Week 6 - Multi-Dimensional Semantics and Asymmetry

This Week

This week we will discuss two main topics: presupposition asymmetry and multi-dimensional approaches to presuppositions. Specifically, we will talk more about this idea of presupposition filtering, and when it can and cannot occur, with some interesting experimental data shedding some light on whether or not presupposition filtering is asymmetric. We will also look at this idea of 'non-at-issue' meaning as a whole and review a classic approach that grouped these types of meanings all-together, analysing them under a multi-dimensional framework which has a long-lasting legacy in formal semantics and pragmatics.

Asymmetry

Recall from week 1 the idea of **presupposition filtering**. We stated that if the antecedent/first conjunct entails a presupposition in the consequence/second conjunct then the presupposition is 'changed'. Consider the examples from week 1 below, where (1) has the presupposition that someone other than Yasu drinks projects but the same presupposition is filtered in (2)

(1) Richard is not in Chandler House and Yasu drinks **too**.

(2) Richard drinks and Yasu drinks **too**.

We can actually prove that the presupposition is filtered by embedding (2) again:

(3) If Richard drinks and Yasu drinks, then I will also drink.

Lets look at more examples in week 1 to really break down this idea of filtering.

Note that in example (2), it seems as though the material to *the left* of the presupposition trigger is what is doing the filtering. We assume then that presupposition triggers in the right are filtered by the left (left-to-right filtering). What about the reverse order? Compare the following:

(4) a. Abdullah used to come into CH and he stopped.
b. #Abdullah stopped coming into CH and he used to come into CH.

It seems as though right-to-left filtering is not possible. As such, we have an asymmetry in presupposition filtering. However, the contrast is not super clear. If you were to assume that presupposition filtering must be triggered by the left side of the complex expression then maybe an expression like (4-b) is marked because the presupposition is projecting from the left side? This argument wouldn't work as we can still accommodate regular presuppositions that appear on their own out of the blue. Why else might **??** be marked?

(5) a. Diego is a university student and he is majoring in linguistics.
b. #Diego is majoring in linguistics and he is a college student.

The sentences (5-a)-(5-b) above depict a similar contrast, however instead of presuppositions we have a clause that entails another clause (p^+ and p where p^+ entails but is not entailed by p). In this case, there are theories of redundancies that simply stipulate that the expressions like (5-b) are marked because the second conjunct is redundant due to being entailed by the first. The point here is that we can't tell if this asymmetry in filtering presuppositions arises due to projection/filtering properties or if its just some kind of redundancy issue similar to (5-a)-(5-b).

Mandelkern (2017) controls for redundancy with the following setup:

(6) p: Jisu went to Africa.
S_p: Jisu went to Africa again.
p^+: Jisu went to Burkina Faso.

(7) a. Jisu went to Burkina Faso and she went to Africa again.
b. Jisu went to Africa again and she went to Burkina Faso.

In the examples above, we have reduced redundancy by ensuring that p^+ adds new information not supplied by S_p and that S_p adds new information not supplied by p^+. The fact that these exmaples above were deemed 'acceptable' would ostensibly serve as evidence to suggest that the contrast in (4-a)-(4-b) is due to redundancy as opposed to filtering asymmetry.

Does this then suggest that presupposition filtering is actually symmetric? According to Mandelkern, No. To test whether or not filtering is symmetric we must see if presuppositions project equally out of (7-a)-(7-b). To do this, be embedd again!!

(8) a. If Jisu went to Burkina Faso and she went to Africa again, then I will want to tag along.
b. If Jisu went to Africa again and she went to Burkina Faso, then I will want to tag along.

Question: Does the presupposition that Jisu has been to Africa before project to the same degree in both (8-a) and (8)?

Mandelkern (2017) conducted two experiments based on this premise and determined that presupposition filtering in conjunction is in fact asymmetric; with left-to-right filtering being robustly available while having no evidence for right-to-left filtering[1].

The first experiment involved participants reading conditional sentences with antecedents contained conjunctions then judged whether presupposition p (that Jisu has been to Africa before) follows from the utterance. If they said 'yes' then the presupposition projected, if 'no' then the presupposition was filtered.

(9) a. If Sp and p^+, then q. → Tests right-to-left filtering.
b. If p^+ and Sp, then q. → Tests left-to-right filtering.

[1]Additional experimental work has been done in Chen (2022).

c. If Sp, then q. → Baseline for normal projection.
d. If p, then q. → Baseline for no projection.

Results suggests that (a) patterned like (d), so there was no right-to-left filtering. Notably, the (b) variant had higher than expected projection rates. It is hypothesised that the participants tended to miss the entailment.

Multi-dimensional Semantics
As we discussed in week 1, presuppositions form a kind of meaning that is contrasted with the *at-issue* assertion of an expression based on two main properties: backgroundedness and projection. We also mentioned that there exists another type of meaning, conventional implicatures (CIs), that share similarities to presupposition.

(10) I must kill this **damn** bug!
→ I must kill this bug. (at-issue)
→ I don't like bugs. (conventionally implicated)

Notably, CIs project like presuppositions:

(11) a. I must not kill this **damn** bug!
b. Must I kill this **damn** bug?
c. If I must kill this **damn** bug, I will cry.

However, they do not project:

(12) a. James, **a swimmer**, came to the party.
b. #If James is a swimmer, then James, **a swimmer**, came to the party.

And it is arguble whether or not CIs rely on the common ground (i.e., mutual beliefs).

Conventional implicatures is a category of meaning that has changed definitions and boundaries over the decades. Famously, Karttunen and Peters (1975) argued that what we consider presuppositions should actually be considered conventional implicatures. Their arguments rely on several factors, such as projection, detachment from truth-conditions and the contribution to the speakers communicated content. They ultimately develop a multi-dimensional montague-style semantics comprising of two tiers of meaning: a truth conditional tier and non-at-issue tier that are side-by-side.

Multi-Dimensional Semantics
The way this framework can be represented in several ways (Potts 2005 CI logic separates the two dimensions using a diamond or dot) but I will use simple notation found in handouts by Yasu in 2018. Here, we distinguish between the at-issue meaning ($[\![\alpha]\!]$), and the presupposition ($(\!(\alpha)\!)$):

(13) a. $[\![$Jisu PAST$_5$ forgot to water her plants again$]\!]^{w,c,g} = 1$ iff. Jisu forgot to water her plants at $g(5)$ in w.
b. $(\!($Jisu PAST$_5$ forgot to water her plants again$)\!)^{w,c,g} = 1$ iff $g(5)$ is before the time of utterance c_t and Jisu forgot to water her plants at some point in time before $g(5)$ in w.

So how does projection work here? We can start with negation. In this case, the negation only negates the at-issue tier and not the presupposition tier (again we use Yasu's formula):

(14) a. $[\![\text{it is not the case S}]\!]^{w,c,g} = 1$ iff $[\![\text{S}]\!]^{w,c,g} = 0$
b. $(\!(\text{it is not the case S})\!)^{w,c,g} = 1$ iff $(\!(\text{S})\!)^{w,c,g} = 1$

(15) a. $[\![\text{Jisu PAST}_5 \text{ did not forget to water her plants again}]\!]^{w,c,g} = 1$ iff. Jisu did not forget to water her plants at $g(5)$ in w.
b. $(\!(\text{Jisu PAST}_5 \text{ did not forget to water her plants again})\!)^{w,c,g} = 1$ iff $g(5)$ is before c_t and Jisu forgot to water her plants at soem point in time before $g(5)$ in w.

What about for projection across something like conjunction? The truth-conditional component is easy:

(16) $[\![\text{S}_1 \text{ and S}_2]\!]^{w,c,g} = [\![\text{S}_2]\!]^{w,c,g} = 1$

What about the presupposed content considering we assume that filtering is asymmetric? One way to formalise filtering is to say that the whole conjunct only inherits those bits of a presupposition of the second conjunct that are not entailed by the at issue meaning of the first conjunct. You can kind of think of it in terms of updating local contexts as we did in week 2.

(17) $(\!(\text{S}_1 \text{ and S}_2)\!)^{w,c,g} = 1$ iff $(\!(\text{S}_1)\!)^{w,c,g} = 1$ and if $[\![\text{S}]\!]^{w,c,g} = 1$ then $(\!(\text{S}_2)\!)^{w,c,g} = 1$.

Regardless of your stance on presuppositions as a category, this approach has many shortcomings that has, over the years, made this approach fall out of favour. Gazdar (1979) takes issue with the fact that the multi-dimensional approach is merely 'describing' facts about presuppositions instead of 'explaining' them. Moreover, the theory makes intuitive predictions when it comes to binding variables:

(18) Someone is going to CH again.

An example like (18) should be quantificational, but if we use existential quantification we end up with a reading where the person in the presuppositional tier is not the same as the at issue tier!

(19) a. $[\![\text{Someone is going to CH again.}]\!]^{w,c,g} = 1$ iff someone is going to CH at c_t in w.
b. $(\!(\text{Someone if going to CH again})\!)^{w,c,g} = 1$ iff someone is going to CH again at some time prior to c_t in w.

We don't want universal quantification either, why?

(20) a. $[\![\text{Someone is going to CH again.}]\!]^{w,c,g} = 1$ iff someone is going to Ch again at c_t in w.
b. $(\!(\text{Someone if going to CH again})\!)^{w,c,g} = 1$ iff everyone is going to CH again at some time prior to c_t in w.

Acknowledgments
This weeks handout and topics were partly inspired by the assigned readings, Yasu's handout in 2018 and chats I've had with him.