

As discussed in one of the Q/As, in dealing time we distinguish between “speech time”, “event time” and “reference time”. This assignment asks you to model the semantics of some sentences involving time-related concepts by specifying a lexicon and derivations, as usual. We will ignore “reference time” for this assignment. You are asked to design a single lexicon that will handle all the sentences. If the derivations of some sentences are very similar, providing a derivation for one example is enough, for others just state how their derivation differs from the given one.

We extend our model with another type of entity, namely time intervals. With this addition you can quantify over three types of objects: individuals, worlds and time intervals.

Here are some conventions and constants:

st'	speech time, this constant denotes the time the sentence is uttered.
$\lambda t \lambda e.at'te$	states that the eventuality e is located at some point in the interval t .
$\lambda t \lambda e.during'te$	states that the eventuality e is active during the interval t .

Feel free to add your own as needed. You can also alter the given meaning, if you think you have a better rendering. This is an exploratory assignment.

- (1) John was here.
Note: You can take *was* to be consisting of two lexical items *is* and *Past* and model their categories separately. Feel free to offer such decompositions for other sentences as you need. Here is a suggestion for the semantics of this sentence, feel free to change if you need: $\exists e.present'here'e' \wedge agent'ej' \wedge \exists t.t < st' \wedge during'te$
- (2) John slept here.
- (3) John will sleep here.
- (4) John was hoping that Mary will phone him.