Semantics lab class (Course 2)

Speech acts, Cooperative speaker, conversational implicatures

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Our agenda today

- Recap of last session

- Something new: Semantics vs. pragmatics, Assertion, Grice's Theory of Conversational Implicatures: quality and relevance

- Some exercise to help you with assignment 9

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Key concepts you must understand

- Our new semantic system is ***intensional***. In other words:

Our new system needs to account for operators that "displace" the evaluation of their complements from the actual here and now to other points of reference.

- **Intension** is a function (with domain W) which maps every possible world to the extension of α in that world.

- **Proposition *p*** is the intension $[\![\alpha]\!]_{\not c} := \lambda w.\ [\![\alpha]\!]^w$ type <*s,t*>.

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- Some exercise to help you with assignment 9

Semantics vs. Pragmatics

- Semantics: **The sentence meaning** (propositions)

- Pragmatics: **The speaker meaning**. In other words, what happens when the sentence is **uttered**?

The question to start with:

What does a speaker intends to convey with uttering a sentence?

Non-literal meaning

(1) A: Do you want to go to the party tonight?

B: I'm really tired.

B's utterance of the sentence 'I'm really tired' is **asserting** the proposition [λw'. B is really tired in w'].

What does it mean to assert a proposition?

Non-literal meaning

(1) A: Do you want to go to the party tonight?
B: I'm really tired.

B wants to **convey more than just the information** that B is tired: B doesn't want to go the party.

This information is not part of the literal meaning of B's utterance;
The **speaker meaning** comes from the **discourse**.

This means, semantic meanings are affected by other non-semantic factors.

The study of **pragmatics** focus on such factors.

“Believing” and utterance: The speaker's beliefs

The attitude of “believing” stands in the center of our pragmatics theory.

Consider the sentence in (2):

(2) **Moore’s paradox:**

A: Who won the game?

B: # John won the game. I don't believe John won the game.

The sentence is pragmatically contradictory.

Normally, **speakers do not assert a sentence if they don't believe it**.

“Believing” and utterance: Forming the addressee's attitude

(3) A: Tell me something about the game.

B: # John won the game, but that’s irrelevant to our discussion

By uttering (3b), B intends to make A believe John won the game.

Otherwise, there is no point of uttering (3) at all.

Assertions

When a speaker asserts ‘that p’:

- **The speaker must believe ‘that *p*’**
- **The speaker intents to forms the addressee's attitude towards ‘that *p*’**

Certain events or acts occur via language. This is not surprising: We do things with words.

These acts can effect changes in the mental states of dialogue participants.

We call these acts **speech acts**.

Sentence force as acts performed by a speaker

When we utter something, we do *multiple* things, at least the following 3:

Locutionary acts: The act of actually uttering the words

Illocutionary acts: The act behind that utterance, i.e. the act performed in uttering something

Perlocutionary acts: The act of ‘hopefully’ that the utterance can bring out certain consequences.

An example

- Locutionary act: The basic act of utterance.

(1) A: Do you want to go to the party tonight?
B: I'm really tired.

B's utterance conveys the literal meaning of the words,

[λw'. B is really tired in w'].

An example

- Illocutionary act: The **intention** of the speaker when uttering words.

We forms an utterance with some kinds of **communicative purpose** in mind.

Utterance of declarative sentences is conventionally associated **assertion**.

B uttering ‘I’m tired’ intends to

a) **States that B believes their own utterance**
b) **inform the A about the proposition**
c) **and to make A believe the proposition**.

An example

- **Perlocutionary acts:** The effect the utterance has upon the thoughts of the listener.

When a speaker utters a sentence with a function in mind, they also intend it to have an **effect**.

B utters ‘I’m tired’ on the assumption that hopefully A will recognize B’s intention, i.e. B is too tired to go to the party.

Conventionalized speech acts

Sentence types are associated with conventions of use.

Structure	Function/Force	
Declarative	Assertion	You can have a cookie.
Imperative	Command/request/wish	Have a cookie!
Interrogative	Question	Do you want a cookie?

Variation in the illocutionary force

But the relation between sentence types and their illocutionary force are not always direct.

(4) (*B said to A during dinner:)*

Could you pass me the salt?

B is not actually wondering whether A could pass B the salt;

B wants A to pass them the salt.

(5) Pass me the salt, (please)!

Indirect illocutionary force

Context 1: A thunderstorm is forecast. A makes preparations to go outside. B utters:

(i) **There will be a thunderstorm later today.**

(ii) Don’t go outside. A thunderstorm is forecast for later today.

Warning

Context 2: B knows that A does research on thunderstorms. B utters:

(i) **There will be a thunderstorm later today**.

(ii) You should go outside. A thunderstorm is forecast for later today.

Suggestion

Making the illocutionary force overt

Can we make illocutionary force of a sentence overt?

For indirect illocutionary forces, this is strange.

Context 2: B knows that A does research on thunderstorms. B utters:

(i) #There will be a thunderstorm later today. This a suggestion.

Making the illocutionary force overt

Can we make illocutionary force of a sentence overt?

For direct illocutionary forces, it is fine.

Context 2: B knows that A does research on thunderstorms. B utters:

(i) You should go outside. This a suggestion.

Assertive speech act

For **assertive speech acts**:

- **The speaker must believe ‘that *p*’**

- **The speaker intents to forms the addressee's attitude towards ‘that *p*’**

Before making any conclusions, let's take a step back first.

Do we have to believe everything we say? e.g., lie.

The Co-operative Principle

In everyday conversation, we have **the default assumption** that:

Our interlocutors are **co-operative**. Like us, they want to use language to communicate as **efficiently** and **rationally** as possible.

Based on this intuition, Grice proposed that human conversation is guided by the general principle of cooperation:

The Co-operative 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.

The Maxims of Conversation

This cooperative principle is an umbrella term that contains mainly 4 conversational maxims:

(4) **The Maxims of Conversation**

The maxim of quality (truthfulness)

The maxim of quantity (informativeness)

The maxim of relation (relevance)

The maxims of manner (perspicuity)

The Maxims of Conversation

This cooperative principle is an umbrella term that contains mainly 4 conversational maxims:

(4) **The Maxims of Conversation**

The maxim of quality (truthfulness)

The maxim of quantity (informativeness)

The maxim of relevance (“relevance”)

The maxims of manner (perspicuity)

The Maxim of Quality

The Maxims of Quality

i. Do not assert what you believe to be false

ii. Do not assert that for which you lack adequate evidence

(5) (*s* said to *a*) It is raining.

Assume a conversation where the addressee *a* believes the speaker *s* to be a **cooperative speaker**. It follows that *a* believes *s* to obey **quality.**

B_s^w (λ*w′* . It is raining in *w′*) (by quality)

= ∀w' [w' is compatible with what s believes in w → It is raining in *w′*]

The Maxim of relevance

How to define *relevant*?

Recall what we derived for assertive speech acts:

- The speaker must believe 'that *p*'. (This matches *"**Maxim of quality**"*)
- The speaker intents to forms the addressee's attitude towards 'that *p*'

The speaker only has the intention to produce a certain opinion about *p* in the addressee when the addressee is ***unopinionated*** about *p*.

(Un-)opinionatedness and relevance

(6) A: John did not win the game.

B: # John won the game.

(6) is odd because ***A* is opinionated about *p***, i.e. *A* already knows the answer to the question whether John won the game or not.

This information from *B* is not needed and thus **irrelevant** to the discussion.

Definition of relevance

For *p* to be relevant, at least one discourse participant must be **unopinionated** about *p*, i.e., not know the answer to the question whether is *p* true in *w* or not.

(Un-)opinionatedness and relevance

(7) A: Did John win the game?
B: John won the game.

A uttered *Did John win the game*? in a conversation in *w*. This means, *A* is unopinionated about *p* that *John won the game*. *A* believes neither *p* nor *p*'s negation.

$$\neg B_x^w(p) \wedge \neg B_x^w(\neg p)$$

Therefore, the proposition *p,* [λ*w*'. John won the game in *w'*], is relevant

(by relevance)

Closure of relevance under negation

(8) A: Did John win the game?

B: John didn't win the game.

Is the negation of *p* in (8) relevant? The answer is yes.

p: [λw'. John didn't win the game in *w'*]

¬*p:* [λw'. John won the game in *w'*]

A is unopinionated about p *iff* x does not know the answer to the question about p. It is

clearly the case in (8).

Therefore, [λw'. John didn't win the game in w'] is relevant

(Closure of relevance under negation)

A more complex example

However, the current definition we have for relevance is problematic. Consider (9):

(9) A: Did John win the game?

B: $_{p}$[John didn't win the game] and (then) $_{q}$[he went home.]

A uttered a question about *p* in a conversation.

[λw'. John won the game in w'] relevant (by relevance)

$_{p}$[λw'. John didn't win the game in w'] relevant (by closure under negation)

There is nothing in A's utterance that would make *q* relevant.

But our intuition tells us B's answer is perfectly fine.

Closure of relevance under conjunction

Recall the **entailment relationship** of conjunction:

p	q	$p \wedge q$
1	0	0
0	1	0
1	1	1
0	0	0

$p \wedge q$ entails p.

Information about p is always contained in $p \wedge q$. A is unopinionated about p *entails* A is unopinionated about $p \wedge q$.

Therefore, $p \wedge q$ is relevant (by closure under conjunction)

This matches our intuitions.

Modifying “relevance”

To summarize what we observed in (9):

p is relevant. *p* ∧ *q* entails *p*. Therefore, *p* ∧ *q* is also relevant.

Cases like (9) with conjunction indicates that our old definition for relevance is too “naive” to include the entailment relation.

Modified definition of relevance with entailment:

p is relevant *iff* there is at least one discourse participant x and one proposition *q* such that *x* is unopinionated wrt. the question ‘Is *q* true in *w*?’ and *p* entails *q*.

Problems remains unsolved

However, this modified version is still not perfect. Consider (10):

(10) A: Did John win the game?
B: *(pointing at John who is sitting next to them in the bar and drinking heavily)* Well, I've never seen him so frustrated before.

A uttered a question about *p:* [λw'. John won the game in w']

So *p* is relevant (relevance)

B's reply expresses *q:* [λw'. John is extremely frustrated in w'].

Given our new definition of relevance, since *q* dosen't entail *p*, *q* should be irrelevant.

But the conversation in (10) is not odd at all. Why?

Contextual entailment

We can explain (10) with the help of **contextual entailment.**

General background knowledge and **the context *c*** entail a number of things:

- Like most people, John would get upset and frustrated if he doesn't win a game.
- Drinking heavily in a bar can be seen as a way of processing one's frustration.

It is assumed that A and B are both cooperative speakers. They should obey *relevance*. Therefore, **B won't utter something totally irrelevant**.

- if John didn't win the game, he would feel extremely frustrated and only then.

Therefore, *q:* [λw'. John is extremely frustrated in w'] **contextually entails** John didn't win the game. *q* is thus relevant.

Broadening relevance with contextual entailment

For any context *c*, world *w*, and proposition *p*, *p* is relevant in *c* if there is at least one discourse participant *x* and one proposition *q* such that *x*

is unopinionated wrt. the question Is *q* true in *w*? and *p* *contextually entails* *q*.

What makes *p* relevant?

To summarize:

- The broadened notion of relevance **with contextual entailment** and
- Different kinds of **closure requirements** (conjunction, negation...) on relevance

defines when a certain proposition is relevant or not.

You should be able to:

Make a Judgement about the relevance and prove it using the two notions above.

Exercise 1a: Disjunction and relevance

Consider the conversation in (11).

(11) A: Where is Bill now? At home? In his office? Maybe in the gym?

B: Bill is at home or in his office.

a. Try to give your answers:

What propositions are made relevant by *A*'s question?

Exercise 1a: Solutions

By uttering the question in (11), *A* intends to get information about Bill's current location between 3 options: At home, in his office and in the gym. This means, *A* is unopinionated about the question where Bill is.

A's question makes (at least) the following propositions relevant:

p: [λw'. Bill is at home in w']
q: [λw'. Bill is in his office w']
r: [λw'. Bill is in the gym in w']

Exercise 1b and 1c: Disjunction and relevance

Consider the conversation in (11).

(11) A: Where is Bill now? At home? In his office? Maybe in the gym?
B: Bill is at home or in his office.

b. Does *B*'s reply seem natural to you, i.e. is *B*'s reply *relevant*?

c. If *B*'s reply is relevant to you, try to account for the relevance first using the broadened notion of relevance **with contextual entailment.**

Exercise 1b and 1c: Hints

B's reply is a disjunctive statement p ∨ q.

Unlike p∧q, p ∨ q does not entail p, q and p∧q.

p∧q eintails p ∨ q, but not *vice versa*.

p	q	$p \wedge q$	$p \vee q$
1	0	0	1
0	1	0	1
1	1	1	1
0	0	0	0

General background knowledge and the context entails:

- Bill is a person. A person cannot be 1) at *two different places at once* and 2) *nowhere*.
- *B* is assumed to be a cooperative speaker. By quality, *B* believes Bill is at home or in his office as far as B knows and nothing else.

Can contextual entailment account for the relevance in (11)?

Exercise 1c: Hints

p: [λw'. Bill is at home in w’] is relevant

q: [λw'. Bill is in his office w’] is relevant (relevance)

¬*p*: ¬[λw'. Bill is at home in w’] is relevant

¬*q*: ¬[λw'. Bill is in his office w’] is relevant (closure under negation)

¬*p*∧¬*q:* ¬[λw'. Bill is at home in w'] ∧ ¬ [λw'. Bill is in his office w'] relevant

(closure under conjunction)

Exercise 1c: Hints

Hints: De Morgan's laws: $(P \wedge Q) \equiv \neg(\neg P \vee \neg Q)$,
$(P \vee Q) \equiv \neg(\neg P \wedge \neg Q)$.

I will provide only one of the ways to prove it.

¬*p*∧¬*q* *relevant* (closure under conjunction)

¬ *(¬p∧¬q) relevant* (closure under negation)

¬ *(¬p∧¬q) is equivalent to* pVq (De Morgan's laws)

pVq is therefore relevant

cf. Gamut 1991 chapter 2

	1	2	3	4	5	6	7
	p	q	$\neg p$	$\neg q$	$\neg p \wedge \neg q$	$\neg(\neg p \wedge \neg q)$	$p \vee q$
V_1	1	1	0	0	0	1	1
V_2	1	0	0	1	0	1	1
V_3	0	1	1	0	0	1	1
V_4	0	0	1	1	1	0	0