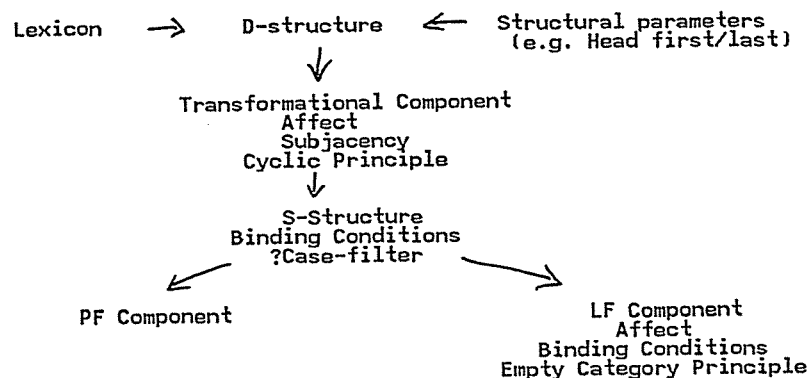


## I. Binding Theory

1. An anaphor must be bound in a local domain.
  - a. The men like each other.
  - b. \*Each other left.
  - c. \*The men think that Mary likes each other.
2. A pronominal must be free in a local domain.
  - a. He likes him. He  $\neq$  him
  - b. He thinks he will win.
3. An R-expression must be free.
  - a. He likes John. He  $\neq$  John
  - b. He thinks John will win. He  $\neq$  John
4. Some issues
  - a. What is the correct characterization of the local domain?
  - b. What are the anaphors, pronominals, R-expressions?
  - c. What level(s) of representation must satisfy the Binding Conditions?
  - d. How are differences between languages to be characterized?

## II. $\theta$ Theory

1. Every argument must receive a thematic ( $\theta$ ) role; every  $\theta$  role must be assigned to an argument. The  $\theta$  Criterion.
  - a. It seems that Bill will win.
  - b. \*John seems that Bill will win.
  - c. \*Bill slept something.
2. What level(s) of representation must meet the  $\theta$  Criterion?
3. Does the meaning of a predicate completely determine its  $\theta$  assigning properties?
4. To what extent are phrase structure rules reducible to  $\theta$  properties?



## III. Case Theory

1. A lexical NP must have case. A case assigner must govern an NP to which it assigns case. [The core case of government is the relationship between a head, such as V, and its complement, here, an object NP. The subject of a finite clause is assumed to be governed by an agreement element AGR.]
  - a. I  $\xrightarrow{\text{AGR}}$  like John.
  - b. I  $\xrightarrow{\text{AGR}}$  spoke to John.
  - c. \*I  $\xrightarrow{\text{AGR}}$  tried [ John to win ]  
caseless
2. In some languages, case assignment requires adjacency as well as government.
  - a. \*I  $\xrightarrow{\text{AGR}}$  like very much Bill.  
caseless
3. Is there a relationship between case and  $\theta$  role?
  - yes a. \*who did you try [ ] to win the race?
  - no b. I tried [NP to win the race]

## IV. Transformations

1. Move  $\alpha$  (or more generally affect  $\alpha$  = 'Do anything to anything') is the relationship between D-structure (a pure representation of  $\theta$  roles) and S-structure.
  - a.  $\xrightarrow{\text{Move } \alpha}$  seems [John to be intelligent] D-structure
  - b. John seems [ ] to be intelligent] S-structure
2. Can transformations be optional and unordered?
3. Bounding parameters (Subadjacency). How far can an item move?
  - a. (\*) what [do you wonder [who [ ] read [ ]]]

## V. Logical Form

1. A level of representation in which scope of quantifiers and other operators is explicitly indicated.
2. What is the nature of LF Affect  $\alpha$ ? To what extent are its properties the same as those of syntactic Affect  $\alpha$ ?
3. No vacuous quantification; no free variables.

# I. The formal nature of the Binding Conditions

## A. Some S-structure binding requirements

- 1.a. An anaphor must be A bound in its governing category.
- b. A pronominal must be A free in its governing category.
- c. An R expression must be A free.
2. The conditions must apply (at least) at S-structure.
- 3.a. \*He<sub>1</sub> dislikes everyone that John<sub>1</sub> knows.
- b. [Everyone that John<sub>1</sub> knows] [he<sub>1</sub> dislikes t]
4. Who that John<sub>1</sub> knows does he<sub>1</sub> dislike?
5. Which men introduced which women<sub>1</sub> to each other<sub>1</sub>
6. 1a is a purely formal requirement, apparently. The binder need not be of the appropriate logical type at S-structure.
7. Which articles<sub>1</sub> did you file e<sub>1</sub> without reading e<sub>1</sub>?
8. \*Who filed which articles<sub>1</sub> without reading e<sub>1</sub>?
9. e must be A' bound at S-structure.
10. The man [whose father]<sub>1</sub> I met e<sub>1</sub> without talking to e<sub>1</sub>.
11. In (10) neither e<sub>1</sub> is obviously a variable, nor is the A' binder obviously an operator.

## B. Binding and Interpretation

12. \*He<sub>1</sub> likes him<sub>1</sub> Condition B
13. He<sub>1</sub> likes him<sub>2</sub> Violates no condition. But why can't he, him corefer?
14. Distinct indices are interpreted as indicating non-coreference.
15. \*He<sub>1</sub> likes himself<sub>2</sub> Condition A
16. He<sub>1</sub> likes himself<sub>1</sub> Violates no condition. But why must he<sub>1</sub> himself corefer?
17. Identical indices are interpreted as indicating coreference.
18. They<sub>1</sub> like him<sub>2</sub>.

19. John<sub>1</sub> told Bill<sub>2</sub> that they<sub>?</sub> should leave.

## II. The Input to the Binding Conditions

20. \*He<sub>1</sub> dislikes someone that John<sub>1</sub> knows.
21. [who that John<sub>1</sub> knows] does he<sub>1</sub> dislike
22. \*It seems to each other that the men are intelligent.
23. The men<sub>1</sub> seem to each other<sub>1</sub> [ to be intelligent]
24. Binding Conditions do not apply to D-structure representations.
- 25a. \*Which man<sub>1</sub> does his<sub>1</sub> mother love e<sub>1</sub>
- b. "Bijection": an operator can (locally) bind at most one variable. ["Weak Crossover"]
26. ? [ The man<sub>1</sub> [ who<sub>1</sub> [ his<sub>1</sub> mother loves e<sub>1</sub> ] ] ]  
NP S' S
27. The man<sub>1</sub> [ who<sub>2</sub> [ his<sub>1</sub> mother loves e<sub>2</sub> ] ] S-structure
- 28a. Predication changes (27) to (26): The relative operator is coindexed with the head.
- b. Bijection precedes Predication.
29. \*The man<sub>1</sub> [ who<sub>1</sub> [ e<sub>1</sub> likes him<sub>1</sub> ] ]
30. The man<sub>1</sub> [ who<sub>2</sub> [ e<sub>2</sub> likes him<sub>1</sub> ] ] Possible S-structure for (29)
31. Condition B applies to LF' (the output of Predication).
32. \*Which man<sub>1</sub> [ does he<sub>1</sub> think [ e<sub>1</sub> will win ] ] Condition C ["Strong Crossover"]
33. \* [ The man<sub>1</sub> [ who<sub>1</sub> [ he<sub>1</sub> thinks [ e<sub>1</sub> will win ] ] ] ]  
NP S' S
34. [ The man<sub>1</sub> [ who<sub>2</sub> [ he<sub>1</sub> thinks [ e<sub>2</sub> will win ] ] ] Possible S-structure for (33)
35. Condition C applies to LF'.
36. Hypothesis = Binding Conditions apply to all syntactic levels except D-structure.

### III. Classes of NP's

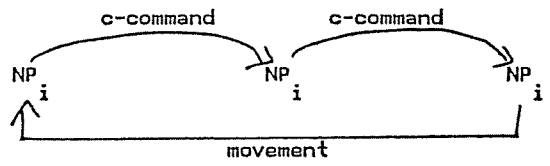
37. a. \*He<sub>1</sub> thinks John<sub>1</sub> will win.  
b. \*Who<sub>1</sub> does he<sub>1</sub> think e<sub>1</sub> will win?  
c. \*He<sub>1</sub> thinks the bastard<sub>1</sub> will win.
38. \*John<sub>1</sub> thinks the bastard<sub>1</sub> will win.
39. After John<sub>1</sub> walked in, the bastard<sub>1</sub> hit me.
40. "Functional Determination" potentially handles (37b), but not the other examples. [An e.c. is a variable if and only if it is locally A' bound.] Some version of Condition C is still needed.
41. It is important [PRO to solve this problem]
- 42a. \*PRO solved the problem.  
b. \*I solved PRO.
43. Conditions A and B give the distribution of PRO, a pronominal anaphor.
- 44a. John<sub>1</sub> tried PRO<sub>1</sub> to leave.  
b. \*John<sub>1</sub> tried PRO<sub>2</sub> to leave.
45. The indexing of PRO is not given by the Binding Conditions.
46. \*They<sub>1</sub> believe that themselves<sub>1</sub> will win. Condition A
- 47a. They are believed [t to have won]  
b. \*They are believed [(that) [t won]] Condition A, assuming that NP movement leaves an anaphoric trace.

### IV. The Characterization of 'Governing Category'

48. They<sub>1</sub> believe [that [pictures of each other<sub>1</sub>] AGR are on sale]]
49.  $\beta$  is a governing category for  $\alpha$  if and only if  $\beta$  is the minimal category containing  $\alpha$ , a governor of  $\alpha$ , and a SUBJECT [subject or AGR] accessible to  $\alpha$ .
- 50a.  $\gamma$  is accessible to  $\alpha$  if and only if  $\gamma$  c-commands  $\alpha$  and assignment to  $\alpha$  of the index of  $\gamma$  would not violate \*[...i...]<sub>i</sub>  
b.  $\gamma$  is accessible to  $\alpha$  if and only if  $\gamma$  c-commands  $\alpha$  and  $\gamma$  is not coindexed with any category containing  $\alpha$ .
51. \*They<sub>1</sub> are believed [that [pictures (of) t<sub>1</sub>] AGR are on sale]]

52. They<sub>1</sub> read [each others<sub>1</sub> books]
53. They<sub>1</sub> read [their<sub>1</sub> books]
54. \*They read [PRO books]
- 55a. (Davis 1984)  $\beta$  is the g.c. for a lexical anaphor  $\alpha$  if and only if  $\beta$  is the minimal category containing  $\alpha$ , a governor of  $\alpha$ , and a SUBJECT accessible to  $\alpha$ .  
b. Otherwise,  $\beta$  is the g.c. for  $\alpha$  if and only if  $\beta$  is the minimal category containing  $\alpha$ , a governor of  $\alpha$ , and a SUBJECT.
56.  $\beta$  is the g.c. for (a lexical anaphor)  $\alpha$  iff  $\beta$  is the minimal category containing  $\alpha$ , a governor of  $\alpha$ , and a SUBJECT accessible to  $\alpha$ .
57. John<sub>1</sub> knew [that [[a book about him<sub>1</sub>] AGR would be on sale]]
58. Is "accessibility" a parameter?
59. Jan<sub>1</sub> wiedzial, ze ksiazka o { \*sowie<sub>1</sub> } bedzie w spryedazy.  
nim<sub>1</sub>
- John knew that a book about { himself<sub>1</sub> } would be on sale.  
him

1. \*John<sub>1</sub> believes [that [Mary likes himself]]
2. \*John<sub>1</sub> { seems  
is believed } [that [Mary likes   ]]
3. Condition A: An anaphor must be A bound in its governing category.
4. \*John<sub>1</sub> is believed [that [he<sub>1</sub> likes e<sub>1</sub>]] Violates SSC, TSC, but not Condition A.  
Cf. It is believed that John likes himself.
5. By "functional determination", e<sub>1</sub> is pronominal since not locally A' bound, and locally A bound by an element with an independent  $\theta$  role (he<sub>1</sub>). (4) then would violate Condition B.
6. Problems with functional determination
  - a. who<sub>1</sub> [did [e<sub>1</sub> losing the race] annoy e<sub>1</sub>]
  - b. John<sub>1</sub> was arrested e<sub>1</sub> [after e<sub>1</sub> arriving at the party]
  - c. \*who<sub>1</sub> [did he<sub>1</sub> try [[e<sub>1</sub> to win the race]]]
7. Movement as a last resort?
8.    is believed [that [he<sub>1</sub> likes John<sub>1</sub>]]  
The underlying form of (4) would violate Condition C.
9. John<sub>1</sub> wants [[PRO<sub>1</sub> to be hired t<sub>1</sub>]]  
PRO has moved to avoid violating Binding Theory.
10. Case conflict? Suppose an A chain cannot have 2 case-marked elements.
11. \*Bill<sub>1</sub> tried [[John<sub>1</sub> to be believed [that [he<sub>1</sub> likes t<sub>1</sub>]]]]
12. \*Bill<sub>1</sub> tried [[PRO<sub>1</sub> to be believed [that [he<sub>1</sub> likes t<sub>1</sub>]]]]
13. \*John<sub>1</sub> is believed [that [he<sub>1</sub> is proud (of) t<sub>1</sub>]]
14. a. [Rome's<sub>1</sub> destruction t<sub>1</sub>]  
NP  
b. [the destruction of Rome]  
NP
15. \*[the belief (of) [John to be intelligent]]  
NP

16. \*John<sub>1</sub> seems [that [[pictures (of) t<sub>1</sub>] are on sale]]  
Cf. It seems that pictures of John are on sale.
17. \*John<sub>1</sub> seems [that [[the belief [t<sub>1</sub> to be intelligent]] is strange]]  
Cf. It seems that the belief that John is intelligent is strange.
18. \*John<sub>1</sub> seems [that [[his<sub>1</sub> belief [t<sub>1</sub> to be intelligent]] is strange]]
19. There is no "exceptional" case marking by nouns. Neither (17) nor (18) is an instance of case conflict, regardless of how case assignment and case conflict are formulated.
20. 
21. a. Where  $\alpha^j$ ,  $\alpha^{j+1}$  are successive members of a chain,  $\alpha^j$  must locally bind  $\alpha^{j+1}$ . [From Chomsky LGB, p. 333]  
or b. An anaphor cannot be multiply linked.  
John<sub>1</sub> is believed [that [he<sub>1</sub> likes t<sub>1</sub>]]
22. Gianni è stato affidato a se stesso.  
Gianni was entrusted to himself
23. \*Gianni si è stato affidato.  
Gianni to himself was entrusted
24. Gianni gli è stato affidato.  
Gianni to him was entrusted
25. Gianni<sub>1</sub> [ si<sub>1</sub> è stato affidato e'<sub>1</sub> e''<sub>1</sub> ] (order of e', e'' irrelevant)
26. Gianni does not locally bind e'.

1. Who bought what? [what<sub>2</sub> who<sub>1</sub> ] [t<sub>1</sub> bought t<sub>2</sub> ]
2. \*What did who buy? [who<sub>1</sub> what<sub>2</sub> ] [t<sub>2</sub> bought t<sub>1</sub> ]
3. Why did you buy what?
4. \*What did you buy why?
5. \*Who left why?
6. \*Who said John left why? [why<sub>2</sub> who<sub>1</sub> ] [t<sub>1</sub> said [(t<sub>2</sub>) ] [John left t<sub>2</sub> ]
7. Bill-wa [s, John-ga naze kubi-ni natitta ttel itta no?  
Bill-topic John-nom why was fired Comp said Q  
'Why did Bill say that John was fired t?'
8. [ [ Taroo-ga nani-o te-ni iretal kotol-o sonnani okotteru no  
NP S'  
Taro-nom what-acc obtained fact-acc so much be angry Q  
Lit.: 'What are you so angry about the fact that Taro obtained t?'
9. \*[ [ Taroo-ga naze sore-o te-ni iretal kotol-o sonnani okotteru no  
NP S'  
why it-acc  
Lit.: 'Why are you so angry about the fact that Taro obtained it t?'
10. who [do you think [t [t won the race]]]
11. \*who [do you think [that [t won the race]]]
12. a. who moves into lower COMP  
b. who moves COMP to COMP  
c. that is inserted  
d. At S-structure, t is marked [-Y], since not lexically governed and not locally antecedent governed. } Affect α
13. Why [do you think [that [John won the race t]]]
14. a. why moves into lower COMP  
b. why moves COMP to COMP  
c. that is inserted  
d. t is not Y marked at this level. By principle (109) of Lasnik and Saito (1984), only an argument receives a Y-feature at S-structure.  
e. that is "deleted"  
f. why moves into the lower COMP  
g. why moves COMP to COMP } LF Affect α

15. why<sub>1</sub> do you think [t<sub>1</sub> [John won the race t<sub>1</sub> ]]
16. a. The lowest t is assigned [+Y] by the intermediate COMP.  
b. The intermediate trace is assigned [+Y] by the highest COMP.
17. Traces are optional.
18. why [do you think [that [John won the race]]]
19. a. why adjoins to lowest S  
b. why moves to lower COMP  
c. why moves COMP to COMP  
d. Same as (16a,b) } LF
20. \*who [do you think [that [won the race]]]  
This S-structure is ruled out by the (extended) Projection Principle.
21. ?\*who [do you believe [the claim [that [John said [(t) [came t]]]]]]
22. \*why [do you believe [the claim [that [John said [[Bill came t]]]]]]
23. Which book did you read e without understanding e?
24. a. \*How did you prove the theorem without solving the problem e?  
b. \*How angry can you be e without looking e?  
c. \*To whom did you talk e without giving criticism e?
25. Only NP's can be parasitic gaps.

## I. Contraction

1. a. I want to win the race.  
b. I wanna win the race.
2. a. Which race do you want to win t ?  
b.                                wanna
3. a. I want John to win the race.  
b. \* wanna
4. a. Who do you want t to win the race?  
b. \*                        wanna
5. want + to → wanna
6. Why doesn't PRO block contraction?
7. I want [ [ [to win the race] PRO]                                Pesetsky  
      S' S INFL'
8. \*who [do you want [ (t) [ [to win the race] t]]]  
      S'        S INFL'
9. a. \*who is it likely [t to win the race]  
b. WH trace requires case; case assignment requires adjacency.
10. a. which race do you want [[[to win t] PRO]]  
b. Subadjacency is a constraint on movement rather than on representation.
11. a. John is here.  
b.        's
12. a. I wonder where John is?  
b.                        \* 's
13. a. John is here and Bill is also.  
b.        's                        \* 's
14. a. I said John would be riding his bike, and riding his bike, he is.  
b. \*    's
15. An e.c. between want and to blocks contraction, but an e.c. after is  
      blocks contraction.
16. Contraction of is is pro-cliticization.                                Bresnan
17. John [        is [        here]]        or        John [        [        is [        here]]]  
      AdvP        AdvP                                AdvP        Adv        Adv
18. a. who do you think [ is here]  
b.    's                                cf. (4)

19. \*I wonder where John [is [e]]
20. \*[ Tense [ e]] Lasnik 1981  
v v
21. A clitic must be dependent upon a morphologically realized category.
22. \*I wonder where John 's e now \* by (20)  
e 's now
23. is cliticization requires adjacency.
24. a. John is now in his office.  
b. 's<sub>e</sub>
25. I wonder John is now where  
Why can't this be the source of (21)?
26. 'Extrapolation' can't feed WH movement.
27. John is in his office now. D.S.  
John is now in his office. Extrapolation  
's Contraction
28. Extrapolation does not leave a trace (or need not).
29. I wonder where John is a now ↑  
\* extrapolation
30. An e.c. can't be extraposed.
- II. Classes of Empty Categories
31. a. I left because John did.  
b. \*
32. a. You can win because Bill can.  
b. \*
33. a. I'm leaving because Bill is.  
b. \*
34. VP "deletion" is constrained by the ECP.
35. 
$$\begin{array}{c} \text{INFL} \\ \swarrow \quad \searrow \\ \text{INFL (Aux)} \quad \text{VP} \end{array}$$
36. Aux lexically governs VP. (VP is the complement of Aux.)
37. John will see Bill and Susan, Mary.
38. Gapping is not constrained by the ECP.
39. Gapping leaves no empty category. It really is deletion.

40. a. I said John would solve the problem, and solve the problem he did.  
b. \*I said John would solve the problem, and solved the problem he

\*1. VP fronting is constrained by the ECP.

### III. A Case of Scrambling?

42. a. I expect that this solution, you will like.  
b. \*I expect that this solution, you will like it. cf. Baltin
43. a. That this solution, I proposed last year is widely known.  
b. \*That this solution, I proposed it last year is widely known.
44. a. This solution, I proposed last year.  
b. ?This solution, I proposed it last year,
45. ? No base generated topic position in embedded contexts. Rather, English, like Japanese, has a scrambling rule.
46. a. Who expects that you will like what?  
b. \*Who expects that what you will like?
47. A WH phrase can't undergo scrambling.
48. Bill expects that to Harry, John will speak.
49. \*Who expects that to whom John will speak?
50. Who expects that books about whom John will buy?
51. to whom must be a WH phrase.
52. a. To whom did you speak?  
b. Who did you speak to?
53. Is there an A over A constraint?
54. ?? Which athlete<sub>2</sub> did you wonder

[[which pictures of t<sub>1</sub>] [t<sub>1</sub> were on display]]  
2 1 1

55. \*Who<sub>2</sub> did you say [[to t<sub>1</sub>] [John spoke t<sub>1</sub>]]  
2 1 1