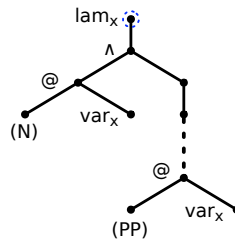


1 Semantics Construction

Derive a dominance graph that describes the five readings of the following sentence:

- (1) Every researcher of a company sees a sample.

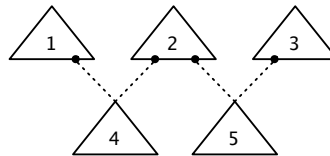
The lexicon entry for the words “of” and “sees” are dominance graphs consisting of a single node with labels of^* and see^* , respectively; of^* and see^* are (correspond to) constants of type $\langle e, \langle e, t \rangle \rangle$. The semantic construction rule for $PP \rightarrow P NP$ introduces an application, in the same way as the rules for sentences and verb phrases from the lecture. The rule for $N' \rightarrow N PP$ looks as follows:



Assign a number to each node in the syntax tree, and mark the interface node that belongs to each syntax node with its number.

2 Solved Forms

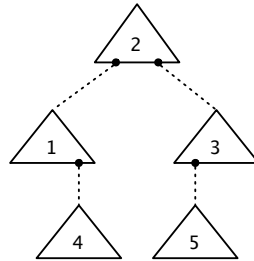
The graph constructed in the first exercise should look like the following graph, where triangles represent tree fragments, and the dots stand for the holes in the fragments.



The three upper fragments stand for the quantifiers that correspond to “every reasearcher,” “a company” and “some sample,” and the two lower ones stand for “see” and “of.”

The graph has five solved forms, which can be obtained by replacing dominance edges. For instance, if we replace the dominance edge from the left

hole of fragment 2 to fragment 4 by an edge from fragment 2 to 1, and if we replace the dominance edge from the right hole of fragment 2 to fragment 5 by an edge from 2 to 3, we obtain the following solved form:



Find the other four solved forms.

3 Negation

Consider the following sentence and its two readings

(2) Every student did not pay attention

(a) $\neg \forall x(\text{stud}'(x) \rightarrow \text{pay-attention}'(x))$

(b) $\forall x(\text{stud}'(x) \rightarrow \neg \text{pay-attention}'(x))$

(a) Represent the two readings as trees

(b) Specify a dominance graph that describes the two readings, i.e. a dominance graph that has two solved forms which correspond to the two readings above.

Note: It is not necessary derive the graph by semantics construction.

To be turned in by Tuesday, June 5, 11:15