

SSP100 Class Notes

Linguistic Inference

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1 Examples of Linguistic Inference

1. a) Butch read Aspects.
b) Somebody read Aspects.
2. a) Butch read Aspects and Tiddles read Syntactic Structures.
b) Butch read Aspects.
3. a) Tiddles read Syntactic Structures.
b) Butch read Aspects or Tiddles read Syntactic Structures.
4. a) Everybody but Butch left.
b) Butch left.
5. a) Would Madame care to be seated?
b) Speaker is in a servile position towards addressee.
6. a) My bike got a puncture.
b) I'm late because my bike got a puncture.
7. a) You can get a parking permit on Serra.
b) Addressee requires a parking permit.
8. a) Priscilla answered the telephone.
b) The telephone was ringing.
9. a) It was Bill who ate the cookies.
b) There were some cookies and somebody ate them.
10. a) That's very interesting.
b) Speaker doesn't wish to upset addressee.
11. a) The King of France is bald.
b) There is a French King.
12. a) I went into a house.
b) It wasn't (or wasn't known to be) the speaker's house.

2 Entailment

Also implication, (logical) consequence, necessitation, \models , \vdash , \rightarrow , \supset . “A entails B” could be given any of the following alternative definitions:

- B follows from any utterance of A.
- Any speaker asserting A should accept B.
- Any way of making A true makes B true too.
- Any way of making B false makes A false too.
- The sentence “A and not B” (where “not B” means the negation of B) is contradictory.
- There is no model (= way things could be) such that A is true in that model and B is false.

3 Implicature

- Think of Conversational implicatures (CIs) as what you get by ‘reading between the lines’.
- CIs are inferences which arise from interplay of basic semantic interpretation and general principles of social interaction/conversation.
- In 30 years of research, no more precise definition has ever been given, although Grice initiated a research program concerned with trying to establish what the ‘general principles’ might be.

4 Relation between implicatures and entailments

- The CIs of a sentence and the entailments of the sentence are discrete sets.
- E.g. (12a) “I went into a house” entails “I went into a building”, but implicates “I went into a house other than my own”.
- Grice defined CIs to be independent of truth-conditional content, in the sense that a sentence could be true, and its associated CIs false.
- Grice envisaged a two-stage process: firstly the literal meaning of a sentence is calculated, and then the CIs are computed.

5 Cancelability of CIs

- CIs tend to be weaker than entailments, in that they are typically cancelable. That is: the speaker can *say* that the CI's are false, without contradiction.
- This provides a good diagnostic test to separate implicatures from entailments.

6 c) My bike got a puncture, but that's not why I'm late.

7 c) You can get a parking permit on Serra, but you don't really need one.

6 Presupposition

- Definitions of presupposition remain controversial.
- One standard definition is A presupposes B iff B is a necessary condition for the interpretability of A.

7 Presupposition Triggers

- Presuppositions tend to be associated with particular words or grammatical constructions, known as presupposition triggers.
- For instance, the definite article "the" is a trigger.
- There are many other trigger types, including a large class of verbs taking a propositional argument, the *factives*.
- e.g. "Sandy knew/realized/regretted that she was rich" all presuppose that she was rich. (cf. "believed", "said", "doubted")

8 The Negation test

- Presuppositions are unlike entailments and implicatures in that they tend to stay put even when a sentence is manipulated in various ways, for instance by turning the sentence into a negative.
- Observe that in cases (8), (9) and (11), the (b) sentence follows not only from the (a) sentence, but also from the (c) sentences, below. So in these cases, the (b) sentence is a presupposition of the (a) sentence.

8 c) Priscilla did not answer the telephone.

9 c) It wasn't Bill who ate the cookies.

11 c) The King of France is not bald.

9 Applying the Inference Relation Tests

Worked Example 1:

Sentence A Hermione mooded.

Sentence B Hermione made a noise.

Basic inference test On hearing A, would you typically come to the conclusion that B holds? Or, would someone who uttered A typically be committed to the truth of B? YES!

Cancelability Is “Hermione mooded but did not make a noise” coherent? NO! So probably A entails B. This discounts A implicates B, but leaves the possibility that A entails and presupposes B.

Negation Test Consider “Hermione did not moo.” (Try to keep intonation as neutral as possible!) Does it follow that Hermione made a noise? NO! So probably not a case of presupposition.

Conclusion Entailment!

Worked Example 2:

Sentence A I introduced Mary to someone.

Sentence B I introduced Mary to someone other than myself.

Basic inference test On hearing A, would you typically come to the conclusion that B holds? Or, would someone who uttered A typically be committed to the truth of B? YES!

Cancelability Note that “I introduced Mary to someone: myself!” is coherent, if a little unusual, and it doesn’t imply B.

Negation Test Consider e.g. “I didn’t introduce Mary to someone.” Does B follow? No! So probably not a case of presupposition.

Conclusion Conversational implicature!

10 Explaining implicature: Grice’s maxims

The Cooperativity Principle Make your contribution such as is required by the commonly accepted purpose of the conversational participants.

Quality Speak the truth — don’t say that which you believe to be false or that for which you lack evidence.

Quantity Make your contribution as informative as is required, and not more so.

Relevance Do not make contributions which fail to take the participants nearer the commonly accepted goals.

Manner Be perspicuous:

- Avoid obscurity
- Avoid ambiguity
- Be brief
- Be orderly

11 Using the Maxims

- Grice says that people, if they are cooperating at all, do usually follow the maxims *even if they appear not to!*
- Appearance of non-adherence to maxims can arise from looking too narrowly at what is said, and not what might be expressed.

12 Apparent Non-adherence to Relevance

A Do you have your bike with you?

B I walked in today.

B appears not to answer A's question. Taken literally, the answer is irrelevant. But if we assume that B is being cooperative, then we know B's answer must be relevant. So we guess that there is a simple rule connecting the answer to the question. Here the most *plausible* rule is: B walked in \rightarrow B does not have bike. If B was assuming this rule, and if A realizes this, then the response provides A with the information needed.

A Is the chicken good?

B I once tried one of their their entrees. Now I always go for the salad.

13 Other Maxims

Quality "Bill has a small birth-mark on his left cheek."

Indicates that speaker believes that Bill has birth-mark, and has evidence for this belief.

Quantity "17 students came to my class"

Indicates that not more than 17 came.

Manner "The prof. came in and the student left."

Indicates that student left after (or, as a result of) the prof. coming in.

14 Standard Implicatures

- In all of these cases the assumption that the speaker is following the maxims creates implicatures.
- Note that cancellation is possible:
B: I once tried one of their their entrees. Now I always go for the salad. But that's because I'm on a diet. From what I remember, the main dish I tried was pretty good.
- Implicatures arising from the assumption of adherence to maxims can be called: *standard implicatures*.

15 Flouting

- Another class of implicatures involve *flouting* or *exploiting* the maxims.
- Generally, one maxim is flouted so that another may be obeyed without conflicting with independent constraints.

16 Flouting Quality

A I'm gonna flunk this course.

B Sure, just like you flunk every course you take.

Suppose A has passed every course so far, and B knows this. Then B is flouting *Quality*. By forcing A to think about other courses taken, B conveys that A should be more optimistic.

17 Flouting Quantity

- Tautologies and truisms do not carry any information literally.
- “Boys will be boys.”
- Assuming that the speaker is being cooperative, point may be to indicate that hearer should not expect some particular boy to behave otherwise.
- “For every crime there's a criminal.”
- Speaker may indicate e.g. (a) that some particular event should be classified as a crime, and/or (b) that a hunt for a criminal will now begin.

18 Flouting Relevance

A What do you think of the prof.?

B Nice weather for the time of year.

B indicates, perhaps that the prof., or a potential snitch, is within earshot.

19 Flouting Manner

A Did you get my assignment?

B I got two pages clipped together and covered with rows of black squiggles.

B indicates, perhaps, that the assignment departed from what was expected.

20 Summary and Conclusion

- Linguistic inferences are many and varied.
- They can be categorized into entailments, presuppositions and implicatures.
- The reasoning involved may be very complex, although we accomplish most of it almost instantaneously and subconsciously.
- It will be a long time before a computer can duplicate this human ability!