Theory of Meaning Assignment #9

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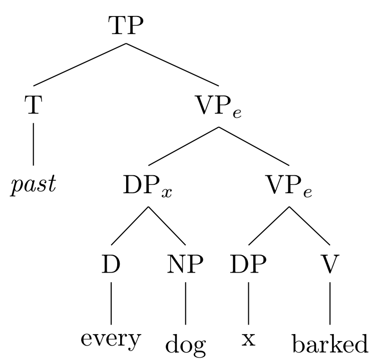
1 Exercise A

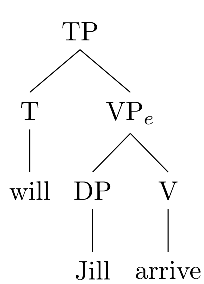
1.1 Every dog barked



$\textbf{every}_x\{\textbf{dog}(x)\}\ \exists e\ (e < utt\ \&\ AGT(e,x)\ \&\ \textbf{barked}(e))$

VERB, NONBRANCHING DP, NONBRANCHING NP, BRANCHING DP, TP-PAST

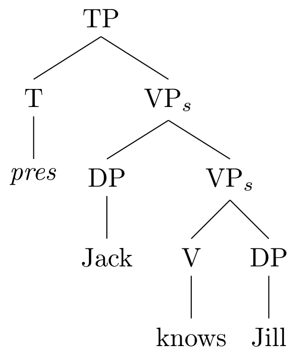
1.2 Jill will arrive



$\exists e\ (e > utt\ \&\ AGT(e, \textbf{jill})\ \&\ \textbf{arrive}(e))$

VERB, NONBRANCHING DP, TP-FUTURE

1.3 Jack knows Jill



∃s (s ≈ utt & IN(s, **jack**) & THM(s, **jill**) & **knows**(s))

VERB, NONBRANCHING DP (x2), TP-PRES

2 Exercise D

There is no way to avoid the task of somehow mapping the tense marker of the sentence to its logical implication regarding the relation of the event to the utterance. The best we can do is shift that task around to different parts of our system. I will briefly consider several ways I can think of to do this.

One possibility is to create a single TP rule, with α being past, pres, or will, and word it like this:

u β utt, where β is the relation between u and the utterance event implied by α.

This "solution" (a kind description, I might add) shifts the task of mapping to the readers intuitions. They must simply rely on the fact that they already know the correspondence between the tenses and the u to utt relation. This is, to put it politely, cheating.

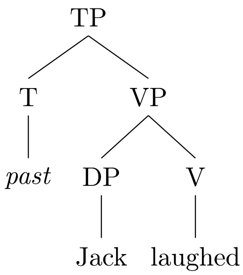
Another, less unappealing option, is to do away with 'past', 'pres', and 'will' altogether and replace them with the corresponding comparative symbols: $<$, $\approx$, and $>$ in our tree parse. This would allow us to write our rule like this:

u α utt

That is to say, simply take the contents of the T head and put it in between u and utt. This solution has its problems, however. First, in the case of 'will' especially, we are sacrificing things that had real semantic value and replacing them with more abstract symbols. In the case of 'will,' we are actually removing a word from the sentence. This does not seem quite right. Even in the cases of 'past' and 'pres' where they are not spoken independently, we are replacing them with things that don't actually have the same meaning – 'greater than' and 'less than' don't quite cut it. Moreover, the mapping is still relying on the readers intuitions, albeit more subtly.

Even if we modified our last solution to say that the T head should be 'u α utt' so that it includes the same semantic content as 'past,' 'pres,' or 'will,' we still run into the problem of the mapping between tense and relation relying on the spearks intuition. I think that this problem will go away, and that the best path is to leave these three rules separate. This is also a more scalable solution, because as we move forward in our semantics, we will likely follow in the footsteps of more experienced syntacticians and consider tenses and modals as existing in the same head (an 'I' head inside an 'IP' for inflectional phrase). Trying to combine all the tenses and modals into one rule would be a fool's errand. Besides, some people think the future isn't even a tense!

3 Exercise F



$\exists$e (e $<$ utt & AGT(e, **jack**) & **laughed**(e))

1. UTTERANCE, EXIST

   $\exists$e (e $<$ utt & AGT(e, **jack**) & **laughed**(e)) is true with respect to $\mathrm{M}+<\mathrm{utt},\mathrm{e}_{99}>$ *iff* there is at least one object o such that (e $<$ utt & AGT(e, **jack**) & **laughed**(e)) is true with respect to $\mathrm{M}+<\mathrm{utt},\mathrm{e}_{99}>+<\mathrm{e},\mathrm{o}>$

2. AND

   $\exists$e (e $<$ utt & AGT(e, **jack**) & **laughed**(e)) is true with respect to $\mathrm{M}+<\mathrm{utt},\mathrm{e}_{99}>$ *iff* there is at least one object o such that e $<$ utt is true with respect to $\mathrm{M}+<\mathrm{utt},\mathrm{e}_{99}>+<\mathrm{e},\mathrm{o}>$ and AGT(e, **jack**) is true with respect to $\mathrm{M}+<\mathrm{utt},\mathrm{e}_{99}>+<\mathrm{e},\mathrm{o}>$ and **laughed**(e)) is true with respect to $\mathrm{M}+<\mathrm{utt},\mathrm{e}_{99}>+<\mathrm{e},\mathrm{o}>$

3. ATOMIC-1

   $\exists$e (e $<$ utt & AGT(e, **jack**) & **laughed**(e)) is true with respect to $\mathrm{M}+<\mathrm{utt},\mathrm{e}_{99}>$ *iff* there is at least one object o such that e $<$ utt is true with respect to $\mathrm{M}+<\mathrm{utt},\mathrm{e}_{99}>+<\mathrm{e},\mathrm{o}>$ and AGT(e, **jack**) is true with respect to $\mathrm{M}+<\mathrm{utt},\mathrm{e}_{99}>+<\mathrm{e},\mathrm{o}>$ and $\mathrm{M}+<\mathrm{utt},\mathrm{e}_{99}>+<\mathrm{e},\mathrm{o}>(\mathrm{e}) \in \mathrm{M}+<\mathrm{utt},\mathrm{e}_{99}>+<\mathrm{e},\mathrm{o}>$(**laughed**) is true with respect to $\mathrm{M}+<\mathrm{utt},\mathrm{e}_{99}>+<\mathrm{e},\mathrm{o}>$