Dimensions of Meaning

Lecture 02

January 9, 2024

Announcements:

Your first homework assignment is available and is due on Thursday, January 16th.

1 Introduction

Recall that our program for this course is to develop an explanatory model of what makes it possible to understand the meaning of natural language expressions.

We formulated this program—known as **formal semantics**—as an attempt to answer the following question:

(1) **The Fundamental Question of Formal Semantics**
What is the system of rules that comprises our ability to compositionally compute the meaning of natural language expressions?

As represented above, the approach that we are taking to this question is informed and guided by the hypothesis that languages are compositional systems:

(2) **Principe of Compositionality**
The meaning of a complex expression can be computed from:
(i) the meaning of its component expressions and
(ii) their mode of combination.

A challenge we face before being able to undertake this program is that we will have to be more precise about what we mean when we use the vague, pre-theoretic term "meaning." We must define:

(i) the relevant notion of **meaning** that the component parts of expressions have and

(ii) the relevant notion of **meaning** that our compositional system is intended to compute.

Our goal for today is to consider the issue in (ii). We will then see that we can use this to guide our consideration of the issue in (i).

We will understand "meaning" to refer to the information about the world that an expression conveys. This includes the **truth conditions** of the **asserted content** of an expression.

(3) **Truth Conditions**
The conditions under which an expression is true

We will see that this also includes different kinds of **non-asserted** information, which is conveyed by an expression though not explicitly contributed by it.

We will ultimately be led to distinguish between (at least) three different types of information that can be conveyed by an expression on the basis of the way in which they are conveyed:

(4) a. **Assertion**
Information explicitly contributed by an expression

b. **Presupposition**
Information that is taken for granted to be true by an expression

c. **Implicature**
Information that is implied/inferred from an expression

Any complete system that computes the meaning of expressions must explain each of these.

2 The Meaning of 'Meaning'

2.1 What is a 'Meaning'?

Where should we start in the pursuit of a definition of 'meaning'?

> *"In order to say what a meaning* is*, we may first ask what a meaning* does*, and then find something that does that."*
>
> — *David Lewis,* General Semantics (1970)

We might start, then, from the relatively uncontroversial claim that human languages are communication systems. As such, they serve as a vehicle for conveying information.

Language, however, is a *very* powerful mode of communication. Any given expression can convey many different types of things:

(5) **Evaluative content**
The value judgments that the speaker holds
pro-choice *vs.* pro-abortion

(6) **Social appropriateness**
The speaker's awareness/acceptance of the social context
Have a nice day. *vs.* Smell you later.

(7) **Emotional content**
The emotional state of the speaker
I think Mark behaves rudely. *vs.* Mark's an asshole!

The kind of meaning expressed by an expression that has received the greatest amount of attention, and will be the focus of this class, is information about the world.

(8) **Informational Content**
The information about the world that an expression conveys

This includes, but is not limited to, the **truth conditions** of an expression.

(9) **Truth Conditions**
The conditions under which an expression is true

A major component of what the 'meanings' of expressions seem to do, then, is convey different kinds of informational content. Among the things that do this are truth conditions. Thus, we come full circle to reach the conclusion, again, that truth conditions represent (part of) the meaning of an expression.

2.2 Types of Informational Content

But things are not quite as simple as this. Intuitively, we know that it is possible to *mean* something other than what you *say*. That is, it is possible to convey information about the world without providing it explicitly.

In (10) for example, there is a sense in which the information conveyed by what Speaker B expresses doesn't direct answer Speaker A's question. Nonetheless, this is a perfectly coherent exchange.

(10) A: How was Fred's doctor appointment?
B: Well, he's stopped smoking.

What makes this discourse coherent is that the form of B's expression requires us to bring specific knowledge to the table and somehow allows us to reason out the conversational value of the expression.

Thinking a bit about what is being conveyed by B's expression, we can identify (at least) the following three pieces of informational content:

(11) a. **Assertion**
Fred stopped smoking.

b. **Presupposition**
Fred has been smoking.

c. **Implicature**
Fred's appointment did not go well.

It appears that there are different ways in which informational content can be conveyed by a sentence. Informational content can be conveyed explicitly as **asserted** content or it can be conveyed implicitly as **non-asserted** content.

Moreover, the different ways in which non-asserted content is conveyed justifies treating them as two separate phenomena. This will become clear as we investigate the properties of each of these types of informational content immediately below.

3 The Asserted Information

The asserted information is the content that the speaker explicitly contributes with an expression.

(12) **Assertion**
Informational content that is explicitly conveyed by an expression

An idea that we have been exposed to on multiple occasions up to this point is that the meaning of an expression is (in part) equivalent to its truth conditions.

(13) **Truth Conditions**
The conditions under which an expression is true

We can say somewhat more accurately now that the **asserted content** of an expression is equivalent to its truth conditions.

To provide a bit of terminology, truth-conditional statements are typically presented in the following way, with *S* representing the expression and *p* representing its truth conditions:

(14) **Truth-conditional Statement**
S is true if and only if (*iff*) *p*

Because the assertion of an expression represents the informational content that is explicitly conveyed regarding the conditions under which an expression is true, the following equivalency should hold:

(15) **Diagnostic Equivalency for Assertions**
A sentence *S* asserts that *p* = A sentence *S* is true *iff p*.

Consider again the exchange regarding Fred's appointment.

(16) A: How was Fred's doctor appointment?
B: Well, he's stopped smoking.

The information that *Fred has stopped smoking* is asserted by Speaker B's expression. This claim is supported by the following equivalency:

(17) *He's stopped smoking* asserts that Fred has stopped smoking =
He's stopped smoking is true *iff* Fred has stopped smoking

Fine. But what about non-declarative expressions, like interrogatives and imperatives, which don't obviously assert anything?

(18) Who ate my lunch?

(19) Leave!

Any skepticism here is well-founded. But, semanticists have managed to develop an understanding of these types of speech-acts by building upon the same formal tools used for declaratives. That's a topic for a different class.

4 Presuppositions

4.1 Presupposed Information

A presupposition is non-asserted information conveyed by an expression that is required background knowledge and is shared by or accessible to both the speaker and the hearer.

(20) **Presupposition**
Informational content that is taken for granted by an expression

A presupposition is information that is necessary in order to evaluate the truth conditions of an expression. Thus, if some information is presupposed the following equivalency holds:

(21) **Diagnostic Equivalency for Presuppositions**
A sentence *S* presupposes *p* = *S* is true or false only if *p*.

We can return again to the discussion of Fred's appointment.

(22) A: How was Fred's doctor appointment?
B: Well, he's stopped smoking.

The information that *Fred has been smoking* is presupposed by Speaker B's expression. This claim is supported by the following equivalency:

(23) *He's stopped smoking* presupposes that Fred has been smoking =
He's stopped smoking is true or false only if Fred has been smoking.

In other words, determining the truth value for *He's stopped smoking* requires that the addressee knows, and accepts to be true, the proposition that Fred has been smoking.

4.2 Identifying Presuppositions

As informational content that is taken for granted by an expression, presuppositions are a type of entailment. They are special entailments, however, by virtue of being implicit in the discourse and, therefore, non-asserted informational content.

It is because they are entailed and necessarily taken for granted by an expression, that they are neither **cancelable** nor **reinforceable**.

(24) **Cancelability**
"*S* and/but not *p*" is consistent.

(25) **Reinforceability**
"*S* and/but *p*" is not redundant

These environments provide us diagnostics to determine if some identified non-asserted content is a presupposition. It is on these dimensions that presuppositions can be distinguished from implicatures, which we will see in the following section.

As a point of illustration, consider how the hypothesized presupposition of Speaker B's expression behaves in these contexts:

(26) # He's stopped smoking and/but he hasn't been smoking. (inconsistent)

(27) # He's stopped smoking and/but he has been smoking. (redundant)

The informational content that *Fred has been smoking* is neither cancelable nor reinforceable. This reflects the fact that it is information that is necessarily taken for granted as being true.

Presuppositions can also be distinguished from standard entailments by the fact that presuppositions **project**. That is, presuppositions "survive" in contexts where other entailments disappear.

(28) **Presuppositions project**

a. **Presupposition**
He's stopped smoking. → He has been smoking.

b. i. **Negation**
He has**n't** stopped smoking. → He has been smoking.

ii. **Questions**
Has he stopped smoking. → He has been smoking.

iii. **Possibility Modals**
Maybe he stopped smoking. → He has been smoking.

The following examples demonstrate that standard entailments fail to project; they disappear in each of these environments.

(29) **Standard Entailments do not project**

a. **Standard entailment**
He's stopped smoking. → He has stopped smoking cigars.

b. i. **Negation**
He has**n't** stopped smoking. ↛ He has stopped smoking cigars.

ii. **Questions**
Has he stopped smoking. ↛ He has stopped smoking cigars.

iii. **Possibility Modals**
Maybe he stopped smoking. ↛ He has stopped smoking cigars.

4.3 Where do Presuppositions Come From?

It is commonly thought that presuppositions are signaled by **presupposition triggers**. There are many different types of words and syntactic constructions that serve to trigger presuppositions.

(30) *Carrie **started** doing yoga* is true or false only if Carrie hasn't been doing yoga.

(31) *Fred smokes* ***because*** *he's a rebel* is true or false only if Fred smokes.

(32) ***The*** *projector broke* is true or false only if there exists a uniquely identifiable projector.

(33) *Anne left* ***again*** is true or false only if Anne has left previously.

(34) *Justin* ***knows*** *that the door is locked* is true or false only if the door is locked.

(35) ***It is*** *the book* ***that*** *Sheryl read* is true or false only if Sheryl read something.

Exercise: Do the propositions identified above behave like presuppositions with respect to the cancelability and reinforceability diagnostics? Do those propositions behave like projective content?

We asserted above that presuppositions represent *background* knowledge that is taken for granted as being true by an expression. But, even if an addressee doesn't previously believe some presupposed content, they are able to tacitly adjust their beliefs to incorporate it. This kind of adjustment is referred to **accommodation**.

It is sometimes possible for the addressee to **accommodate** the presupposition(s) of an expression.

(36) Fred stopped smoking. → Fred has been smoking.

(37) I need to feed my cat. →

Exercise: What is a presupposition of the example in (37)? Present the results of the cancelability and reinforceability diagnostics as evidence. Demonstrate that this is projective content.

5 Implicatures

5.1 Implied/Inferred Information

An implicature is non-asserted information that an addressee can infer given the context of an expression, including when and how that expression is made.

(38) **Implicature**
Informational content is implied/inferred from the expression

Implicatures represent information that is implicitly conveyed by an expression but which does not represent information that must necessarily be true about the world. Thus, the following equivalency holds if some information is an implicature:

(39) **Diagnostic Equivalency for Implicatures**
p is an implicature of S = p is conveyed by S but is not entailed by S.

Let's look one more time at the exchange regarding Fred's appointment.

(40) A: How was Fred's doctor appointment?
B: Well, he's stopped smoking.

The information that *Fred's doctor appointment did not go well* is an inference that can be drawn from B's expression. This claim is supported by the following equivalency:

(41) Fred's appointment didn't go well is an implicature of *He's stopped smoking* =
Fred's appointment didn't go well is conveyed but is not entailed by *He's stopped smoking*.

It is possible to reason out the information that Fred's appointment didn't go well on the basis of the context in which *He's stopped smoking* is expressed.

5.2 Identifying Implicatures

Because implicatures are implied/inferred and not entailed, they do not represent informational content that is guaranteed to be conveyed. They are dependent on the context of the expression.

It is because implicatures do not represent entailed content that they are both *cancelable* and *reinforceable*. These diagnostics are repeated again below:

(42) **Cancelability**
"S and/but not p" is consistent.

(43) **Reinforceability**
"S and/but p" is not redundant

To demonstrate, consider how the hypothesized implicature of Speaker B's expression behaves in these contexts:

(44) He's stopped smoking but his appointment went well. (consistent)

(45) He's stopped smoking and his appointment didn't go well. (not redundant)

The informational content that *Fred's appointment didn't go well* is both cancelable and reinforceable. This reflects the fact that it is information that is implicitly conveyed by the expression but it not entailed.

5.3 Where do Implicatures Come From?

Implicatures are, for the most part, **context-dependent**. They may arise in a certain context, but fail to arise in another.

(46) Waiter: With your meal you can have potatoes **or** beans.
⇝ You can't have both potatoes and beans.

(47) Doctor: In order to get more fiber you can have potates **or** beans.
$\not\rightsquigarrow$ You can't have both potatoes and beans.

Exercise: Does the proposition identified in (46) behave like an implicature with respect to the cancelability and reinforceability diagnostics?

Implicatures can also be signaled by particular words and syntactic constructions. But, as noted, they are not guaranteed to arise.

(48) Wendy did not complete all of the assignment is conveyed but not entailed by *Wendy completed* **most** *of the assignment*.

(49) I broke my finger yesterday is conveyed but not entailed by *I broke* **a finger** *yesterday*.

(50) Roland went downtown before he had a cappuccino is conveyed but not entailed by *Roland went downtown* **and** *had a cappaccino*.

Exercise: Do the propositions identified above behave like an implicature with respect to the cancelability and reinforceability diagnostics?

This all raises further questions regarding the kinds of contexts that facilitate implicatures. We will look at this in some detail later in the semester.

For now, we can understand implicatures to represent inferences that:

(i) arise from the fact that an expression *S* was asserted in a particular context, and

(ii) are validated by the assumption that the speaker is a cooperative conversational participant.

Of course, this only raises further question about what it means to be a cooperative conversational participant. The philosopher H.P. Grice offered the following guiding principle for cooperation:

(51) **The Cooperative Principle**
Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged.

6 Summary

We have formalized our conception of meaning as the informational content conveyed by an expression.

(52) **Informational Content**
The information about the world that an expression conveys

We also found that information can be conveyed in (at least) three different ways, motivating a division between three different types of informational content:

(53) a. **Assertion**
Information explicitly contributed by an expression

b. **Presupposition**
Information that is taken for granted to be true by an expression

c. **Implicature**
Information that is implied/inferred from an expression

Over the course of the semester we will attempt to develop a system of semantic rules that compute each of these types of meaning.