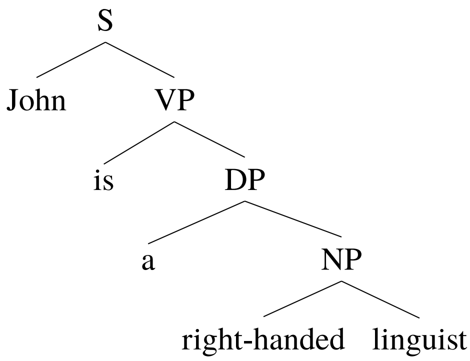
1 Computation with PM

In this exercise, assume that adjectives always denote type-$\langle e,t\rangle$ functions, e.g.

$$[\![\text{right-handed}]\!]^M = [\lambda x \in D_e.\ 1 \text{ iff } x \text{ is right-handed in } M]$$

i) Indicate the semantic type of each of the constituents in the following tree, including the terminal nodes.

(1)



The lexical entries for the rest of the items are as follows.

(2) For any model M,

a. $[\![\text{John}]\!]^M = \text{John}$

b. $[\![\text{linguist}]\!]^M = [\lambda x \in D_e.\ 1 \text{ iff } x \text{ is a linguist in } M]$

c. $[\![\text{is}]\!]^M = [\![\text{a}]\!]^M = [\lambda f \in D_{\langle e,t\rangle}.\ f]$

ii) Compute the meaning of (1) with respect to M, using the lexical entries in (2) and the three compositional rules, Functional Application (FA), Non-Branching Node Rule (NN), and Predicate Modification (PM). You can do the computation bottom-up or top-down.

2 Optional: Lexical ambiguity or not?

In the lecture we discussed two possible analyses of adjectival modification with *blond*. One analysis postulates two lexical entries:

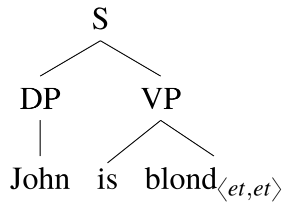
(3) a. $[\![\text{blond}_{\text{pred}}]\!]^M = [\lambda x \in D_e.\ 1 \text{ iff } x \text{ is blond in } M]$

b. $[\![\text{blond}_{\text{mod}}]\!]^M = [\lambda f \in D_{\langle e,t\rangle}.[\lambda x \in D_e.\ 1 \text{ iff } f(x) = 1 \text{ and } x \text{ is blond in } M]]$

We'll consider two possibilities to dispense with one of them.

i) Recall that we needed the type-$\langle e,t\rangle$ denotation to account for the predicative use of *blond* as in *John is blond*. This is because we have been assuming that *is* is semantically vacuous (= it denotes an identity function).

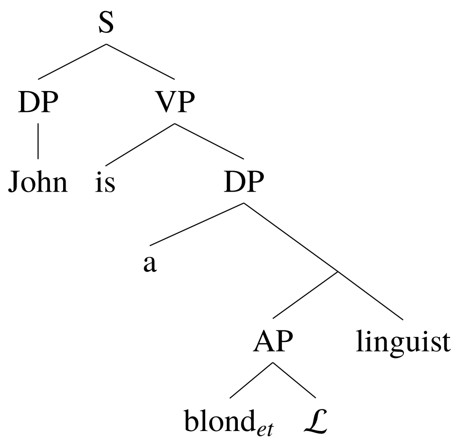
Let us assume instead that *is* is actually not semantically vacuous, and *blond* only has the $\langle et, et\rangle$ denotation (3b). In order to compute the meaning of the following tree, what should be the semantic type of $[\![\text{is}]\!]^M$?



ii) Propose the denotation of 'is' that will produce the correct denotation for the above tree.

$[\![\text{is}]\!]^M =$

iii) Let us now assume instead that the type-$\langle e, t\rangle$ denotation (3a) is the only denotation of *blond*. What do we do for the modification use, as in *John is a blond linguist*? Let us assume that the syntactic structure is more complex than we thought, and contains a phonologically silent linking morpheme $\mathcal{L}$ (cf. the German data in the lecture):



The idea is that $[\![\mathcal{L}]\!]^M$ is a function that takes $[\![\text{blond}_{\text{pred}}]\!]^M$ and outputs $[\![\text{blond}_{\text{mod}}]\!]^M$. What should be the semantic type of $\mathcal{L}$ so that the above tree can be computed?

iv) Propose the denotation of $\mathcal{L}$. (Needless to say, it should be usable with all adjectives, not only for *blond*).

$[\![\mathcal{L}]\!]^M =$