

October 27–30, 2009

## CLASS 15–16: BINDING THEORY

### BT IN GB

(1) **Binding Theory**

(i) *Principle A*

An anaphor (e.g. a reflexive or reciprocal) must be bound in its domain.

(ii) *Principle B*

A pronoun must be free (not bound) in its domain.

(iii) *Principle C*

An R-expression (e.g. a name, a variable) must be free (everywhere).

(2) **Domain**

$\alpha$  is the domain for  $\beta$  iff  $\alpha$  is the smallest IP (TP) containing  $\beta$  and the governor of  $\beta$ .

(3) **Binding**

$\alpha$  binds  $\beta$  iff  $\alpha$  c-commands and is coindexed with  $\beta$ .

- (4) a. \*[ Mary<sub>i</sub> said that [TP Joe liked these pictures of herself<sub>i</sub> ] ]  
 b. [ Mary<sub>i</sub> said that [TP Joe liked these pictures of her<sub>i</sub> ] ]  
 c. \*[ He<sub>i</sub> said that Mary likes these pictures of Joe<sub>i</sub> ]

### BT PRINCIPLE A

- (5) \*John<sub>i</sub> wondered which woman liked which pictures of himself<sub>i</sub>.  
 (6) LF: [TP John<sub>i</sub> wondered [ [which pictures of himself<sub>i</sub>]<sub>k</sub>+ [ which woman ]<sub>j</sub> [TP t<sub>j</sub> liked t<sub>k</sub> ] ] ]  
 (7) LF: \*[TP John<sub>i</sub> wondered [ which<sub>k</sub>+ [ which woman ]<sub>j</sub> [TP t<sub>j</sub> liked [ t<sub>k</sub> pictures of himself<sub>i</sub> ] ] ] ]

If we replace the embedded *wh*-subject by a non-*wh*-phrase, an interesting **ambiguity** arises:

- (8) a. John<sub>i</sub> wondered which picture of himself<sub>i/k</sub> Fred<sub>k</sub> liked.  
 b. DS: [TP John<sub>i</sub> wondered [CP [TP Fred<sub>k</sub> liked [ which picture of himself<sub>i/k</sub> ] ] ] ]  
 c. SS/LF: [TP John<sub>i</sub> wondered [CP [ which picture of himself<sub>i/k</sub> ]<sub>m</sub> [TP Fred liked t<sub>m</sub> ] ] ]

(9) The students asked what attitudes about each other the teachers had.

- (10) [TP [ the students ]<sub>k</sub> asked [ what attitudes about [ each other ]<sub>i/\*k</sub> ]<sub>m</sub>  
 [TP [ the teachers ]<sub>i</sub> had t<sub>m</sub> ] ]

**BT PRINCIPLE B**

- (11) **John<sub>i</sub>** wondered which picture of **him<sub>i/\*k</sub>** **Fred<sub>k</sub>** liked.
- (12) a. DS: [TP **John<sub>i</sub>** wondered [CP [TP **Fred<sub>k</sub>** liked [ which picture of **him<sub>i/k</sub>** ] ] ] ]  
 b. SS/LF: [TP **John<sub>i</sub>** wondered [CP [ which picture of **him<sub>i/k</sub>** ]<sub>m</sub> [TP **Fred<sub>k</sub>** liked **t<sub>m</sub>** ] ] ]
- (13) a. N = {**John<sub>1</sub>**, **T<sub>1</sub>**, **wondered<sub>1</sub>**, **Q<sub>1</sub>**, Fred<sub>0</sub>, liked<sub>0</sub>, which<sub>0</sub>, picture<sub>0</sub>, of<sub>0</sub>, him<sub>0</sub>}  
 b. [TP **Fred** liked [ which picture of **him** ] ]
- (14) a. N' = {**John<sub>1</sub>**, **T<sub>1</sub>**, **wondered<sub>1</sub>**, Q<sub>0</sub>, Fred<sub>0</sub>, liked<sub>0</sub>, which<sub>0</sub>, picture<sub>0</sub>, of<sub>0</sub>, him<sub>0</sub>}  
 b. [CP [ which picture of **him** ]<sub>i</sub> Q [TP **Fred** liked **t<sub>i</sub>** ] ]
- (15) a. N'' = {John<sub>0</sub>, T<sub>0</sub>, wondered<sub>0</sub>, Q<sub>0</sub>, Fred<sub>0</sub>, liked<sub>0</sub>, which<sub>0</sub>, picture<sub>0</sub>, of<sub>0</sub>, him<sub>0</sub>}  
 b. [TP **John** wondered [CP [ which picture of **him** ]<sub>i</sub> Q [TP **Fred** liked **t<sub>i</sub>** ] ] ]

**BT PRINCIPLE C**

- (16) He wondered which picture of John he liked.
- (17) a. DS: [TP **he** wondered [CP [TP **he** liked [ which picture of **John** ] ] ] ]  
 b. SS/LF: [TP **he** wondered [CP [ which picture of **John** ]<sub>m</sub> [TP **he** liked **t<sub>m</sub>** ] ] ]

**COPY THEORY!**

- (18) **John<sub>i</sub>** wondered which picture of **himself<sub>i/k</sub>** **Fred<sub>k</sub>** liked.
- (19) [TP John wondered [CP [ **which picture of himself** ]  
 [TP Fred liked [ **which picture of himself** ] ] ] ]
- (20) LF: [TP John wondered [CP [ **which picture of himself** ]  
 [TP Fred liked ~~[which picture of himself]~~ ] ] ]
- (21) John wondered **which x**, *x* a picture of himself, **Fred liked x**
- (22) LF: \*[TP John wondered [CP ~~[which picture of himself]~~  
 [TP Fred liked [ **which picture of himself** ] ] ] ]

(23) **French**

**Combien<sub>i</sub>** a-t-il consultés [ **t<sub>i</sub>** de livres ]?  
*how-many has-he consulted of books*  
 ‘How many books did he consult?’

(24) **German**

**Was<sub>i</sub>** hast du [ **t<sub>i</sub>** für Bücher ] gelesen?  
*what have you for books read*  
 ‘What books did you read?’

- (25) [ which portrait ]<sub>i</sub> did **he** buy [ t<sub>i</sub> that **Harry** likes ]
- (26) a. \*Which man said **he**<sub>i</sub> liked which picture that **Harry**<sub>i</sub> bought?  
 b. LF: \*[<sub>CP</sub> which<sub>k</sub>+ [ which man ]<sub>m</sub> [<sub>TP</sub> t<sub>m</sub> said he<sub>i</sub> liked [ t<sub>k</sub> picture that Harry<sub>i</sub> bought ] ] ]
- (27) a. \***John**<sub>i</sub> wondered which woman liked which pictures of **himself**<sub>i</sub>.  
 b. LF: \*[<sub>TP</sub> John<sub>i</sub> wondered [ which<sub>k</sub>+ [ which woman ]<sub>j</sub> [<sub>TP</sub> t<sub>j</sub> liked [ t<sub>k</sub> pictures of h<sub>s</sub><sub>i</sub> ] ] ] ]
- (28) [<sub>TP</sub> John wondered [<sub>CP</sub> [ which ~~picture of himself~~ ] [<sub>TP</sub> Fred liked [ ~~which~~ picture of **hs** ] ] ] ]
- (29) John wondered **which x**, Fred liked **x picture of himself**
- (30) a. Whose mother did you see?  
 b. SS: [<sub>CP</sub> [ **whose mother** ]<sub>i</sub> did [<sub>TP</sub> you see t<sub>i</sub> ] ]
- (31) a. To who(m) did you talk?  
 b. SS: [<sub>CP</sub> [ **to who(m)** ]<sub>i</sub> did [<sub>TP</sub> you talk t<sub>i</sub> ] ]
- (32) a. I saw **Bill's** mother and **Frank's** mother.  
 b. I talked to **Bill** and I talked to **Frank**.
- (33) a. **who**<sub>x</sub> you saw **x's** mother  
 b. **who**<sub>x</sub> you talked to **x**
- (34) a. I saw Mary.  
 b. I talked about Fred.
- (35) a. SS: [<sub>CP</sub> [ **whose mother** ]<sub>i</sub> did [<sub>TP</sub> you see t<sub>i</sub> ] ]  
 b. LF: [<sub>CP</sub> **whose**<sub>j</sub> did [<sub>TP</sub> you see [ t<sub>j</sub> **mother** ] ] ]
- (36) a. SS: [<sub>CP</sub> [ **to who(m)** ]<sub>i</sub> did [<sub>TP</sub> you talk t<sub>i</sub> ] ]  
 b. LF: [<sub>CP</sub> **who(m)**<sub>j</sub> did [<sub>TP</sub> you talk [ to t<sub>j</sub> ] ] ]
- (37) a. [<sub>CP</sub> [ **whose mother** ] did [<sub>TP</sub> you see [ **whose mother** ] ] ]  
 b. LF: [<sub>CP</sub> [ ~~whose mother~~ ] did [<sub>TP</sub> you see [ ~~whose~~ mother ] ] ]
- (38) a. [<sub>CP</sub> [ **to who(m)** ] did [<sub>TP</sub> you talk [ **to who(m)** ] ] ]  
 b. LF: [<sub>CP</sub> [ ~~to who(m)~~ ] did [<sub>TP</sub> you talk [ to ~~who(m)~~ ] ] ]
- (39) a. \*[ it seems to **them**<sub>i</sub> that [ **John and Mary** ]<sub>i</sub> were angry ]  
 b. [ [ **John and Mary** ]<sub>i</sub> seem to [ **each other** ]<sub>i</sub> to have been angry ]
- (40) a. [<sub>TP</sub> [ **J&M** ] seemed to [ **each other** ] [<sub>TP</sub> [ **J&M** ] to have been angry ] ]  
 b. LF: [<sub>TP</sub> [ **J&M** ] seemed to [ **each other** ] [<sub>TP</sub> [ ~~J&M~~ ] to have been angry ] ]

**THE PREFERENCE PRINCIPLE**

- (41) a. **John<sub>i</sub>** wondered which picture of **him<sub>i/\*k</sub>** **Fred<sub>k</sub>** liked.  
 b. **He<sub>i/\*j</sub>** wondered which picture of **John<sub>j</sub>** **he<sub>i/k/\*j</sub>** liked.
- (42) a. [TP John wondered [CP [which picture of him] [TP Fred liked [which picture of him]]]]  
 b. [TP he wondered [CP [ which picture of John ] [TP he liked [ which picture of John ] ] ] ]
- (43) a. [TP John wondered [CP [which ~~picture of him~~] [TP Fred liked [~~which~~ picture of him]]]]  
 b. [TP he wondered [CP [which ~~picture of John~~] [TP he liked [~~which~~ picture of John]]]]
- (44) a. John wondered **which x** Fred liked **x picture of him**  
 b. he wondered **which x** he liked **x picture of John**
- (45) a. [TP John wondered [CP [which picture of him] [TP Fred liked [~~which picture of him~~]]]]  
 b. [TP he wondered [CP [which picture of John] [TP he liked [~~which picture of John~~]]]]

(46) **Preference Principle**

Try to minimize the restriction in the operator position.

- (47) **John<sub>i</sub>** wondered which picture of **himself<sub>i/k</sub>** **Fred<sub>k</sub>** liked.
- (48) a. [TP John wondered [CP [ which picture of **himself** ]  
 [TP Fred liked [~~which picture of himself~~] ] ] ]  
 b. [TP John wondered [CP [ which ~~picture of himself~~ ]  
 [TP Fred liked [ **which** picture of **himself** ] ] ] ]
- (49) [TP John wondered [CP [ which picture of **himself** ]  
 [TP Fred+**himself** liked [ which picture of **himself** ] ] ] ]
- (50) a. [TP John wondered [CP [ which ~~picture of himself~~ ]  
 [TP Fred+**himself** liked [ ~~which~~ picture of **himself** ] ] ] ]  
 b. [TP John wondered [CP [ which ~~picture of himself~~ ]  
 [TP Fred+**himself** liked [ ~~which~~ picture of **himself** ] ] ] ]
- (51) [TP John+**himself** wondered [CP [ which picture of **himself** ]  
 [TP Fred liked [ which picture of **himself** ] ] ] ]
- (52) LF: \*[TP John+**himself** wondered [CP [ which ~~picture of himself~~ ]  
 [TP Fred liked [ ~~which~~ picture of **himself** ] ] ] ]
- (53) a. [TP John+**himself** wondered [CP [ which picture of **himself** ]  
 [TP Fred liked [~~which picture of himself~~] ] ] ]  
 b. LF: [TP John+**himself** wondered [CP [ which picture of **himself**-]  
 [TP Fred liked [~~which picture of himself~~] ] ] ]