1 Exercise W

1.1 What LF's are assigned to the structures?

- ∃s (s≈utt & **yesterday**(s) & ∃e (Completed(s,e) & AGT(e,**bill**) & leave(e)))

- ∃s (s≈utt & ∃e (Completed(s,e) & AGT(e,**bill**) & leave(e) & yesterday(e)))

1.2 Does the LF of *Yesterday, Bill has left* help explain why that sentence is odd?

Yes. We have a state that is supposed to take place in the present, but it we're applying the adverb 'yesterday' to it. These two things – present tense and past adverb – are incompatible. 'Yesterday' says that the eventuality took place during the previous day, in the *past*, which is mutually exclusive with the idea that the eventuality takes place in (or very near) the present time.

1.3 Does the LF of *Bill has left yesterday* help explain why that sentence is odd?

Yes. 'Yesterday' puts the event of Bill leaving in the distant past – the adverbial time frame does not intersect with the utterance time. Assuming we want a resultative rather than an experiential interpretation of the sentence (which makes sense, because 'left' is a verb which is difficult to interpret experientially), then we need the effects of the state to last into the present moment. If we say 'Bill has just left' then it is easy to interpret as the resultative perfect. But if we try to say 'Bill has left yesterday', then we break things by situating the event in such a way as to make it impossible for the effects to coincide with the utterance time.

1.4 Complete the following definition.

For any lexicon M, M(**yesterday**) is the set of all eventualities that occurred during the previous day.

2 Exercise Y

2.1 Provide three examples of past progressive sentences that do not entail the corresponiding simple past.

1. Little Jimmy was skinning a frog (because he will grow up to be a serial killer). ≠ Little Jimmy skinned a frog.

2. Alice was eating an apple (when she was suddenly struck by lightning because she was sitting in an apple tree during a thunderstorm). ≠ Alice ate an apple.

3. I was cooking waffles (when my stove exploded). ≠ I cooked waffles.

## 2.2 Provide three more examples of sentences which *do* entail their simple past counterparts.

1. Grusha was helping Andy with his semantics homework (when she finally snapped and strangled him to death). ⇒ Grusha helped Andy with his semantics homework.

2. Dumbledore was gazing into the Mirror of Erised (when Harry walked up). ⇒ Dumbledore gazed into the Mirror of Erised.

3. Voldemort was threatening to destroy Hogwarts (when he was taken by surprise and eaten by an accromantula). ⇒ Voldemort threatened to destroy Hogwarts.

2.3 Pick one of your examples and say how the ontological explanation does or does not apply.

Let's look at the sentence 'Grusha was helping Andy with his semantics homework'. We can apply the same ontological explanation to this as to the sentence 'Jill was playing volleyball'. The progress of 'helping' is really a series of small events, such as answering questions, giving examples, correcting mistakes, etc. At any point during this series of small, continuous events, we can say that Grusha has already *helped* Andy, because she has completed at least some small portion of this ongoing process. It might even be better to conceptualize this as a state, or somewhere in between a state and an event.

3 Exercise Z

3.1 LF and logical form for 'Jack was writing a letter'

$\exists s$ (s<utt & $\exists e$ (InProgress(s,e) & AGT(e,**jack**) & PAT(e,x) & **writing**(e)))
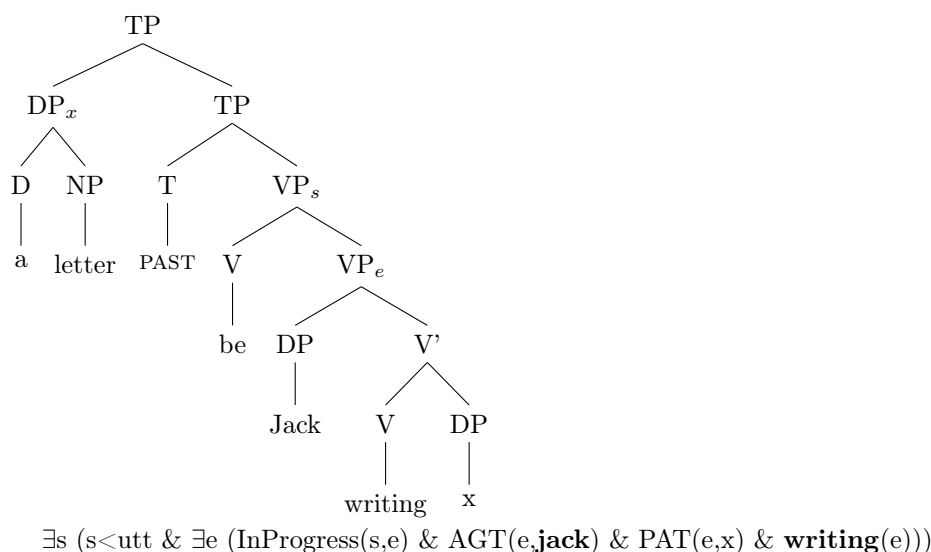
3.2 Logical form for 'Jack wrote a letter'

$\exists e$ (e<utt & AGT(e,**jack**) & PAT(e,**letter**) & **write**(e))

3.3 Entailment? Explain?

Well in the first version we've got two objects, s and e, s being the in progress version of e. In the second version we *just* have e. So essentially, we're looking to see if 'There is an object such that ... and there is an object such that' can entail the inner object. You can make the argument that, since we're asserting the existence of e in the first version, then it entails the existence of e alone as well (the second version). This is appealing when looking only at the logical forms, but falls apart when we zoom out and realize that this makes the wrong predictions about the progressive.

I think that the key is the nesting of of eventualities. In the first version we're not just asserting the existence of e, we're asserting the existence of e *based on* the existence of s. We're saying 'There is an object s such that there is an object e (which s is the in progress version of). And we know that we're write in concluding that the first version doesn't entail the second version, because we can imagine a situation in which the first is true but not the second. For example, if Jack was in the process of writing a letter when he was suddenly murdered by a time-traveler (because that letter was going to spark a third world war, say). In this situation, Jack was writing a letter, but he never actually wrote one.

4   Summary

4.1   The Present Perfect

One area in which our theory falls short is the present perfect. I think we've only scratched the surface of the unusual construction which is the perfect, and further research will be required to determine how (and if) we can extend our theory to explain it adequately.

Just in Exercise Y, we saw that there are some very weird restrictions on the usage of adverbials with the perfect, which our theory struggles to explain fully. For example, we see that in the experiential perfect, we can adverbially restrict the time frame only in the backwards direction – that is to say, we can say 'I have been to Brooklyn twice **since last week**' but not 'I have been to Brooklyn twice **last week**'. Whatever adverbial restriction we place on the sentence, the time frame must intersect the utterance time.

But in cases of the so-called 'resultative' perfect, we see that almost *any* adverbial time restriction is disallowed. We cannot say 'I have spilled tea yesterday', nor 'I have spilled tea since last week', nor 'I have spilled tea this week'. If some of these sentences seem grammatical to you, which they should, note that they are drawing an experiential interpretation rather than a resultative one; the meaning being not that I have just spilled tea and it needs to be cleaned up, but that at some point during the time frame I have participated in the experience of spilling tea.

We *can* say 'I **just** spilled tea' and still get a resultative interpretation. So not *all* time adverbs are disallowed; the criterion so far seems to be that for a resultative perfect interpretation, the implied or adverbial time frame must be *immediately* prior to the utterance time, such that the effects of the event in question (like spilling tea) are still relevant.

Even if we assume that the restrictions just described constitute a complete description of the grammaticality of the perfect (which is doubtless not true), we still have to figure out how to incorporate these discoveries into our theory. How can we encode this information within our notational system? Right now we don't even really have a distinction between experiential and resultative perfect anywhere in the notation – they're both just 'Completed(s,e)'. But given that these two types of perfect clearly have different grammaticality criteria, we should at least attempt to have them represented properly.

4.2   The Past Progressive

We discussed the ontological explanation of why the past progressive does or does not entail the simple past. In the cases where entailment is present, the working hypothesis is that the past progressive represents a series of smaller events composing the whole (and thus we can have completed a number of these smaller events, even if we have not completed *all* of them). In the cases where entailment is not present, the past progressive represents a true continuity, which is no full event until it is actually complete.

This distinction, between continuous and discontinuous past progressive, is so far completely unrepresented in our theory and our notation. This seems problematic, since these two types of past progressive have different entailments and therefore different truth conditions. One easy way to change our notation to incorporate these discoveries would be to split up 'InProgress' into two different predicates, something like 'InProgress' and 'Ongoing' (the first being continuous, non-entailing and the second being continuous, entailing).

Unfortunately the only way to decide between which verbs, when used in the past progressive, are InProgress or Ongoing is to know the kind of actions they represent. It is a purely lexical thing, not encoded anywhere in our LFs or otherwise. Our theory is not friendly to knowledge of this kind; it prefers to have rules that anyone can follow, without needing to know which words are which kind of action. This is, in fact, one of our theory's flaws (if you ask me, at least). It strives for too deep a level of abstraction. I am a huge fan of abstraction, but sometimes, we must accept that there is only so far it can go.

4.3   Further research?

In terms of what data we might look at to continue along these paths of inquiry, it seems to me that simple corpus research would be the first step. Searching for instances of the present perfect and the past progressive, and compiling a list of the features of these occurrences. Once we are reasonably sure that we

have something approaching a comprehensive list of the things that need explaining, we can proceed to more directed research.

This might take the form of surveys of native English speakers. We might want to ask them, for example, in what situations the past progressive does and does not entail the simple past, to ensure that our intuitions are accurate. We might want to experiment with drawing experiential and resultative readings of the present perfect, and access the intuitions of native speakers as to what adverbial time restrictions are permitted in each case.

Finally, in order to answer some of the questions raised above, we might wish to 'research' by simply sitting down in a room together with the smartest linguists and philosophers we can find, and discussing these issues. This may be the only way to figure out how we can modify our theory to accommodate them.