$ saw him$_i$. Pronouns
b. John$_i$ saw him$_j$.

(3) a. * He$_i$ saw John$_i$. Referring expressions
b. He$_i$ saw John$_j$.

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 left(x) is true"

$\text{yodeled}(x)\&\exists x[\text{left}(x)]$ "uhhh.. yodeled and someone left?"

Getting reference to anaphors

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.

(4) a. John$_i$ saw himself$_i$. Anaphors
b. * [John$_i$'s mother] saw himself$_i$.
c. * [himself$_i$'s mother] saw John$_i$.

Bound
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**.

(5) a. * John$_i$ said [(that) Mary saw himself$_i$]
b. * John$_i$ wanted [Mary to see himself$_i$]

2 Binding principles

2.1 Principle A: Anaphors

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).

2.2 Principle B: Pronouns

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

2.3 Principle C: Referring expressions

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.

3 Domains and structure

3.1 Binding domains

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

3.2 Binding theory and movement

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 _ ?

3.3 Diagnosing structure

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

4 Binding Theory crosslinguistically

4.1 Learnability of Binding Theory

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 $\underline{\text{him}}_j$. Pronouns
b. * John$_i$ saw $\underline{\text{him}}_i$.
c. John$_i$ said Mary saw $\underline{\text{him}}_i$.

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

4.2 Crosslinguistic variation

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$_i$ sprosil 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.