

# Binding

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In quantified logic, “binding” names the relation between a quantifier and one or more variables, e.g.  $\forall x$  and  $x$  in  $\forall x[P(x) \rightarrow Q(x)]$ . In linguistics, the term has been used in at least three domains: First, for the relation between quantified expressions and pronouns that referentially depend on them, (1). Second for coreference, the relation between two referring expression with the same referent, (2), including hypothesized empty pronouns, (2c). Third, in theories that assume transformations, for the relation between a dislocated phrase and its *trace*, (3) (see *GOVERNMENT AND BINDING THEORY*):

- (1) *Every cat* chased *its* tail.
- (2)
  - a. *Sue* hopes that *she* won.
  - b. *Edgar* spoke for *himself*.
  - c. *Wesley* called *PRO* to apologize.
- (3)
  - a. *Which book* did Kim read *t*?
  - b. *Antonia* was promoted *t*.

Semantically, only (1) and (3) are clear instances of binding (the pronouns/ traces are interpreted like variables, and their antecedent are often non-referring), yet coreference is almost universally subsumed under the “binding” label in linguistics.

All three binding relations are frequently represented by *coindexing* the binder (or *antecedent*) and the bound element (e.g. *Every cat*<sub>6</sub> *chased its*<sub>6</sub> *tail*), though richer, asymmetrical representations have been proposed, and are arguably required for semantic interpretation.

Semantic binding relations are subject to a structural constraint, to a first approximation the same as in quantified logic: the bindee must be contained in the sister constituent to the binder, a relation usually called *c(onstituent)-command* (see *C-COMMAND*). For movement relations this amounts to the ban on “downward” or “sideways” movement, the *proper binding condition*, which is pervasive across languages. For quantifier-pronoun relations it blocks “sideways” binding as in (4a) (neither NP c-commands the other), and “upward” binding as in (4b) (the putative binder is c-commanded by the pronoun); note that in both examples the pronouns have to be interpreted as referentially independent from *no one/actress*:

- (4) a. If *no one* is here, *he*'s elsewhere.  
 b. *Her* calendar showed that *no actress* had left early.

A systematic class of exceptions to the c-command requirement is found in so-called *indirect binding*, e.g. (6), where the object can be bound from within the subject (“sideways”):

- (5) Somebody from *every city* likes *its* beaches.

Unlike semantic binding, coreference among two NPs does not require c-command, (6):

- (6) *His/Jacques's* teacher said that *he/Jacques* failed.

Yet certain prohibitions *against* coreference, e.g. that non-reflexive pronouns in English cannot corefer with expressions in the same finite clause, only regard NPs that c-commands the pronoun, (7) (similarly for non-pronominal NPs):

- (7)  $\left\{ \begin{array}{l} \textit{Your} \textit{ mother} \\ * \textit{You} \end{array} \right\}$  defended *you*.

Likewise, reflexive pronouns in English need an antecedent that is not just within the same finite clause, but also c-commands them:

- (8)  $\left\{ \begin{array}{l} \textit{She} \\ * \textit{Her} \textit{ mother} \end{array} \right\}$  defended *herself*.

These conditions on the distribution of reflexive and non-reflexive restrict binding by quantified nominals as well, and are indiscriminately referred to

as *Binding Conditions*.

While *c*-command seems relevant in binding conditions cross-linguistically, other aspects such as the number of morphological classes (reflexives, non-reflexives etc.), or the size of relevant structural domains, vary widely.

— Daniel Büring

## Selected Further Readings

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