I-language
Chapter 8: Anaphor Binding

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1 Binding Theory:
   Anaphors
   More on binding
   Wh- movement

2 Non-syntactic factors?

3 You are not your grammar
“The beginning of science is the recognition that the simplest phenomena of ordinary life raise quite serious problems: Why are they as they are, instead of some different way?” [Noam Chomsky, Language and Problems of Knowledge:43].
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Account for distribution and reference of anaphoric (reflexive) pronouns like *herself*. [Note: we are not interested here in the homophonous form that is used for emphasis, as in *Mary, herself, killed the snake.*]
Our model must not overgenerate or undergenerate.
It must generate ALL AND ONLY the grammatical sentences.
Some data:

a. *Mary$_i$ sees herself$_j$.

b. Mary$_i$ sees herself$_i$.

(subscript indices mark reference)
Hypothesis I:

_herself_ must be preceded by a coreferent phrase.
c. *Mary$_i$ knows that Jane$_j$ loves herself$_i$.

d. Mary$_i$ knows that Jane$_j$ loves herself$_j$. 
Hypothesis II:

No other noun phrase may intervene between *herself* and a coreferent preceding noun phrase.
More data:

e. *The teacher$_j$ Mary$_i$ likes flogs herself$_i$.

f. The teacher$_j$ Mary$_i$ likes flogs herself$_j$.

g. *A friend$_j$ of Mary’s$_i$ flogs herself$_i$.

h. A friend$_j$ of Mary’s$_i$ flogs herself$_j$.

i. Mary$_i$ told Sue$_j$ that Jane$_k$ likes her$_i,j,*k,l$.
More data:

e. *The teacher$_j$ Mary$_i$ likes flogs herself$_i$.

f. The teacher$_j$ Mary$_i$ likes flogs herself$_j$.

g. *A friend$_j$ of Mary’s$_i$ flogs herself$_i$.

h. A friend$_j$ of Mary’s$_i$ flogs herself$_j$.

i. Mary$_i$ told Sue$_j$ that Jane$_k$ likes her$_i,j,*k,l$. 
More data:

e. *The teacher$_j$ Mary$_i$ likes flogs herself$_i$.

f. The teacher$_j$ Mary$_i$ likes flogs herself$_j$.

g. *A friend$_j$ of Mary’s$_i$ flogs herself$_i$.

h. A friend$_j$ of Mary’s$_i$ flogs herself$_j$.

i. Mary$_i$ told Sue$_j$ that Jane$_k$ likes her$_i,j$,*$k,l$.
More data:

e. *The teacher\textsubscript{j} Mary\textsubscript{i} likes flogs herself\textsubscript{i}.

f. The teacher\textsubscript{j} Mary\textsubscript{i} likes flogs herself\textsubscript{j}.

g. *A friend\textsubscript{j} of Mary’s\textsubscript{i} flogs herself\textsubscript{i}.

h. A friend\textsubscript{j} of Mary’s\textsubscript{i} flogs herself\textsubscript{j}.

i. Mary\textsubscript{i} told Sue\textsubscript{j} that Jane\textsubscript{k} likes her\textsubscript{i,j,*k,l}.
Hypothesis III:

An anaphor, like *herself*, must be bound in its clause.
Some definitions

- **Clause**: informally, let’s just say that each verb and ‘whatever goes with it’ constitutes a clause.

- **Binding**: A constituent $\alpha$ of a sentence *binds* another constituent $\beta$ just in case $\alpha$ and $\beta$ are coindexed (coreferential) *and* $\alpha$ C-COMMANDS $\beta$.

- **C-command**: $\alpha$ c-commands $\beta$ just in case $\alpha$ does not contain $\beta$, but every category that contains $\alpha$ contains $\beta$. (This is most easily seen if we draw trees for our sentences and translate *contain* to *dominate.*)
What are the c-command relations in this tree?

```
  A
 /   \
M     B
 /     /
K     N
 /     /
J     L
 /     /
I     G
 /     /
H     F
 /     /
E     D
 /     /
C     
```
Here is what N c-commands

You are not your grammar

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Here is what K c-commands
The relationship of c-command is not relevant only to binding phenomena. It is a relationship that pervades syntax. We’ll come back to this.
Simple case

Mary; sees herself;.

[Diagram of sentence structure]
Nouns are not referential, but Noun Phrases are. Fix up our indices on noun phrases:

\[
\text{Mary}_i \text{ sees herself}_{i/*j}.
\]

```
S
  NP
    N  NP
      Mary  sees
        sees  herself
            NP
              N
                N
                  N

```
Nouns are not referential, but Noun Phrases are. Fix up our indices on noun phrases:

\[ \text{Mary}_i \text{ sees herself}_{i/*j}. \]
Nouns are not referential, but Noun Phrases are. Fix up our indices on noun phrases:

$$\text{Mary}_i \text{ sees herself}_{i/\ast j}.$$
[A friend of Mary’s] flogs herself.  

```
S
  |--------NP_j--------|
  |                  |
  |      D          |
  |     |            |
  |    a NP        |
  |    |            |
  | friend PP      |
  |  |            |
  |  P NP_i       |
  |   |            |
  |   of NP       |
  |    |            |
  |    of Mary’s  |

NP_j

VP
  |--------NP_{*i/j}--------|
  |                  |
  |      V          |
  |     |            |
  | flogs NP       |
  |  |            |
  |  N            |
  |    |            |
  |    herself    |
```
[A friend of Mary’s] flogs herself.*i/j.

S

NPj

D

a

NP

friend

PP

of

NPi

Mary’s

V

flogs

N

herself

NP*i/j
[A friend of Mary’s$_i$]$_j$ flogs herself$_{i/j}$.

\[ S \]
\[ NP_j \]
\[ D \]
\[ a \]
\[ NP \]
\[ friend \]
\[ PP \]
\[ of \]
\[ NP_i \]
\[ N \]
\[ Mary’s \]
\[ VP \]
\[ V \]
\[ flogs \]
\[ NP_{i/j} \]
\[ N \]
\[ herself \]
[A friend of Mary’s$_i$]$_j$ flogs herself$_{i/j}$. 

NP within NP
The teacher Mary likes flogs herself.

\[
\begin{aligned}
S & \quad \text{S}\n
NP_j & \quad \text{NP}_j

D & \quad \text{D}

\text{the} & \quad \text{the}

NP & \quad \text{NP}

\text{teacher} & \quad \text{teacher}

S & \quad \text{S}

NP_i & \quad \text{NP}_i

N & \quad \text{N}

Mary & \quad \text{Mary}

V & \quad \text{V}

likes & \quad \text{likes}

VP & \quad \text{VP}

flogs & \quad \text{flogs}

NP_{i/j} & \quad \text{NP}_{i/j}

N & \quad \text{N}

herself & \quad \text{herself}
\end{aligned}
\]
The teacher Mary likes flogs herself.

```
S
 /   
|     |
NPj   VP
     /   
NP    V   NP
      /   /    *
i   / /   /   i/j
D   the flogs herself
     NP
      /   
teacher
     /   
NP
      /   
Mary
      /   
V
      /   
likes
```
The teacher Mary likes flogs herself.
The teacher Mary likes flogs herself.

```
S
  |NPᵢ
  |  
  |D
  |  NP
  |    |NP
  | the |NP
  | teacher | S
  |  |NPᵢ
  |  |VP
  |  |  |V
  |  |  |NPᵢ
  |  |  |  |N
  |  |  |  |Mary
  |  |  |  |likes
  |NP
  |NP
  |VP
  |VP
  |VP
  |V
  |V
  |N
  |N
  |flogs
  |herself
```
[Mary$_i$ knows [ Jane$_j$ loves herself$_{i/j}$ ] ].
[Mary; knows [ Jane; loves herself\(_i/j\) ]].
[Mary; knows [ Jane; loves herself_{i/j} ]].
[Mary; knows [ Jane; loves herself\textsubscript{*i/j} ] ].

```
S
   NP\textsubscript{i}
      N
         Mary
   VP
      V
         knows
     S
       NP\textsubscript{j}
          N
             Jane
       VP
          V
             loves
         NP\textsubscript{*i/j}
            N
               herself
```
There are several types of evidence that support a structural, rather than semantic account of pronoun and anaphor (reflexive) distribution.
The binder is not always an agent or doer:

- *John saw himself.*

- *John looked at himself.*

This difference between agent and experiencer is overtly encoded in many languages.
A semantic account wrongly predicts that the subject of passives could be anaphors:

- *Himself was shot by John.*

Anaphors can never be subjects because there is never anything high enough in the syntactic tree to bind them.
Although all our examples above involved subject antecedents of ‘direct objects’, there are other possibilities in English:

- *John wrote a letter to himself.*

  *himself* is a recipient or beneficiary, not the result of the writing activity. Compare:

- *This letter wrote itself.*
- *The teacher assigned Mary herself as a buddy.*
- *The psychotherapist revealed Mary to herself*
Binding phenomena vary across languages. For example:

i. Sigga\(_i\) says that Maria\(_j\) loves herself\(_{*i/j}\)

ii. Sigga\(_i\) segir að Maria\(_j\) elski sig\(_{i/j}\)
Structure dependence

- Binding of reflexives
- wh-movement
- *I know Mary’s*
- stress assignment rules
Wh- movement

- John squashed Mike.
- Who did John squash?
- Who squashed himself?
- Who$_i$ does John$_{i,j}$ think squashed himself$_{i,*j,*k}$?
Informal Deep Structure—shows only base positions
1. Binding Theory:
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Can non-structural factors influence interpretation?

- \textit{Janie}_i \textit{asked} \textit{Loretta}_j \textit{to fix her}_i,j \textit{bicycle} — at least two readings.
- \textit{Rayette}_k \textit{asked} \textit{Eve}_l \textit{to fix her}_k,l \textit{bicycle} — at least two readings.
Can non-structural factors influence interpretation?

- Janie
  asked Loretta
  to fix her bicycle
  — at least two readings.
- Rayette
  asked Eve
  to fix her bicycle
  — at least two readings.
How many readings are available?

Janie_i asked Loretta_j to fix her_i/j bicycle and Rayette_k asked Eve_l to fix her_k/l bicycle.

— how many of the following readings are possible?:
  i & k;  i & l;  j & k;  j & l
How many readings are available?

Janie\(i\) asked Loretta\(j\) to fix her\(i/j\) bicycle and Rayette\(k\) asked Eve\(l\) to fix her\(k/l\) bicycle.

— how many of the following readings are possible?:

\(i & k; \ i & l; \ j & k; \ j & l\)
How many readings are available?

Janie\textsubscript{i} asked Loretta\textsubscript{j} to fix her\textsubscript{i/j} bicycle and Rayette\textsubscript{k} asked Eve\textsubscript{l} to fix her\textsubscript{k/l} bicycle.

— how many of the following readings are possible?:

\textsubscript{i} & \textsubscript{k}; \textsubscript{i} & \textsubscript{l}; \textsubscript{j} & \textsubscript{k}; \textsubscript{j} & \textsubscript{l}
'?' The pilot called the flight attendant into the cabin because she needed his help.
‘?’ The pilot called the flight attendant into the cabin because she needed his help.
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3 You are not your grammar
You are not your bank account.
You are not the clothes you wear.
You are not the contents of your wallet.
You are not your bowel cancer.
You are not your grande latte.
You are not the car you drive.
You are not your $*!&@%#$^½¿© kakhis.

...and you are not your grammar
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...and you are not your grammar
From the *Fight Club* song

You are not your bank account.
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...and you are not your grammar
Your grammar is only one aspect of you that determines what you say and how you interpret sentences.
What influences acceptability of sentences?

- John told Bill to kiss himself.
- John told Bill to kiss him.
- Bill kissed himself.
- Bill outlived himself.
- Mary told Bill to kiss herself.
- The pilot called the flight attendant into the cabin because she needed his help.
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