

Chapter 7

Binding Theory

7.1 Lecture notes

Chapter Seven

I. The problem

- In Chapter 7 we return to the problem of reflexive and non-reflexive pronouns raised in Chapter 1.
- This is a kind of dependency that is not easily subsumed under valence; we need another kind of machinery.
- Some terminology:
 - reflexive pronouns: *myself, ourselves, yourself, etc.*
 - antecedent: the other expression in the sentence with the same referent as the reflexive (or the other expression in the discourse with the same referent as a nonreflexive pronoun).
 - coreferential: referring to the same thing.
 - coindexing: two referring expressions sometimes have the same index, in which case they must be coreferential. (analogy to variables in logic)
 - binding: the relationship between antecedent and (reflexive) pronoun. More generally, a grammatically required coindexing between two elements.
 - anaphora: the general term for expressions that are linked to other elements in the discourse, e.g. by coindexing.

- [In some syntactic work, the term *anaphor* is reserved for reflexive and reciprocal pronouns and the term *pronoun* for non-reflexive pronouns.]
- Hypothesis III of Chapter 1 characterized the distribution of reflexive and nonreflexive pronouns like this: [Slides:1]
 - (1) **Hypothesis III:** A reflexive pronoun must be an argument of a verb that has another preceding argument with the same reference. A nonreflexive pronoun cannot appear as the argument of a verb that has a preceding coreferential argument.
- [Hypothesis III and its formalization in Chapter 7 are for the Binding Theory of English. The behavior of reflexives in other languages can and does differ.]
- In order to formalize this hypothesis in our grammar, we postulate two binding principles which are stated in terms of ARG-ST (for the notion ‘argument of the same verb’) and a notion of ‘outranking’ (which is a generalization of the notion of precedence which will allow us to capture some of the more complicated binding facts). [Slides:2]
 - (2) Principle A
An [ANA +] *synsem-struct* must be outranked by a coindexed *synsem-struct*.

 - Principle B
An [ANA –] *synsem-struct* must not be outranked by a coindexed *synsem-struct*.

II. The technical details

- **ARG-ST:** The value of ARG-ST is a list consisting of the SPR requirement followed by the COMPS requirements. This makes it easier to state the binding principles.
- **‘Outrank’:** We formalize the notion of one argument preceding another in terms of their rank in the ARG-ST list. [Slides:3]
 - (3) A phrase *A* outranks a phrase *B* just in case *A*’s *synsem-struct* precedes *B*’s *synsem-struct* on some ARG-ST list.

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- **ANA:** ANA (for anaphor) is a feature which distinguishes reflexive pronouns ([ANA +]) from all other nouns ([ANA -]).
 - ? What type is ANA a feature of? (*noun*)
 - ? Why? (It's only appropriate for nouns, and it needs to be a head feature to it gets passed up to the NP.)
 - Return to the binding principles [**Slides:2**] and go over them once more.
 - **AAP:** In order to capture the data in (4), we posit the Anaphoric Agreement Principle. [**Slides:4–5**]
 - (4) a. *I enjoy yourself
 - b. *He enjoys themselves
 - c. *She enjoys himself
 - d. *I_i think she saw you_i
 - e. *She_i thinks he saw them_i
 - **ARP:** In order to make sure that principles which apply to ARG-ST actually affect the words in the sentence, the ARP connects the ARG-ST to the SUBJ and COMPS lists. [**Slides:6**]
 - The ARP is a constraint which is part of the well-formed tree definition, and in particular part of the definition of well-formed lexical trees.
 - Once the information is on the SUBJ and COMPS lists, the Head-Complement and Head-Specifier Rules do the rest.
 - To summarize, the main components of the Binding Theory in this grammar are:
 1. the feature ARG-ST
 2. the definition of 'outrank'
 3. the binding principles
 - To make it all work without too much redundancy we also have
 1. the ARP
 2. the AAP
 3. the feature ANA
 4. the feature P-OBJ (see below)

- Illustrate with a tree for *Sarah saw herself*. [Slides:7]
 - ? How does the ANA specification of the object get to the ARG-ST of the verb? (HFP, Head-Complement Rule, ARP)
 - ? Why would *himself* be unacceptable as the object? (The AAP)
 - ? What restrictions would there be on the reference of *her* as the object? (disjoint in reference from the subject) Why? (Principle B)

III. Two tricky cases

- These are not covered by Hypothesis III from Chapter 1.
- Imperatives — nothing precedes the reflexive in these sentences, and yet the reflexives and pronouns behave as if there were a second person subject. [Slides:8]
- Capture this by discharging the subject requirement without realizing the subject, so there's something on the ARG-ST, but not in the sentence. [Slides:9]
- Illustrate with tree for *Protect yourself!*. [Slides:10]
 - ? Where does the constraint on the PER value of the first element of ARG-ST come from? (The Imperative Rule)
 - ? How does it get to the ARG-ST value of the verb? (The Valence Principle)
- P-OBJ — With respect to the binding facts, the object of some prepositions acts as if it was in fact an argument of the verb selecting the PP: [Slides:11–12]
 - (5) a. They_i talk [to themselves_i].
b. *They_i talk [to them_i].
 - (6) a. The house_i had a fence [around it_i].
b. *The house_i had a fence [around itself_i].
- Prepositions like *to* in (5) are argument markers, and prepositions like *around* in (6) are independent predicates with two elements on its ARG-ST list.

- To account for this, we posit the feature P-OBJ to carry the information about the object of the preposition up to the PP.
 - ? What type is P-OBJ a feature of? (*prep*)
 - ? Why? (It's only appropriate for prepositions, and it needs to be a head feature so that it gets transmitted to the PP.)
 - ? What type of things does P-OBJ take as its value? (*synsem-struc*s)
 - ? What is the P-OBJ value of a preposition that is an independent predicate? (none)
- We also need to revise the definition of outrank. [Slides:13]
- Go over example. [Slides:14]
 - ? Which word's argument structure is *herself* on? (*to*'s)
 - ? Which word is binding *herself*? (*Susan*)
 - ? Why does *Susan* outrank *herself*? (On the argument structure of *told*, *Susan* precedes *to* and its P-OBJ value, *herself*.)
- Some prepositions behave as independent predicates or as argument markers or ambiguously as both depending on the verb they appear with: [Slides:15–17]
 - (7) a. The house_{*i*} had a fence [around it_{*i*}].
 - b. *The house_{*i*} had a fence [around itself_{*i*}].
 - (8) a. To make a noose, you wind the rope_{*i*} [around itself_{*i*}].
 - b. *To make a noose, you wind the rope_{*i*} [around it_{*i*}].
 - (9) a. Susan_{*i*} wrapped the blanket [around her_{*i*}].
 - b. Susan_{*i*} wrapped the blanket [around herself_{*i*}].
- ? How many lexical entries for *around* are there? (Two. One is [P-OBJ none] and the other has the *synsem-struc* of its object in its P-OBJ value.)
- ? How do we get the facts in (7) – (9) right? (Have the different verbs select for prepositions with one or the other P-OBJ values, or an underspecified P-OBJ value.)

IV. More on ARG-ST

- Why do we need both ARG-ST and the valence features?
 - Makes it easier to state the binding principles, and lexical rules (in the next chapter).
 - In other languages (e.g. Japanese) some phenomena (e.g. binding facts and pro-drop) require that the ARG-ST is not just the sum of the valence features.
 - Conceptual elegance: At the level of the leaves of the tree, the generalizations we want to make involve all of the arguments in the same way, but when we get higher up in the trees, we want to peel off the first argument and treat it rather differently from the others. We've set up the features so that this happens.
- What nodes have ARG-ST on them? **[Slides:7]**
- How does this theory account for the difference between:
 - (10) a. Your mother excused herself.
 - b.*Your mother excused yourself.