Semantics and Pragmatics 1 Fall 2011
Assignment 1 Due October 4

English$_x$

Your job in this assignment is to adapt the techniques we used to build a semantics for a fragment of Predicate Logic to do the same for a small fragment of a possible natural language. This language bears some similarities to English, and some similarities to L_x, so let's refer to it as 'English$_x$'.

The fragment of English$_x$ that we will analyze includes the vocabulary items in (1), grouped according to their syntactic category.[1]

(1) a. NP = {Kim, Lee}
b. V_I = {smoke, drink}
c. Neg = {not}
d. Conj = {and}

The fragment also includes the syntactic rules in (2).

(2) a. S → NP VP
b. VP → V_I
c. VP → Neg VP
d. VP → VP Conj VP

You should be able to convince yourself that the grammar of English$_x$ already generates an infinite number of sentences (most of which are not particularly interesting), including the ones in (3).

(3) a. Kim smoke.
b. Kim not drink.
c. Kim smoke and not drink.
d. Kim smoke and drink and not drink.

Part 1 Provide a semantics that assigns truth conditions to sentences of this fragment of English$_x$ that match the intuitive truth conditions for the corresponding sentences of English ('Kim smokes', 'Kim doesn't drink', etc.). This means:

1. Specify a model with domain and interpretation function that assigns meanings to *vocabulary items of English$_x$*. I.e., you should treat the vocabulary items in (1) on a par with the term and predicate symbols of L_x; do NOT simply translate the expressions of English$_x$ into symbols of L_x.

[1] Note that the elements in the curly brackets are *words*, i.e. elements of our object language, not the *meanings* of words or representations of the meanings of words (elements of a metalanguage). In general, I will use plain roman typeface, sometimes enclosed in single quotes, to represent expressions of the object language. It will therefore be important to decide on some way of distinguishing between words and (representations of) their meanings.

2. Provide a set of composition rules for interpreting the complex expressions of (this fragment of) English$_x$.

Note: You will need to make some decisions here about whether to treat 'not' and 'and' "constructionally", as we treated connectives in L_x, or whether to give them their own meanings, which can then interact with your composition rules in an appropriate way.

Show that your analysis provides the correct truth conditions for (3c) relative to your model.

Part 2 What does your analysis predict about the meaning of (4)?

(4) Kim not smoke and drink.

Part 3 Now provide a semantics for a slightly larger fragment of English$_x$, which includes the following lexical items and syntactic rule:

(5) a. $\mathrm{V}_T = \{\text{see, hear}\}$
b. $\mathrm{VP} \rightarrow \mathrm{V}_T\ \mathrm{NP}$

Show that your analysis provides the correct truth conditions for (6a-b) relative to your model.

(6) a. Kim see Lee.
b. Pat not hear Mo.

Comment on any interesting differences between your analysis of sentences constructed out of the category V_T in English$_x$ and the analysis of formulas constructed out of two-place predicates in L_x.

Part 4 Finally, add the lexical item 'without' to the category Conj in English$_x$. The syntactic rules that we have in place will then allow for sentences like the following:

(7) a. Kim smoke without drink.
b. Kim see Lee without hear Lee.

Modify your semantic analysis so that sentences of English$_x$ that contain 'without' have meanings that are comparable English sentences like 'Kim smokes without drinking' and 'Kim sees Lee without hearing Lee', and determine the semantic values of the sentences in (7) in your model.

Conclude this part by stepping back and making some general observations about the system you have developed. How does your analysis of sentences with 'without' compare to your analysis of sentences with 'and'? Are there significant semantic differences between them, beyond the basic difference in meaning? Can both types of constructions be handled by a single composition rule, or do you need more than one? What if we add additional expressions to the category Conj? How general is the framework you have developed?