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 ≠ him
   b. He thinks he will win.

3. An R-expression must be free.
   a. He likes John.  He ≠ John
   b. He thinks John will win.  He ≠ 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. θ Theory

1. Every argument must receive a thematic (θ) role; every θ role must be assigned to an argument. The θ 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 θ Criterion?
3. Does the meaning of a predicate completely determine its θ assigning properties?
4. To what extent are phrase structure rules reducible to θ properties?

Lexicon → D-structure ← Structural parameters (e.g. Head first/last)

Transformational Component
   Affect
   Subjacency
   Cyclic Principle
   S-Structure
   Binding Conditions
   ?Case-filter

PF Component
   → LF Component
   Affect
   Binding Conditions
   Empty Category Principle

Howard Lasnik
Lecture 1
Current Issues in the Theory of Syntax and Logical Form

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 AGR like John.
   b. I AGR spoke to John.
   c. *I AGR tried [John to win] caseless

2. In some languages case assignment requires adjacency as well as government.
   a. *I AGR like very much Bill.
   b. *I AGR win the race.

3. Is there a relationship between case and θ role?
   yes a. *Who did you try [NP to win the race]
   no b. *I tried [NP to win the race]

IV. Transformations

1. Move χ (or more generally affect χ = 'Do anything to anything') is the relationship between D-structure (a pure representation of θ roles) and S-structure.
   a. ↑ seems [John to be intelligent] D-structure
      Move χ
      b. John seems [to be intelligent] S-structure

2. Can transformations be optional and unordered?

3. Bounding parameters (Subjacency). How far can an item move?

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 χ? To what extent are its properties the same as those of syntactic Affect χ?
3. No vacuous quantification; no free variables.
I. The formal nature of the Binding Conditions

A. Some S-structure binding requirements

1. An anaphor must be A bound in its governing category.
2. A pronoun must be A free in its governing category.
3. An R expression must be A free.
4. The conditions must apply at S-structure.

B. Binding and Interpretation

1. *He likes himself
2. He likes himself
3. He likes him
4. Distinct indices are interpreted as indicating non-coreference.
5. He likes himself
6. Identical indices are interpreted as indicating coreference.
7. They like him

II. The Input to the Binding Conditions

19. John told Bill that they should leave.
20. He dislikes someone that John knows.
21. Who that John knows does he dislike?
22. It seems to each other that the men are intelligent.
23. The men seem to each other [to be intelligent]
   ＋＋＋＋＋                  ＋＋＋＋＋
24. Binding Conditions do not apply to D-structure representations.
25a. Which man does his mother love?
25b. "Bijection": an operator can (locally) bind at most one variable.
26. ? [The man [who [his mother loves e]]
27. The man [who [his mother loves e]]
28a. Predication changes (27) to (26): The relative operator is coindexed with the head.
28b. Bijection precedes Predication.
29. He likes him
30. The man [who [e likes him]]
31. Condition B applies to LF' (the output of Predication).
32. Which man does he think [e will win]
33. If the man [who [he thinks [e will win]]
34. [The man [who [he thinks [e will win]]
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 thinks John will win.
   1  
   b. *Who does he think will win?
   1  1
   c. *He thinks the bastard will win.
   1  
38. *John thinks the bastard will win.
   1  1
39. After John walked in, the bastard hit me.
   1  
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. *He solved PRO.
43. Conditions A and B give the distribution of PRO, a pronominal anaphor.
44a. John tried PRO to leave.
   1  1
   b. *John tried PRO to leave.
   1  2
45. The indexing of PRO is not given by the Binding Conditions.
46. *They believe that themselves will win. Condition A
   1  
47a. They are believed [that [won]]
   b. *They are believed [that [won]]
   Condition A, assuming that NP movement leaves an anaphoric trace.

IV. The Characterization of 'Governing Category'

48. *They believe [that [pictures of each other] AGR are on sale]
   1  
49. P is a governing category for \( \alpha \) if and only if P is the minimal category containing \( \alpha \), a governor of \( \alpha \), and a SUBJECT (subject or AGR) accessible to \( \alpha \).
50a. \( Y \) is accessible to \( \alpha \) if and only if \( Y \) c-commands \( \alpha \) and assignment to \( \alpha \) of the index of \( Y \) would not violate \( \ldots \).
   b. \( Y \) is accessible to \( \alpha \) if and only if \( Y \) c-commands \( \alpha \) and \( Y \) is not coindexed with any category containing \( \alpha \).
51. *They are believed [that [pictures of] AGR are on sale]
1. *John believes [that Mary likes himself]
2. *John seems [that Mary likes_]
3. Condition A: An anaphor must be A bound in its governing category.
4. *John is believed [that he likes a] Violates SSC, TSC, but not Condition A.
   Cf. It is believed that John likes himself.
5. By "functional determination", a is pronominal since not locally A' bound and locally A bound by an element with an independent role (ho ). (4) then would violate Condition B.
6. Problems with functional determination
   a. who [did a losing the race annoy a]  
   b. John was arrested a [after a arriving at the party]
   c. *who [did he try [to a to win the race]]
7. Movement as a last resort?
   8. *is believed [that he likes John]
      The underlying form of (4) would violate Condition C.
9. John wants [[PRO to be hired]]
     PRO has moved to avoid violating Binding Theory.
10. Case conflict? Suppose an A chain cannot have 2 case-marked elements.
11. *Bill tried [[John to be believed [that he likes t]]]
12. *Bill tried [[PRO to be believed [that he likes t]]]
13. *John is believed [that he is proud (of) t]
14. a. [Rome's destruction t ]
    b. [the destruction of Rome]
15. *the belief (of) [John to be intelligent]
16. *John seems [[pictures (of) t] are on sale]
    Cf. It seems that pictures of John are on sale.
17. *John seems [[the belief [t to be intelligent] is strange]]
   Cf. It seems that the belief that John is intelligent is strange.
18. *John seems [[this belief [t 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. 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]  
b. An anaphor cannot be multiply linked.
21. a. Gianni è stato affidato a se stesso.
22. Gianni was entrusted to himself
23. *Gianni si è stato affidato.
24. Gianni to himself was entrusted
25. Gianni gli è stato affidato.
26. Gianni to him was entrusted
27. Gianni [ si è stato affidato a' e'' ] (order of a', e'' irrelevant)
28. Gianni does not locally bind a'.
29. Gianni
1. Who bought what? [what who] [it bought it]  
2. *What did who buy? [who what] [it bought it]  
3. Why did you buy what?  
4. What did you buy why?  
5. *Who said John left why?  
6. Bill-wa [John-nom kaze kubi-ni nattta tte itta no?  
   Bill-topic John-nom why was fired Comp said Q  
   'Why did Bill say that John was fired?'  
7. I [Taro-nom nani-o te-ni ireta] kotol-o sonnani okotteru no NP S'  
   Taro-nom what-ace obtained fact-ace so much be angry Q  
   Lit.: 'What are you so angry about the fact that Taro obtained it?'  
8. I [Taro-nom sore-o te-ni ireta] kotol-o sonnani okotteru no NP S'  
   why it-ace  
   Lit.: 'Why are you so angry about the fact that Taro obtained it?'  
9. Who did you think [that [John won the race]]  
10. *Who do you think [that [won the race]]  
11. a. *Who moves into lower COMP  
   b. who moves COMP to COMP  
   c. that is inserted  
   d. At S-structure, t is marked [-\(\gamma\)], since not lexically governed and not locally antecedent governed.  
12. Why do you think [that [John won the race]]  
13. a. *Why moves into lower COMP  
   b. why moves COMP to COMP  
   c. that is inserted  
   d. t is not \(\gamma\) marked at this level. By principle (109) of Lasnik and Saito (1984), only an argument receives a \(\gamma\)-feature at S-structure.  
   e. that is "deleted"  
   f. why moves into the lower COMP  
   g. why moves COMP to COMP  
14. a. *How did you prove the theorem without solving the problem?  
   b. *How angry can you be without looking e?  
   c. *To whom did you talk without giving criticism?  
15. Why do you think [that [John won the race]]  
16. a. The lowest t is assigned [\(+\gamma\)] by the intermediate COMP.  
   b. The intermediate trace is assigned [\(+\gamma\)] 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 LF  
   c. why moves COMP to COMP  
   d. Same as (16a,b)  
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 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?
   b. * wanna
3. a. I want John to win the race.
   b. * wanna
4. a. Who do you want to win the race?
   b. * wanna
5. want + to \( \rightarrow \) wanna
6. Why doesn't PRO block contraction?
7. I want [ [to win the race] PRO]
   \( \uparrow \frac{S'}{S} \) S' INFL'
8. who [do you want [ (t) [ [to win the race] t]]]
   \( \uparrow \frac{S'}{S} \) S' INFL'
9. a. Who is it likely [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. Subjacency 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. *
15. An e.o. between want and to blocks contraction, but an e.o. after is blocks contraction.
16. Contraction of is is pre-cliticization. Bresnan
17. John [ is [ here]] or John [ [ is [ here]]]
   \( \uparrow \frac{AdvP}{AdvP} \frac{AdvP}{Adv} \) Adv
18. a. Who do you think [is here]
    b. * 's
cf. (4)

II. Classes of Empty Categories
31. a. I left because John did.
    b. * \( \emptyset \)
32. a. You can win because Bill can.
    b. * \( \emptyset \)
33. a. I'm leaving because Bill is.
    b. * \( \emptyset \)
34. VP "deletion" is constrained by the ECP.
35. \( \uparrow S' \) AdvP AdvP Adv
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.
60. a. I said John would solve the problem, and solve the problem he did.
b. *I said John would solve the problem, and solve the problem he

61. VP fronting is constrained by the ECP.

III. A Case of Scrambling?

62. a. I expect that this solution, you will like.
b. *I expect that this solution, you will like it. cf. Baltin

63. a. That this solution, I proposed last year is widely known.
b. *That this solution, I proposed it last year is widely known.

64. a. This solution, I proposed last year.
b. *This solution, I proposed it last year,

65. No base generated topic position in embedded contexts. Rather, English, like Japanese, has a scrambling rule.

66. a. Who expects that you will like what?
b. *Who expects that what you will like?

67. A NP phrase can't undergo scrambling.

68. Bill expects that to Harry, John will speak.

69. *Who expects that to whom John will speak?

70. Who expects that books about whom John will buy?

71. to whom must be a NP phrase.

72. a. To whom did you speak? 
b. *Who did you speak to?

73. Is there an A over A constraint?

74. ?? Which athlete did you wonder

[[which pictures of t ] [t were on display]]

75. Who did you say [[to t ] [John spoke t ]]

[[to t ]] [-1 ] [John spoke t ]

-1