

## Take Home II, Part 1

To be handed in by March 17 by 1.30pm

EXERCISE 1. In handout p. 36, we saw that a quantifier like **every**, **some**, **no**, etc., denotes a relation between two sets  $A$  and  $B$  of individuals, as expressed in (1a-b). For the sake of the exercise, consider each of the bold-face expressions in (2)-(6) as a unit forming a complex quantifier. Spell out their denotations in (2')-(6').

- (1) a.  $[[\text{every}]]^w = \{ \langle A, B \rangle : A \subseteq B \}$   
 b.  $\langle A, B \rangle \in [[\text{every}]]^w$  iff  $A \subseteq B$

- (2) **Most but not all** professors visited Alabama.  
 (3) **Between eight and fifteen** professors visited Alabama.  
 (4) **An even number of** professors visited Alabama.  
 (5) **More female than male** professors visited Alabama.  
 (6) **Everybody but** professors visited Alabama.  
 a. 'Everybody except for *all* professors visited Alabama.'

(2')  $[[\text{most-but-not-all}]]^w = \{ \langle A, B \rangle : \dots \}$

(3')  $[[\text{between-eight-and-fifteen}]]^w = \{ \langle A, B \rangle : \dots \}$

(4')  $[[\text{an-even-number-of}]]^w = \{ \langle A, B \rangle : \dots \}$

(5')  $[[\text{more-female-than-male}]]^w = \{ \langle A, B \rangle : \dots \}$

(6')  $[[\text{everybody-but}]]^w = \{ \langle A, B \rangle : \dots \}$

EXERCISE 2. To deal with QuNPs in non-subject position, one possible avenue is to enrich the semantic rules, as in line A in handout p.38-39. According to this approach, besides the rule(s) for quantifiers in subject position on p. 37 (main text or footnote), we would need rules for quantifiers in second level of embedding that would generate scope ambiguities. For example, we would need one rule for **every**<sub>2level-narrow</sub> to generate reading (7) and one for **every**<sub>2level-wide</sub> to generate reading (8).

- (6) Exactly-two students admire every professor.
- (7) **every**<sub>2level-narrow</sub>:  
 a. **exactly-two** >> **every**<sub>2level-narrow</sub>: ‘There are exactly two students x such that, for every professor y, x admires y.’  
 b. Scenario: Kevin and Jessica admire all professors, but no other student does.
- (8) **every**<sub>2level-wide</sub>:  
 a. **every**<sub>2level-wide</sub> >> **exactly-two**: ‘For every professor y, there are exactly two (possibly different) students x such that x admires y.’  
 b. Scenario: The professors in this scenario are Robin, Aravind and Maribel. Robin is admired by Tom and Jonny and by no other student. Aravind is admired by Alexis and Elwin and by no other student. Maribel is admired by Alexis and Steve and by no other student.

Your task is to formulate the appropriate two rules, following the steps below:

- i. Spell out the truth-conditions of (7) and (8) in (9) and (10) in set-theoretic notation.
- ii. Formulate the rule for **every**<sub>2level-narrow</sub> in (11) and for **every**<sub>2level-wide</sub> in (12) assuming that the Determiner in subject position will be **exactly-two**.
- iii. Formulate the rule for **every**<sub>2level-narrow</sub> in (13) and for **every**<sub>2level-wide</sub> in (14) that will generate the desired scopes no matter what QuNP is in subject position.

(9)  $\llbracket \text{exactly-two students admire every}_{2\text{level-narrow}} \text{ professor} \rrbracket^w = 1 \text{ iff } \dots$

(10)  $\llbracket \text{exactly-two students admire every}_{2\text{level-wide}} \text{ professor} \rrbracket^w = 1 \text{ iff } \dots$

(11)  $\llbracket [\text{exactly-two N1}'] V_{\text{tr}} [\text{every}_{2\text{level-narrow}} \text{ N2}'] \rrbracket^w = 1 \text{ iff } \dots$

(12)  $\llbracket [\text{exactly-two N1}'] V_{\text{tr}} [\text{every}_{2\text{level-wide}} \text{ N2}'] \rrbracket^w = 1 \text{ iff } \dots$

(13)  $\llbracket [\text{QuNP}] V_{\text{tr}} [\text{every}_{2\text{level-narrow}} \text{ N2}'] \rrbracket^w = 1 \text{ iff } \dots$

(14)  $\llbracket [\text{QuNP}] V_{\text{tr}} [\text{every}_{2\text{level-wide}} \text{ N2}'] \rrbracket^w = 1 \text{ iff } \dots$

EXERCISE 3. Translate the following sentences into Predicate Logic (PrL), breaking them down into atomic predicates as much as possible. Subindices on QuNPs and pronouns indicate that the pronoun should refer back to the QuNP. [If sentence is ambiguous, give as many PrL translations as readings it has.]

(15)

a. Mary likes every cat.

b. Mary introduced Sue only to John.

c. Mary has a dog that barks when it (=the dog) is hungry.

d. John sent a present to Martin.

e. Amy sent a letter to each candidate.

f. Every girl<sub>1</sub> that visited all her<sub>1</sub> relatives was-satisfied.

g. Tony interviewed a candidate that no student liked.

h. If no student likes any candidate, then some professors will-worry.

i. If you don't answer question A or question B, you will-be-in-trouble.

j. John met a representative from every country you did (=meet a representative from).

