LIN241

Introduction to Semantics

Lecture 1

What is meaning?

What is meaning?

- Different kinds of objects can have meaning:
  - gestures (e.g. waving goodbye)
  - signages (e.g. street signs)
  - events/actions (e.g. parades)
  - ...
  - words
  - sentences
- We will only consider the meaning of linguistic expressions.

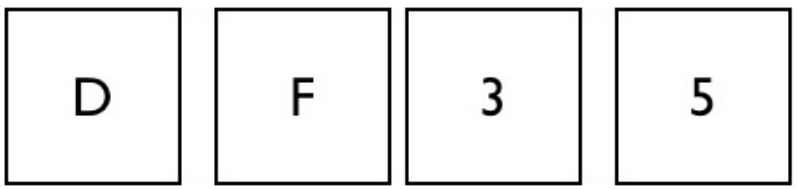
Aspects of meaning: reasoning

Should you buy stocks or options?

> Stocks **can**, and do, become worthless. But an option holder runs a much greater risk of losing the entire amount paid for the option in a relatively short period of time. This risk reflects the nature of an option as a wasting asset that is worthless once it expires. **If** the option holder does**n't** sell the option in the secondary market **or** exercise it prior to its expiration date, the holder loses the entire investment in the option.
>
> https://www.tsinetwork.ca/daily-advice/how-to-invest/7-ways-canadian-stock-options-will-cost-you-money/

Aspects of meaning: reasoning

Wason's selection task (Wason 1968, Wason and Shapiro 1971):



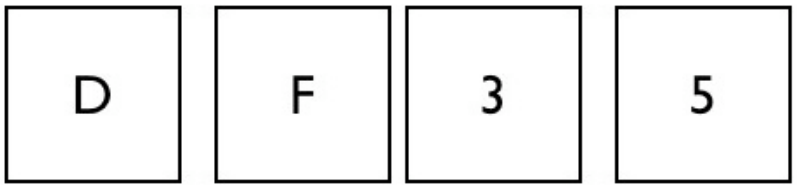
All cards have a letter on one side and a number on the other.

Which card(s) much you turn to verify the truth of the claim:

> Every card with a D on one side has a 3 on the other side.

Aspects of meaning: reasoning

Wason's selection task (Wason 1968, Wason and Shapiro 1971):



All cards have a letter on one side and a number on the other.

Which card(s) much you turn to verify the truth of the claim:

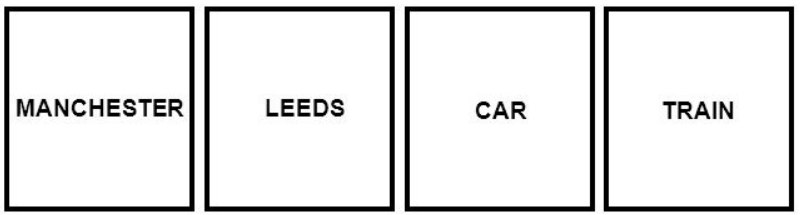
> Every card with a D on one side has a 3 on the other side.

Correct answer: D and 5.

Only 12.5% correct answers.

Aspects of meaning: reasoning

Wason's selection task (Wason 1968, Wason and Shapiro 1971):



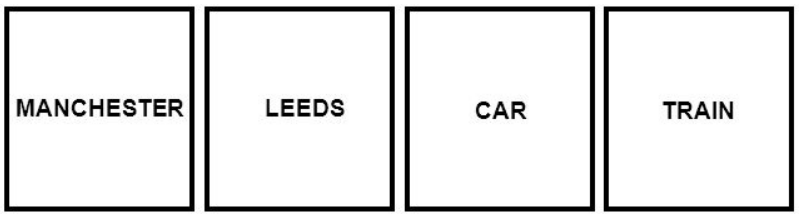
All cards have a destination on one side and a mode of transportation on the other.

Which card(s) much you turn to verify the truth of the claim:

> Every time I go to Manchester, I go by car.

Aspects of meaning: reasoning

Wason's selection task (Wason 1968, Wason and Shapiro 1971):



All cards have a destination on one side and a mode of transportation on the other.

Which card(s) much you turn to verify the truth of the claim:

> Every time I go to Manchester, I go by car.

Correct answer: Manchester and train.

62.5% correct answers.

Aspects of meaning: reasoning

- What kind of information is encoded by words like **if**, **not**, **or**?
- What kind of information is encoded by words like **can**?
- How is it integrated with grammatical knowledge?
- In natural language reasoning, how does lexical and grammatical information interact with contextual information and the general reasoning abilities of speakers?

Aspects of meaning: variation

Reduplication in Squamish (Salishan, BC; Bar-el 2008):

(1) Llha Linda na kw'elh-nexw-as kwetsi stakw
DET Linda RL spill-TR-3.ERG DEM water
"Linda spilled the water (by accident)."

(2) Llha Linda na kw'elh-kw'elh-nexw-as ta stakw
DET Linda RL spill-RED-TR-3.ERG DET water
"Linda spills the water all the time."

(3) Na lhelh-lhelh-sp'utl'em
RL RED-ingest-smoke
"He smokes."

DEM=demonstrative, DET=determiner, ERG=Ergative, RED=Reduplication, RL=realis, TR =transitivizer.

Aspects of meaning: variation

- How are different types of meaning encoded in the grammar and lexicon of languages?
- How do languages vary in this respect?
  - Are there limits to this variation?
  - Is there structure to this variation?
  - How does this variation affect translation?

The need for semantics and pragmatics

- In order to address questions like these we need to know:
  - how to represent the meaning of sentences,
  - how to represent the meaning of morphemes, words and phrases,
  - how the meaning of sentences depends on the meaning of their part and their syntactic structure,
  - how linguistic information interfaces with non-linguistic information.

Sentence Meaning

Sentences and Utterances

- A sentence is a type of linguistic expression, considered outside of its context of use.
- The utterance of a sentence is its use by a speaker in a concrete context:
  - On January 12, 2021 at noon, Chris tells Jess:

    Leave me alone!
  - On January 15, 2021 at 5pm, Jess tells Chris:

    Leave me alone!

Important concepts

- Concepts we will use to describe the meaning of sentences and utterances:
  - truth-conditions
  - entailments
  - implicatures
  - presuppositions
  - speech acts

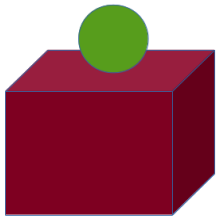
Truth-conditions

- The basic concept that we use to describe the meaning of sentences is that of the truth-conditions of a sentence.
- Consider this sentence:

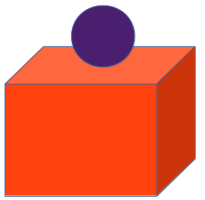
  There is a ball on top of a cube.

- Now ask yourself whether the sentence is true or false in the following situations.

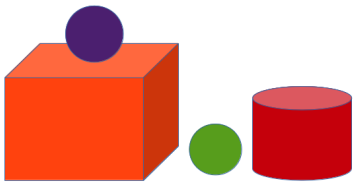
Truth-conditions



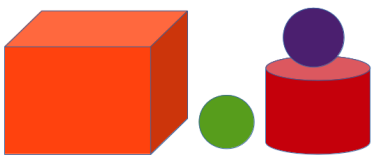
Situation 1



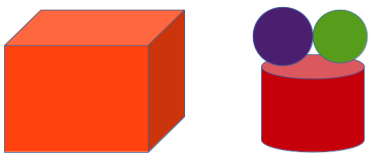
Situation 2



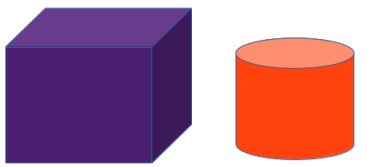
Situation 3



Situation 4



Situation 5



Situation 6

There is a ball on top of a cube.

Truth-conditions

- If you know the meaning of this sentence, you know in which situations it is true.
- Likewise, if someone can tell you in which situations the sentence is true, they know the meaning of the sentence.

Meaning as Truth-Conditions:
To know the meaning of a declarative sentence is to know the conditions in which it is true.

Entailments

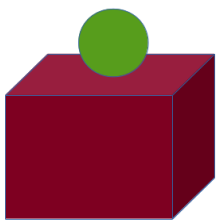
- The identification of the meaning of a sentence with its truth-conditions makes the notion of entailment relevant to semantics.
- A entails B iff every situation in which A is true is a situation in which B is true.
- This is written like this: $A \Rightarrow B$
- Watch out: even if A entails B, there may be situations in which B is true and A is false!

Entailments

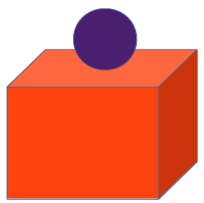
- (a) entails (b):

  (a) There is a ball on top of a cube.

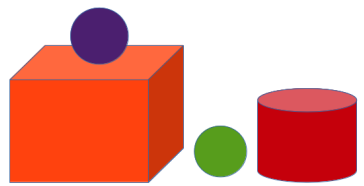
  (b) There is a cube.



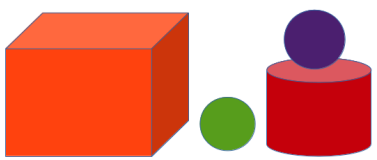
Situation 1



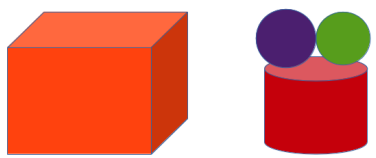
Situation 2



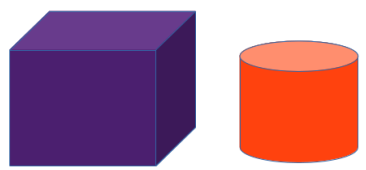
Situation 3



Situation 4



Situation 5



Situation 6

Entailments

- Consider these three sentences:

  (a) Chris is a violent criminal.

  (b) Chris is an alleged criminal.

  (c) Chris is a criminal.

Entailments

- Consider these three sentences:

  (a) **Chris is a violent criminal.**

  (b) **Chris is an alleged criminal.**

  (c) **Chris is a criminal.**

- Someone who knows the truth-conditions of (a) should be able to tell that if this sentence is true, then (c) is true.

- Someone who knows the truth-conditions of (b) should be able to tell that this sentence might be true even if (c) is false.

- (a) $\Rightarrow$ (c), but (b) $\not\Rightarrow$ (c)

Contradictions

- When two sentences cannot be true in the same situation, they contradict each other:

  (a) **Chris likes every fruit.**

  (b) **Chris does not like every fruit.**

  (c) **Chris likes bananas.**

  (d) **Chris does not like bananas.**

- (a) and (b) contradict each other, and so do (a) and (d).
- (b) and (c) do not contradict each other.
- (a) entails (c), and (d) entails (b).

Contradictions

- You can use contradictions to test for entailments.
- A entails B if and only if A and ¬B are contradictory.
- So if you want to check whether A entails B, you can show that A and ¬B are contradictory.

Contradictions

- Let us test whether (a) entails (c) and whether (b) entails (c):

  (a) **Chris is a violent criminal.**

  (b) **Chris is an alleged criminal.**

  (c) **Chris is a criminal.**

- First, we form the negation of (c), i.e. a sentence that is true whenever (c) is false:

  (d) **Chris isn't a criminal.**

Contradictions

- Then we show that (a) entails (c) by showing that the conjunction of (a) and (d) is a contradiction:

  (a) **Chris is a violent criminal.**

  (b) **Chris is an alleged criminal.**

  (c) **Chris is a criminal.**

  (d) **Chris isn't a criminal.**

  (e) #**Chris is a violent criminal but he isn't a criminal.**

  (The '#' symbol means that the following sentence is semantically unacceptable.)

Contradictions

- Finally we show that (b) doesn't entail (c) by showing that the conjunction of (b) and (d) is not contradiction:

  (a) **Chris is a violent criminal.**

  (b) **Chris is an alleged criminal.**

  (c) **Chris is a criminal.**

  (d) **Chris isn't a criminal.**

  (e) #**Chris is a violent criminal but he isn't a criminal.**

  (f) **Chris is an alleged criminal but he isn't a criminal.**

Literal and non-literal meaning

- When we try to identify the truth-conditions of a sentence, it is useful to distinguish its literal meaning from its non-literal meaning.
- Two forms of non-literal meaning of a sentence are:
  - Implicatures
  - Metaphors

Literal and non-literal meaning: implicatures

- Implicatures are a type of inference; they are a conclusion reached by reasoning about the literal meaning of a sentence.

  A: **How does Chris look?**
  B: **He is very beautiful.**

  meaning of B: literal meaning

  A': **Is Chris smart?**
  B': **He is very beautiful.**

  meaning of B': literal meaning + implicature that Chris is not smart.

Literal and non-literal meaning: implicatures

- When inferring an implicature, we try to second-guess the intentions of the speaker and use these guesses to enrich the literal meaning of the sentence.

  A': **Is Chris smart?**
  B': **He is very beautiful.**

- In the previous example, we figure that because the literal meaning of B' does not provide a relevant answer to A', the speaker means something else.

- We reason that the speaker is using an irrelevant compliment to provide a negative answer to the question in an indirect way, because answering directly would be impolite.

Literal and non-literal meaning: implicatures

- Unlike entailments, implicatures can be denied without creating a contradiction:

  A: **Is Chris smart?**
  B: **He is extremely stupid. #He is smart too.**

  A': **Is Chris smart?**
  B': **He is very beautiful. He is smart too.**

- 'Chris is extremely stupid' entails that 'Chris is not smart.' This makes answer B contradictory.

- 'Chris is very beautiful' in B' implicates that 'Chris is not smart.' This implicature can be denied without contradiction.

Literal and non-literal meaning: implicatures

- Note that 'implicature' is a technical term that describes a particular class of inferences.
- Implicatures are a form of implication: they are implied by a speaker, rather than explicitly asserted.
- In Grice's terms: implicatures are not a part of 'what is said' by the utterance of a sentence.

Literal and non-literal meaning: metaphors

- In a metaphor, the literal meaning of a phrase is used as a symbol for something else:

  Jess has a heart of stone.

- Literal meaning: Jess's heart is a solid aggregate of minerals.
- Figurative meaning: Jess has no sympathy for people.
- Metaphor: a heart of stone symbolizes the absence of sympathy.

Non-literal meaning and truth-conditions

- Note that we can give truth-conditions for both the literal meaning of a sentence and for its non-literal meaning.
- So you should not confuse truth-conditions with literal meaning.
- In this course, we will focus on literal meaning.

Presuppositions

- Sometimes, when speakers utter certain sentences, they make presuppositions.
- A presupposition is a piece of information that is presented as taken for granted when a speaker utters a sentence:

  (a) **Jess stopped smoking.**

  (b) **Jess used to smoke.**

- A speaker who utters (a) presupposes that (b) is true.

Presuppositions

- One reason to distinguish presuppositions from mere entailments is that they behave differently in non-veridical environments.
- When you put a clause in a non-veridical environment, its entailments are 'trapped' in there.
- They are not entailments of the whole sentence.

Presuppositions

- Negation is non-veridical:

  (a) **Jess likes every fruit.**

  (b) **Jess does not like every fruit.**

  (c) **Jess likes bananas.**

- (a) entails (c).
- (b) does not entail (c).
- If you negate a sentence, you lose its entailments.

Presuppositions

- Not so with presuppositions:

  (a) **Jess stopped smoking.**

  (b) **Jess did not stop smoking.**

  (c) **Jess used to smoke.**

- (a) presupposes (c).
- (b) also presupposes (c).
- Presuppositions are 'projected over the scope of negation.'

Presuppositions

- Some other non-veridical environments are:
  - the antecedent of conditional clauses:

    If Jess stopped smoking, she must be nervous.

  - certain modal expressions like 'may'

    Jess may have stopped smoking.

  - questions:

    Did Jess stop smoking?

Presuppositions and entailments

- In many cases, the presuppositions of a sentence are also entailments.
- For instance, any situation in which (a) is true is a situation in which (b) is true:

  (a) **Jess stopped smoking.**

  (b) **Jess used to smoke.**

Presuppositions and entailments

- In other cases, a sentence may have a presupposition that is not an entailment.
- For instance, we have not defined entailments for questions, yet (c) presupposes (d):

  (c) **Did Jess stop smoking?**

  (d) **Jess used to smoke.**

Speech acts

- So far, we have only looked at sentences that were used to make assertions.
- Assertions are a kind of action that you can do with sentences.
- When a speaker makes an assertion, she presents the sentence as being a true and relevant piece of information.
- But one can make other types of actions with sentences.
- One can give orders, ask questions, or make promises, for instance.