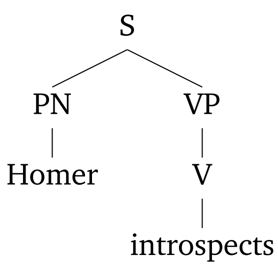
Assignment 3

Chris Potts, Ling 130a/230a: Introduction to semantics and pragmatics, Winter 2022

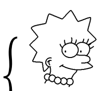
Distributed Jan 25; due Feb 1

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 function applications. Thus, for example, given the tree on the left, either answer at right would be complete and accurate:

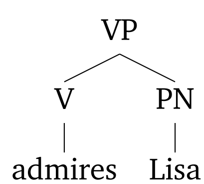


Rule (S) derives T if $[\![Homer]\!] \in [\![introspects]\!]$, else F

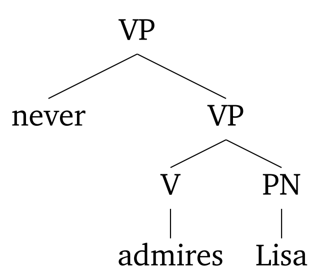
Rule (S) derives T if $[\![Homer]\!] \in \{$  ,  $\}$, else F

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.

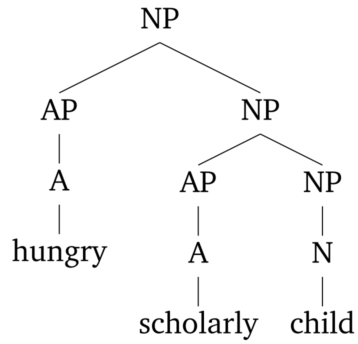
1.1



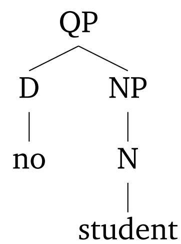
1.2



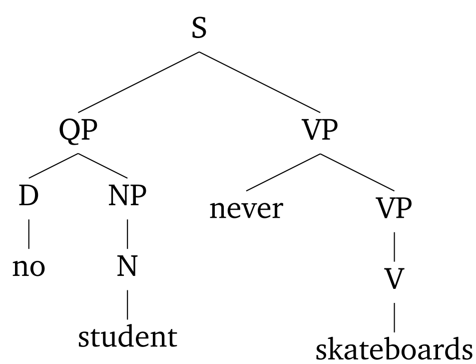
1.3



1.4



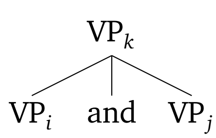
1.5



2 Coordinating VPs [2 points]

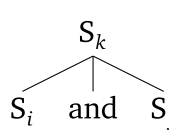
Let's extend our semantic grammar with two new rules for handling coordination. Rule VC is for 'Verb-phrase Coordination', and Rule SC is for 'Sentential Coordination':

(VC) Given a syntactic structure



, $[\![\mathrm{VP}_k]\!] = [\![\mathrm{VP}_i]\!] \cap [\![\mathrm{VP}_j]\!]$

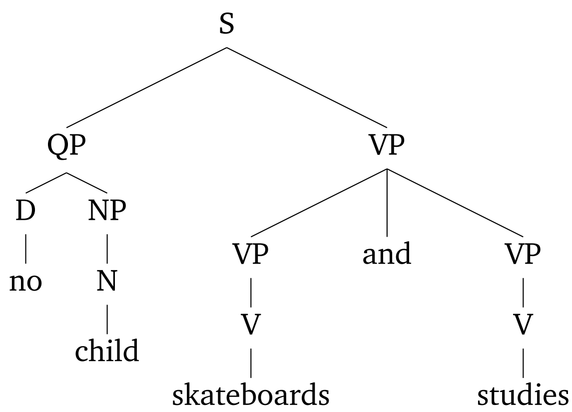
(SC) Given a syntactic structure



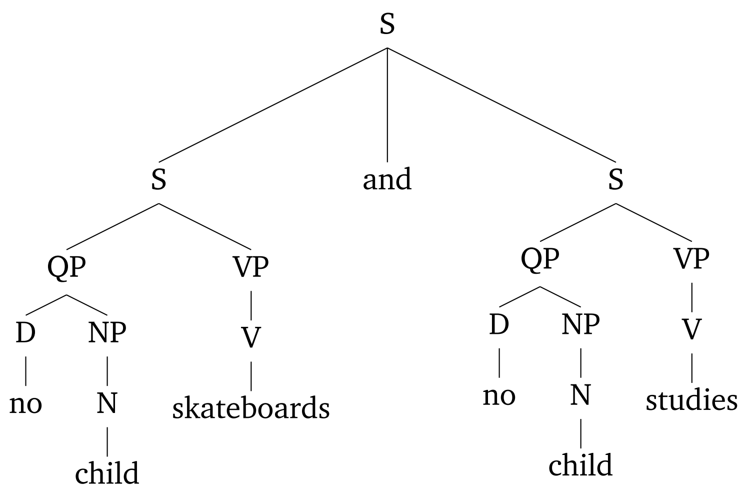
, $[\![\mathrm{S}_k]\!] = \mathsf{T}$ if $[\![\mathrm{S}_i]\!] = [\![\mathrm{S}_j]\!] = \mathsf{T}$, else F

Using the above meanings, compositionally derive the meanings for the following trees. The instructions here are the same as for question 1: for each tree, you need only report (i) the name of the rule you used to derive the meaning of the root node, and (ii) the meaning of the root node itself after all the allowable substitutions from function applications.

(T1)



(T2)



3 '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')		**Surface structure**
Bart skateboards and Bart studies	surfaces as	*Bart skateboards and studies*
Bart skateboards or Bart studies	sufaces as	*Bart skateboards or studies*

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.