

Assignment 3

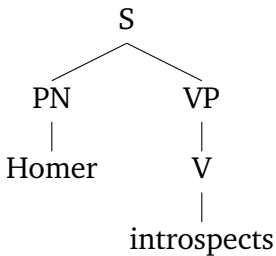
Chris Potts, Ling 130a/230a: Introduction to semantics and pragmatics, Winter 2019

Distributed Jan 29; due Feb 5

1 Composition

[5 points]

For each of the top (root) nodes in the following trees, provide (i) the name of the rule you used to derive that meaning from its constituent parts, according to the handout ‘Semantic composition’, and (ii) the meaning itself after all the allowable substitutions from functional applications. Thus, for example, given the tree on the left, either answer at right would be complete and accurate:

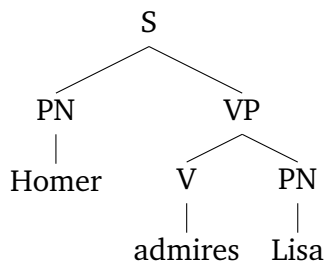


Rule (S) derives ‘T if $\llbracket \text{Homer} \rrbracket \in \{x : \llbracket \text{introspects} \rrbracket(x) = \text{T}\}$, else F’

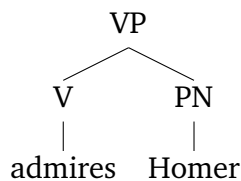
Rule (S) derives ‘T if $\llbracket \text{Homer} \rrbracket \in \left\{ \begin{array}{c} \text{[Simpson drawing]} \\ \text{[Simpson drawing]} \end{array} \right\}$, else F’

There are typically many equivalent ways of specifying a given meaning. We care only that you specify the correct meaning. High-quality Simpsons drawing are always appreciated but certainly not required.

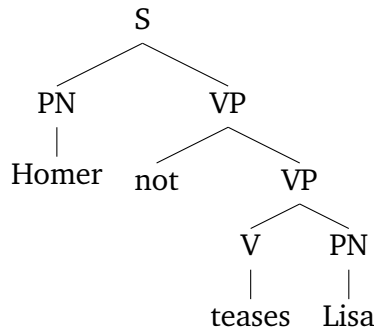
1.1



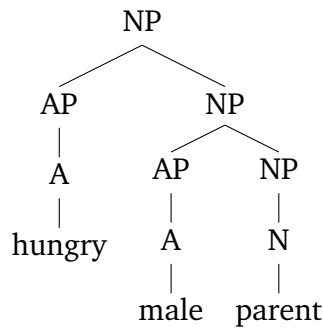
1.2



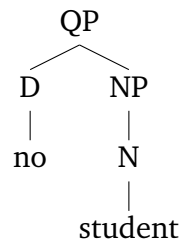
1.3



1.4



1.5



2 ‘Conjunction reduction’ and its problems [3 points]

In the early days of linguistic semantics, some researchers argued that sentences involving conjoined VPs were derived from underlying logical forms in which the conjuncts were full sentences:

The ‘Conjunction Reduction’ account

Logical form (‘deep structure’)	surfaces as	Surface structure
<i>Bart skateboards and Bart studies</i>	surfaces as	<i>Bart skateboards and studies</i>
<i>Bart skateboards or Bart studies</i>	surfaces as	<i>Bart skateboards or studies</i>

The goal was to have logical forms that were very close to the semantics, in which *[[Bart]]* is an argument to both *[[skateboards]]* and *[[studies]]*. Crucially, the meaning of the underlying logical form has to be identical to the semantics of the surface form. This means that the deep logical form needs to entail the surface structure, and vice versa.

Your task Show that the Conjunction Reduction account is wrong by studying the entailment relations between the (a) and (b) sentences in the following pairs. Your answer should explain what the relevant entailment relations are and why they are problematic for the Conjunction Reduction account.

- (1) a. No child skateboards and studies.
b. No child skateboards and no child studies.
- (2) a. Every child skateboards or studies.
b. Every child skateboards or every child studies.

3 Coordinating VPs

[2 points]

The standard logical conjunction is a function from pairs of truth values into truth values. I'll call it \wedge ('wedge'). Here's its definition:

$$\llbracket \wedge \rrbracket = \lambda \langle p, q \rangle (T \text{ if } p = q = T, \text{ else } F)$$

This is fine if one just wants to conjoin sentences, as in (1b). However, it doesn't provide an account of (1a), where two VPs are conjoined. VPs denote functions from entities to truth values, not truth values, so they can't be the inputs to \wedge . Your analysis in question 2 shows that we need to be able to interpret conjoined VPs directly.

Task 1 Using the above definition of $\llbracket \wedge \rrbracket$, formulate a meaning for *and* that can coordinate VPs. This function needs to take as inputs a pair of functions (VP meanings) and it needs to return a function (a VP meaning). The technique for doing this is very similar to the one we used for negation in class.

Task 2 Use your $\llbracket \textit{and} \rrbracket$ to calculate the meanings of the nodes superscripted 1 and 2 in the following structure. (You can provide just those two meanings; no need to reproduce the tree. Also, the question doesn't require this, but you might find it enlightening to compare the value of this sentence in our model with the value for (1b) in our model.)

