Presupposition

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Chapter 1

Introduction to Presuppositions

Presupposition (or more precisely, *semantic presupposition*) is a kind of inference that sentences of natural languages may have. Some representative examples:

(1.1) a. *Jane quit smoking*
presupposition: Jane used to smoke.
b. *The King of France is bald*
presupposition: France has a king.
c. *Bill reread War and Peace*
presupposition: Bill had read *War and Peace* before.
d. *Lucy forgot to submit her homework*
presupposition: Lucy had homework that she was supposed to submit.
e. *None of my students brought lunch with her today*
presupposition: each of my students is female.

Introductory readings: Beaver (2001), Kadmon (2001), Simons (2006), Beaver & Geurts (2013), etc.

In Lecture 1, we will discuss how to identify presuppositions with empirical diagnostics, and give a first shot at modelling presuppositions in a multi-dimensional semantics. As we will see there will be some problems with such a semantics.

1.1 Multi-Dimenstionality of Natural Language Semantics

Eubulides ($\pm$405–330 BC) pointed out several *paradoxes* for Aristotelian Logic, which reveal important properties of natural language and human thought that the present-day linguists, philosophers and logicians still grapple with (see Seuren 2005 for an overview of Eubulides's influence on formal semantics and logic):

- Self-reference and truth
- Intensionality and *de re/de dicto*

- Vagueness
- Presupposition

The paradox of horns illustrates the problem of presupposition:

(1.2) Major: What you haven't lost you still have.
Minor: You have not lost your horns.
Ergo: You still have your horns. (Seuren 2005:89)

The crucial aspect of this paradox is that the Minor *presupposes* that you have horns, which Aristotle's Logic fails to account for (more on this below).

It is generally agreed today that natural language semantics does not respect the *Principle of Excluded Middle*, i.e. sentences in natural language can be neither true nor false, unlike formulas in classical logic.[1]

Closely related to this is the idea that sentence meanings are *multi-dimensional*. It seems to be a universal property of natural languages that a single sentence may convey qualitatively different types of meanings, e.g. presupposition and *at-issue meaning* (alt: *assertive meaning*). If a sentence can be true in one respect (e.g. at-issue meaning) but false in another respect (e.g. presupposition), that sentence won't be simply true or false, and violates the Principle of Excluded Middle.

Presupposition can be seen as a dimension of meaning that is characterised by two features:

- Backgroundedness (pragmatic status)
- Projection

These two features can be used to distinguish presuppositions from *at-issue meanings* (alt.: *assertive meanings*).

1.1.1 Backgroundedness

Example (1.3) conveys two things, (1.3a) and (1.3b).

(1.3) Mary is reading *War and Peace* again.
a. Mary is reading *War and Peace*. (at-issue)
b. Mary has read *War and Peace* in the past. (presupposition)

These two pieces of information play different pragmatic roles:

- (1.3a) is the main point of the utterance; (1.3) is typically used to inform the hearer

[1] Cf. the famous Russell-Strawson debate about definite descriptions.

of (1.3a).

- (1.3b) is *backgrounded* in some sense and perhaps even deemed to be an established fact.

To see this more clearly: generally, (1.3) can be used to answer (1.4a) but not (1.4b).

(1.4) a. Which book is Mary reading now?
b. Which book has Mary read so far?

At this point, two notions of presupposition should be distinguished: *semantic presupposition* and *pragmatic presupposition*. Semantic presuppositions are properties of natural language expressions, while pragmatic presuppositions are properties of information, so to speak. These two notions are related in the sense that semantic presuppositions typically give rise to pragmatic presuppositions. Pragmatic presuppositions are broader and are not necessarily linguistically relevant, e.g. if someone says something to you in Russian, they presuppose (in the pragmatic sense) that you understand Russian.

1.1.2 Projection

In addition, (1.3a) and (1.3b) behave differently when the sentence is embedded. For instance, when the sentence is turned into a polar question, (1.5), the truth of (1.3a) is questioned, while (1.3b) survives as an entailment.

(1.5) Is Mary reading *War and Peace* again?

Consequently, (1.5) is not synonymous with the mouthful question in (1.6):

(1.6) Is it the case that Mary has read *War and Peace* and is now reading it again?

In cases like these, we say that the presupposition *projects*; it is not caught in the scope of the question operator here. On the other hand, at-issue meanings are affected by the question operator.

Similarly, other 'non-veridical contexts' can be used to identify presuppositions:

- Negation:
  (1.7) a. Mary won't read *War and Peace* again.
  b. I doubt that Mary read *War and Peace* again.
- Modals:
  (1.8) a. Mary might read *War and Peace* again.
  b. It is possible that Mary is reading *War and Peace* again.
  c. Mary should read *War and Peace* again.
  d. It seems that Mary is reading *War and Peace* again.

Non-veridical contexts are those embedding contexts that do not entail the truth of the embedded sentence.

Exercise: Why can we not use veridical contexts to identify presuppositions?

We will see more cases of presupposition projection later.

1.1.3 Failed Projection

It should be noted that in some contexts, presuppositions fail to project. Here's a famous example:

(1.9) The kind of France isn't bald — there is no king of France!!

If the presupposition that France has a king projected through negation, it would contradict the second sentence.

Some more examples:

(1.10) A: I don't have a dog.
B: So at least you don't have to walk your dog. (Kadmon 2001:145)

(1.11) If it's the knave that stole the tarts, then I'm a Dutchman: there is no knave here. (Beaver & Geurts 2013)

(1.12) Did you quit smoking recently?

(1.13) If your children are under 10, you will receive a discount.

In those cases, the presuppositional content behave as if it is part of the at-issue meaning. More on this later.

1.1.4 Other Dimensions of Meaning

Backgroundedness and projection are are defining characteristics of presuppositions that distinguish them from at-issue and other aspects of meaning. At-issue meanings and conversational implicatures are typically fore-grounded, and do not project. They are also typically the main point of the utterance and constitute new information.

Conventional implicatures are sometimes hard to distinguish from presuppositions, as they are usually backgrounded and project as well. I think the class of conventional implicatures is not homogeneous. In the literature (since Potts 2005), *expressives* and *appositives* are often taken to be two representative kinds of conventional implicatures.

(1.14) a. Masa is a *Jap*. (expressive)

b. Masa, *who grew up in Hokkaido*, is actually an Ainu. (appositive)

There are two differences between conventional implicatures and presuppositions:

- Conventional implicatures tend to be new information, while presuppositions tend to be old information (although expressives could be used repeatedly, perhaps to reinforce the (adversive) emotion expressed).
- Conventional implicatures tend to always project out, while presuppositions sometimes interact with various operators.[2] E.g.

  (1.15) a. None of these people read *War and Peace* again.
  presupposition: All of these people have read *War and Peace*.
  b. Mary hopes that John read *War and Peace* again.
  presupposition: Mary believes that John has read *War and Peace*

  Expressives do not typically show this kind of interaction: the expressive in (1.16a) is not about a particular group of Japanese people but about all Japanese; similarly, the expressive in (1.16b) reflects the speaker's emotion, not Mary's.

  (1.16) a. None of these people is a Jap.
  b. Mary hopes that Masa is a Jap.

1.2 Presupposition Triggers

Now we can identify presuppositions of sentences. If you apply the above diagnostics to many sentences, you'll notice that certain presuppositions are attributable to the use of certain expressions and constructions. E.g.:

- The presupposition of (1.17) is traceable to the meaning of *again*.

  (1.17) Mary is reading *War and Peace* again.

  If *again* is omitted, the presupposition that Mary has ready *War and Peace* will disappear, while the at-issue meaning will stay the same.
- *Quit/stop V-ing* gives rise to a presupposition that the subject was V-ing.

  (1.18) Mary quit smoking last month.

  Start V-ing has the opposite presupposition.

  (1.19) Mary started smoking last month.
- Factive predicates like *aware/unaware/remember that S* presuppose that *S* is true.

  (1.20) Mary is aware that she will not get a grant this year.
- *Pretend that S* presupposes that *S* is false.

  (1.21) Mary pretended that she could speak Georgian.

[2] But there are some complications, e.g. Potts (2005), Amaral, Roberts & Smith (2007), Harris & Potts (2009), Schlenker (2007), Nouwen (2011), etc.

- *Remember/forget to V* presupposes that the subject was supposed/required to V.

  (1.22) Mary remembered to call her mother.

- Sortal restrictions, e.g. *to drink* and *to spill* presuppose that the object is liquid; *to sire* presupposes that the subject is male; *iru* 'to exist' in Japanese presupposes that the subject is animate.

We call such expressions and constructions *presupposition triggers*.

Generally, lexical items that mean similar things within and across languages trigger the same presupposition, e.g. aspectual verbs like *stop* and *start* have the same presupposition across languages. This suggests that some general principle is at play, which somehow derives the presupposition from the at-issue meaning. However, we don't have a good theory of how presuppositions are triggered (see Abusch 2010, Abrusán 2011 for some attempts; see also Kadmon 2001 for discussion).

Also, in some cases, presuppositions are not predictable from at-issue meanings. E.g.:

- Triggers like *also, even* and *again* don't really have at-issue meanings.
- *Come* and *go* differ minimally in the presupposition

For the rest of this course, we will put aside the *triggering problem*—the problem of explaining which expressions trigger what kind of presuppositions—and focus on how to represent presuppositions in semantic theories so as to account for their projection behaviour. This problem is the problem of compositionality in the presuppositional domain:

(1.23) *The Projection Problem of Presupposition*: How do we account for the (semantic) presuppositions of a given syntactically complex phrase from the syntax and the meanings of its parts?

1.3 A Multi-Dimensional Theory for Presupposition

1.3.1 Uni-Dimensional Semantics

If we only have one dimension of meaning and if every sentence is either true or false (as in Aristotle's logic), then we won't be able to distinguish presuppositions from at-issue meanings and will fail to capture the projective behaviour of presuppositions.

E.g. we could analyze the (1.24) as (1.25). We use a pronominal theory of tense here (nothing crucial hinges on this).

(1.24) Mary visited London again.

(1.25) $[\![\text{Mary PAST}_5 \text{ London again}]\!]^{w,c,g} = 1$ iff $g(5)$ is before the time of c and Mary visited London at $g(5)$ in w and Mary visited London at some t' before $g(5)$ in w.

This semantics is one-dimensional in the sense that all the information is treated on a par. Such a one-dimensional language cannot capture presuppositions.

Firstly, how would we account for the pragmatic properties of presuppositions as backgrounded information? If all the information is collapsed to one proposition, we can't extract presuppositions from it (unless propositions have some structure; but that won't be a one-dimensional theory).

Secondly, one-dimensional semantics cannot account for projection facts. For example, consider the behviour under negation.

(1.26) $[\![\text{it is not the case that } S]\!]^{w,c,g} = 1$ iff $[\![S]\!]^{w,t} = 0$

(1.27) $[\![\text{It is not the case that Mary PAST}_5 \text{ visit London again}]\!]^{w,c,g} = 1$ iff either $g(5)$ is not before the time of c or Mary did not visit London at $g(5)$ in w or Mary did not visit London before $g(5)$ in w.

One cannot conclude from this that Mary has visited London. In other words, the presupposition is predicted to not project.

Exercise: Construct an analogous problem based on the semantics of *might* in (1.28):

(1.28) $[\![\text{might } S]\!]^{w,c,g} = 1$ iff there's a possible world w' compatible with what we know such that $[\![S]\!]^{w',c,g} = 1$

1.3.2 Multi-Dimensional Semantics

Karttunen & Peters (1979) propose to encode presuppositions in a separate dimension from at-issue meanings.[3] Each natural language expression α has two types of meanings, $[\![\alpha]\!]_A^{w,c,g}$ and $[\![\alpha]\!]_P^{w,c,g}$.[4]

(1.29) a. $[\![\text{Mary PAST}_8 \text{ visit London again}]\!]_A^{w,c,g} = 1$ iff Mary visits London at $g(8)$ in w

b. $[\![\text{Mary PAST}_8 \text{ visit London again}]\!]_P^{w,c,g} = 1$ iff $g(8)$ is before the time of utterance c_t and Mary visits London at some time before $g(8)$ in w

Similarly:

[3] They furthermore claim that presuppositions are a kind of conventional implicatures. We don't discuss this aspect of their claim (cf. the discussion above on conventional implicatures).

[4] Here it's crucial to use the pronominal theory of tense, or we'll run into the Binding Problem (see below).

(1.30) a. $[\![\text{Mary PAST}_1 \text{ forgot to submit her homework}]\!]_A^{w,c,g} = 1$ iff Mary does not submit her homework at $g(1)$ in w

b. $[\![\text{Mary PAST}_1 \text{ forgot to submit her homework}]\!]_P^{w,c,g} = 1$ iff $g(1)$ precedes c_t and Mary has homework such that in all (best) possible worlds w' that are compatible with the relevant rules in w Mary submits her homework at $g(1)$ in w

1.3.3 Semantics-Pragmatics Interface in Multi-Dimensional Semantics

In this theory, we can require at-issue meanings and presuppositions to play different pragmatic roles as follows. Following Stalnaker (1973, 1974, 1978), we take *pragmatic presuppositions* to be the following:

(1.31) Agents $a_1, \ldots, a_n$ (pragmatically) presuppose that p iff all of the following are true:

a. Each a_i believes that p;

b. Each a_i believes that each a_j believes that p;

c. Each a_i believes that each a_j believes that each a_k believes that p;

...

Then, using this, we could see semantic presuppositions as felicity conditions on utterances:

(1.32) An utterance of sentence S in context c with agents $a_1, \ldots, a_n$ is infelicitous unless $a_1, \ldots, a_n$ pragmatically presuppose that the semantic presupposition of S (i.e. $\lambda w.[\![S]\!]_P^{w,c,g_c}$) is true (where g_c is the assignment function assumed in c) at the time of the utterance.

Whenever S is felicitous in c, the proposition $\lambda w.[\![S]\!]_A^{w,c,g_c}$ is taken to be the literal meaning of S.

1.3.4 Presupposition Projection in Multi-Dimensional Semantics

The multi-dimensional semantics also captures projection behaviour.

Generally, negation only negates at-issue meanings and inherits all the presuppositions of what is embedded. This is captured as follows:

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

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

(1.34) a. $[\![\text{it is not the case that Mary PAST}_8 \text{ London again}]\!]_A^{w,c,g} = 1$ iff Mary did not visit London at $g(8)$ in w

b. $[\![$it is not the case that Mary PAST$_8$ London again$]\!]^{w,c,g}_P = 1$ iff $g(8)$ is before c_t and Mary visits London at some time before $g(8)$ in w

If this presupposition is true, it follows that Mary visited London at least once.

Exercise: Analyse *might*.

Let us also analyse conjunction of the form *A and B*. A conjunction inherits the presuppositions of the first conjunct *A*. E.g., (1.35) presupposes that Mary had visited London before.

(1.35) Mary visited London again, and Bill visited Moscow.

What about the second conjunct?

(1.36) Mary visited London, and Bill visited Moscow again.

This example also presupposes that Bill had visited Moscow once, so one might think that the entire conjunction inherits the presuppositions of the second conjunct as well. However, if we change the first conjunct as in (1.37), it won't have this presupposition any more.

(1.37) Mary and Bill visited Moscow and St. Petersburg three years ago, and Bill visited Moscow again (this summer).

What is crucial here is that the first conjunct here entails the presupposition of the second conjunct. The whole conjunct only inherits those bits of presuppositions of the second conjunct that are not entailed by the at-issue meaning of the first conjunct. So the semantics of conjunction will look like (1.38).

(1.38) a. $[\![S_1 \text{ and } S_2]\!]^{w,c,g}_A = 1$ iff $[\![S_1]\!]^{w,c,g}_A = [\![S_2]\!]^{w,c,g}_A = 1$
b. $[\![S_1 \text{ and } S_2]\!]^{w,c,g}_P = 1$ iff $[\![S_1]\!]^{w,c,g}_P = 1$ and if $[\![S_1]\!]^{w,c,g}_A = 1$ then $[\![S_2]\!]^{w,c,g}_P = 1$

For (1.37), all that needs to be presupposed is that if Mary and Bill visited Moscow and St. Petersburg three years ago, then Bill has visited Moscow. This is something one could believe innocuously.

A potential problem arises with sentences like (1.39).

(1.39) Mary is pregnant and her brother is happy.

The second conjunct *her brother is happy* has a presupposition that Mary has a brother. The predicted presupposition for (1.39), then, would be: If Mary is pregnant, she has a brother. This sounds too weak. Rather, (1.39) seems to presuppose simply that Mary has a brother.

There are other theories that predict such *conditional presuppositions* for conjunctions and other types of sentences that are arguably counter-intuitive. This problem is called the *proviso problem*. We will come back to this issue later.

Generally, in analysing a meaning of an expression α, three things need to be specified:

- What is the at-issue meaning of α?
- What is the presupposition α triggers?
- What happens to the presupposition of the argument it takes?

The latter two aspects constitute $[\![\alpha]\!]_P$ (connectives generally don't trigger presuppositions).

Exercise: Analyse other sentential connectives like *or*, *unless*, etc.

1.4 Binding Problem

There is one significant problem with the multi-dimensional semantics, as Karttunen & Peters (1979) themselves point out. Consider (1.40):

(1.40) Someone is reading *War and Peace* again.

What is the presupposition of (1.40)? It should be quantificational, but if we used existential quantification, we'd get something like (1.41):

(1.41) a. $[\![$Someone is reading *War and Peace* again$]\!]^{w,c,g}_{A} = 1$ iff
someone is reading *War and Peace* at c_t in w
b. $[\![$Someone is reading *War and Peace* again$]\!]^{w,c,g}_{P} = 1$ iff
someone reads *War and Peace* at some time prior to c_t in w

This is arguably wrong.

Exercise: Why is (1.41) inadequate?

We of course don't want to have universal quantification in the presupposition; it would be too strong.

(1.42) a. $[\![$Someone is reading *War and Peace* again$]\!]^{w,c,g}_{A} = 1$ iff
someone is reading *War and Peace* at c_t in w
b. $[\![$Someone is reading *War and Peace* again$]\!]^{w,c,g}_{P} = 1$ iff
everyone reads *War and Peace* at some time prior to c_t in w

This problem is called the *Binding Problem*.

Exercise: In some cases, the Binding Problem does not arise, namely, when the presupposition is entailed by the at-issue meaning. E.g. suppose that the meaning of *quit smoking* is something like (1.43):

(1.43) a. $[\![\text{John PAST}_1 \text{ quit smoking}]\!]_A^{w,c,g} = 1$ iff John smokes before $g(1)$ in w and John does not smoke after $g(1)$ in w
b. $[\![\text{John PAST}_1 \text{ quit smoking}]\!]_P^{w,c,g} = 1$ iff John smokes before $g(1)$ in w and $g(1)$ is before c_t

Then we have:

(1.44) a. $[\![\text{Someone PAST}_1 \text{ quit smoking}]\!]_A^{w,c,g} = 1$ iff someone smokes before $g(1)$ in w and does not smoke after $g(1)$ in w
b. $[\![\text{Someone PAST}_1 \text{ quit smoking}]\!]_P^{w,c,g} = 1$ iff someone smokes before $g(1)$ in w and $g(1)$ is before c_t

Explain why this does not run into the Binding Problem.

1.5 Conceptual Problem

Gazdar's (1979) critique of Karttunen & Peters (1979) (see also Soames 1982, Heim 1983): Karttunen & Peter's semantics is merely *describing* the projection facts, not *explaining* them. For example, why don't we have negation like (1.45)?

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

Or:

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

(1.47) a. $[\![\text{it is not the case } S]\!]_A^{w,c,g} = 1$ iff $[\![S]\!]_A^{w,c,g} = 0$
b. $[\![\text{it is not the case } S]\!]_P^{w,c,g} = 1$ iff there is a possible world w' that is compatible with what we know $[\![S]\!]_P^{w',c,g} = 0$

Similarly, why don't we have conjunction that is symmetric with respect to presupposition projection, e.g.

(1.48) a. $[\![S_1 \text{ and } S_2]\!]_A^{w,c,g} = 1$ iff $[\![S_1]\!]_A^{w,c,g} = [\![S_2]\!]_A^{w,c,g} = 1$
b. $[\![S_1 \text{ and } S_2]\!]_P^{w,c,g} = 1$ iff $[\![S_1]\!]_P^{w,c,g} = 1$ and $[\![S_2]\!]_P^{w,c,g} = 1$

This would predict (1.49) to presuppose that Bill has been to Moscow at least once.

(1.49) Mary and Bill visited Moscow and St. Petersburg three years ago, and Bill visited Moscow again (this summer).

This problem of explanatory power is by no means fatal to Multi-Dimensional Theory but is a deep one that crops up in all theories of presupposition projection. We'll come back to this issue.

1.6 Other Theories of Presupposition Projection

The Binding Problem is a significant problem that motivated pursuit of alternative theories of presuppositions. From tomorrow, we will discuss the following three theories.

1. Satisfaction Theory (Heim 1983, Beaver 2001, Rothschild 2011)
2. Trivalent Theory (Peters 1979, Kramer 1995, Beaver & Krahmer 2001, George 2008a,b, Fox 2008)
3. Presupposition-as-Anaphora Theory (Van der Sandt 1992, Kramer 1995, Geurts 1999)

There are also others, e.g. Gazdar's (1979) and Soames's (1979) cancellation theories, Chemla's (2009) Similarity Theory, etc., which we cannot cover for reasons of time. See Soames (1982), Heim (1983) and Kadmon (2001) for criticisms of the cancellation theories.

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