

Ling 320, Assignment 3. Solution. 27 Sept 2007.

NB: Answers are written in this font.

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.

(1a) entails (1b), as there is no situation in which (a) is true, but (b) is not. As a result, *a and not b* is contradictory:

c. Isaac sang and danced, but Isaac didn't sing.

In addition, (1b) is an assertion, and not a presupposition, since it does not project:

- d. Isaac didn't sing and dance. $\neg \rightarrow$ Isaac sang.
e. Maybe Isaac sang and danced. $\neg \rightarrow$ Isaac sang.
f. If Isaac sang and danced, I bet it was good. $\neg \rightarrow$ Isaac sang.

- (2) a. Isaac sang or danced.
b. Isaac sang.

(2a) does not entail (2b), as it is possible to imagine a situation in which (a) is true but (b) is not. In effect, *a and not b* is not contradictory:

c. Isaac sang or danced, but Isaac didn't sing.

(2b) is also not an implicature, as it is not calculable by any of the maxims of conversation. (2a) is thus in no relation to (2b).

- (3) a. What Ruben saw was a UFO.
b. Ruben saw something.

(3a) entails (3b), as there is no situation in which (a) is true, but (b) is not, with the result that *a and not b* is contradictory:

c. What Ruben saw was a UFO, but it's not the case that Ruben saw something.

Further, (3a) presupposes (3b), as (3b) projects:

- d. What Ruben saw wasn't a UFO. \rightarrow Ruben saw something.
e. Maybe what Ruben saw was a UFO \rightarrow Ruben saw something.
f. If what Ruben saw was a UFO, let's split. \rightarrow Ruben saw something.

- (4) a. Isaac washed his face and brushed his teeth.
b. Isaac washed his face and then brushed his teeth.

(4a) does not entail (4b), as it is possible for (a) to be true, while (b) is not, so that *a and not b* is contradictory:

c. Isaac washed his face and brushed his teeth, but not in that order.

(4b) is an implicature of (4a). It is cancelable, as (c) above shows, and it is reinforceable, as (d) shows.

d. Isaac washed his face and brushed his teeth, in that order.

(4b) is also calculable by the Maxim of Manner, which requires that a speaker be orderly: stating one event after another implicates that the first occurred before the second.

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

(5) True or False?

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

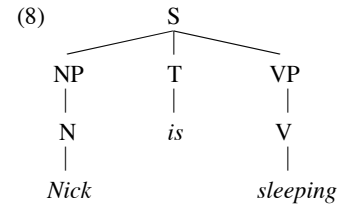
(6) Assume that U is the union of $A, B, C,$ and D . Specify the following sets:

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

(7) What is the power set of A (symbolized as $\mathcal{P}(A)$)?

$\{\emptyset, \{\text{Mars}, \emptyset, \text{Leo}\}, \{\text{Mars}\}, \{\emptyset\}, \{\text{Leo}\}, \{\text{Mars}, \text{Leo}\}, \{\text{Mars}, \emptyset\}, \{\text{Leo}, \emptyset\}\}$

Part 3. Provide a derivation of the truth conditions for the following sentence:



For any s , $[[S]]^s = 1$ iff

- $[[NP]]^s \in [[VP]]^s$ by (a)
- $[[N]]^s \in [[VP]]^s$ by (b)
- $[[Nick]]^s \in [[VP]]^s$ by (b)
- $Nick \in [[VP]]^s$ by (c)
- $Nick \in [[V]]^s$ by (b)
- $Nick \in [[sleeping]]^s$ by (b)
- $Nick \in \{x \mid x \text{ is sleeping in } s\}$ by (c)
- $Nick \text{ is sleeping in } s$ by def. \in