

Ling 320, Assignment 3. Due 27 September 2007.

This homework should help prepare you for the exam. We'll review the answers on Thursday the 27th.

Note that the exam will only cover inference relations and set theory, as in Parts 1 and 2 (you won't be tested on derivations, as in Part 3).

Part 1. For each of the following pairs of statements, indicate whether (a) presupposes, implicates, entails, or is in no relation to (b). Provide justification for your answers as directed in the solution to Assignment 1.

- (1) a. Isaac sang and danced.
b. Isaac sang.
- (2) a. Isaac sang or danced.
b. Isaac sang.
- (3) a. What Ruben saw was a UFO.
b. Ruben saw something.
- (4) a. Isaac washed his face and brushed his teeth.
b. Isaac washed his face and then brushed his teeth.

Part 2. Assume that: $A = \{\text{Mars}, \emptyset, \text{Leo}\}$ $B = \{\{\text{Mars}\}, \{\emptyset\}\}$
 $C = \emptyset$ $D = \{\text{Mars}\}$

(5) True or False?

- a. $C \in A$ b. $\text{Mars} \in D$ c. $\text{Mars} \in B$ d. $C \in B$
- e. $D \subseteq A$ f. $C \subseteq D$ g. $\{\emptyset\} \subseteq B$ h. $D \subseteq B$
- i. $D \in B$ j. $\{C\} \in B$ k. $(C \cap D) \in B$ l. $\{\{C\}, D\} \subseteq B$

(6) Assume that U is the union of $A, B, C,$ and D . Specify the following sets:

- a. $C \cap A$ b. $A \cap B$ c. $A \cap D$ d. $(C \cup D) - D$
- e. D' f. $(A - C)'$ g. $A - \{C\}$ h. $A \cap B \cap D$
- i. $B - (\{\{C\}\} \cup \{D\})$

(7) What is the power set of A (symbolized as $\wp(A)$)?

Part 3. (You will be able to do this as of Tuesday Sept 25th.)

Provide a derivation of the truth conditions for the following sentence:

