

Homework 1
Semantics I, Fall 2009, JHU
Assigned: 9/2, Due: 9/9

I Set theory

If you haven't already, read section 1.3 of Heim and Kratzer.

[a] Do the exercise on pp. 9-10 of the Heim and Kratzer textbook.

[b] (This problem adapted from Partee et al. 1993.)

Given the following sets:

$$\begin{array}{ll} A = \{a, b, c, 2, 3, 4\} & E = \{a, b, \{c\}\} \\ B = \{a, b\} & F = \emptyset \\ C = \{c, 2\} & G = \{\{a, b\}, \{c, 2\}\} \\ D = \{b, c\} & \end{array}$$

Classify each of the following statements as true or false:

- (i) $c \in A$ (v) $D \subseteq A$
- (ii) $c \in F$ (vi) $D \subseteq E$
- (iii) $c \in E$ (vii) $F \subseteq A$
- (iv) $\{c\} \in E$ (viii) $B \subseteq G$

List the members of each of the following:

- (ix) $B \cup C$ (xii) $A \cap E$
- (x) $D \cup E$ (xiii) $A - B$
- (xi) $B \cap F$ (xiv) $C - D$

[c] Determine whether the following are functions; if not, say why not. For each function, state its domain and range.

- (i) $\{\langle a, b \rangle\}$
- (ii) $\{\langle a, b \rangle, \langle c, d \rangle, \langle e, b \rangle, \langle f, g \rangle\}$
- (iii) $\{\langle a, b \rangle, \langle b, c \rangle, \langle a, c \rangle, \langle d, e \rangle\}$
- (iv) $\{\langle a, b \rangle, \langle b, c \rangle, \langle a, b \rangle, \langle d, e \rangle\}$
- (v) $\{\}$

[d] This question builds on an example from lecture. Suppose that $\llbracket \text{pink} \rrbracket = \{x : x \text{ is pink}\}$ and $\llbracket \text{elephant} \rrbracket = \{x : x \text{ is an elephant}\}$. How is $\llbracket \text{pink elephant} \rrbracket$ characterized set theoretically? Can this work for $\llbracket \text{alleged elephant} \rrbracket$?

2 Non-declaratives

While developing the idea that (semantic) meaning is very closely tied to truth-conditions, we have been focusing only on declarative sentences. But there are several other major types of sentences, such as interrogatives and imperatives. Do imperatives have truth conditions? Here are some examples for your consideration.

- (1) Stop.
- (2) Go to the store and get some milk.
- (3) Don't tell Alfonso about the party.

If not, what do they have instead? It may help to think about Lewis' advice that we discussed in class. Can you think of a way to relate their meanings to truth-conditions?

Grad students, also answer the same question but for interrogatives.

Bibliography

Partee, Barbara, Alice ter Meulen, and Robert Wall. 1993. *Mathematical methods in linguistics*. Dordrecht: Kluwer.