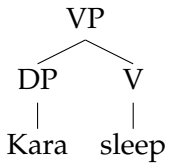
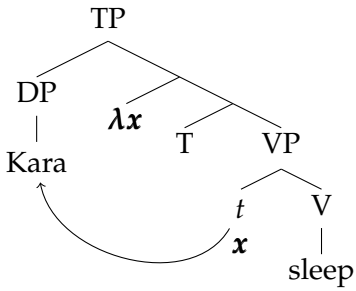
Quantification: practice problems

So far in class we have assumed that subjects just sit near the top of the structure of sentences, as a daughter of S or specifier of TP, completely outside of VP. Syntactic work of the 80's and 90's motivated the idea that subjects actually are generated lower, for example in Spec,VP, and then move up to Spec,TP.[1] Here's what that might look like:[2]

Step 1: Build VP with subject in Spec,VP



Step 2: Add T, move subject DP to Spec,TP



It turns out that adopting this **VP-internal subject hypothesis** — and *movement* more generally — allows us to simplify our semantics in many situations, as we will see in this problem set.

1. **VP-internal subject:** Compute the truth conditions for the tree for "Kara sleeps" in Step 2 above. Remember that for each node in the tree, you need to give (a) its semantic type, (b) its denotation, and (c) the rule that you used (TN, FA, λ Rule, etc.). (Let T be an identity function: $[\![\text{T}]\!] = \text{Id}$.) Show your work.

2. **Negation, revisited:** In Handout 4, we looked at sentences like "Kara does not sleep" and decided that, in addition to a basic $\langle t, t\rangle$ meaning like $[\![\text{not}]\!] = \lambda v_t \,.\, \neg v$, we need to give *not* an additional $\langle\langle e, t\rangle, \langle e, t\rangle\rangle$ meaning: $[\![\text{not}]\!] = \lambda P_{\langle e,t\rangle} \,.\, \lambda x_e \,.\, \neg P(x)$.

   Show that we can now compute "Kara does not sleep" using the simpler, type $\langle t, t\rangle$ meaning for negation, by adopting the VP-internal subject hypothesis.

3. **Conjunction, revisited:** In PS3, you used different denotations for *and* in the sentences below:

   (1) John sits and Mary stands.

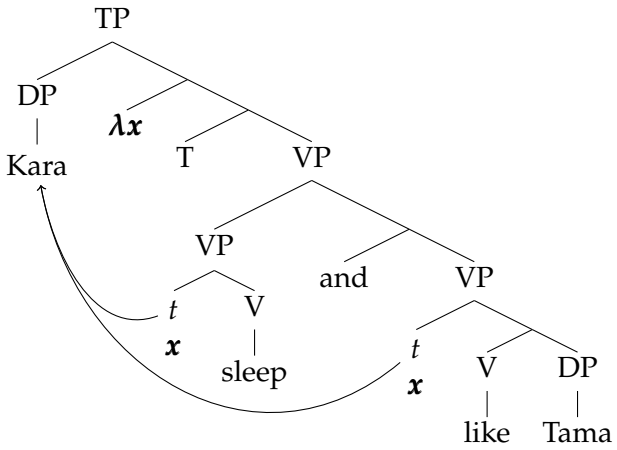
   (2) Kara sleeps and likes Tama.

   Given the VP-internal subject hypothesis, it is now possible to use the same, basic $[\![\text{and}]\!]$ in (3) for (2) as well as (1), if we assume the (strange looking) tree below:

[1] "Spec,XP" refers to the specifier of XP. If you're curious, see McCloskey 1997 (on Luminus) for a review of arguments for this "VP-internal subject hypothesis."

[2] We ignore subject-verb agreement here. That's a morphosyntax issue.

(3) $[\![\text{and}]\!] = \lambda p_t \,.\, \lambda q_t \,.\, p \wedge q$



Compute the truth conditions for (2) using this tree.

References

McCloskey, James. 1997. Subjecthood and subject positions. In *Elements of grammar*, ed. Liliane Haegeman, 197–235. Kluwer Academic Publishers.