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[Unit 5 Reinforcement Learning \(2 Course > weeks\)](#)

[Lecture 19: Applications: Natural Language Processing](#)

> 4. Why is NLP so hard

## 4. Why is NLP so hard

### Difficulties in NLP

[Start of transcript. Skip to the end.](#)

So overall, if you're looking in industry,



there are lots and lots of applications--  
for instance,

for search, for information extraction,  
machine translation, text generation,  
sentiment analysis.

This technology is already working,  
and you may not be even aware.

Let me just give you one example that  
not many people are



## Video

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## Natural language Ambiguities

0/1 point (graded)

Consider the following ambiguous english statement:

"Adam kissed his wife, and so did Steve"

Did Steve kiss Adam's wife or his own? This ambiguity falls under which of the following types?

Choose the most suitable option from below.

☐ Syntactic Ambiguity

☒ Semantic Ambiguity ✓

☐ Word Sense Disambiguation

☒ Ambiguity at Discourse Level (anaphora) ✗

### Solution:

Here there are clearly two semantic meanings for the given ambiguous statement making it a semantic ambiguity.

The syntax parse tree would look exactly the same for both of these interpretations ruling out the syntactic ambiguity case.

Words in this sentence may be referring to different things but they all have the very same meaning ruling out Word Sense Disambiguation.

Submit

You have used 1 of 1 attempt

 Answers are displayed within the problem

## Discussion

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**Topic:** Unit 5 Reinforcement Learning (2 weeks) :Lecture 19: Applications: Natural Language Processing / 4. Why is NLP so hard

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### [Staff] Ambiguity at the question level

question posted a day ago by [romfirst](#)

I do not get why the answer is the given one. To quote the video: "There is an ambiguity of how the pieces [are tied together] because sentences do not show up in isolation. They actually show up in a context of other sentences. And depending on who are the friends surrounding them, the interpretation may change. And this is called, in natural language processing, discourse: how the sentences tie together."

I understood that the meaning of the part "and so did Steve" was given by the context "Adam kissed his wife", which is why I thought it was a discourse-level ambiguity.

This post is visible to everyone.

[Add a Response](#)

4 responses



**sandipan dey**

about 14 hours ago



+1 (since the pronoun 'his' can refer to both Adam and Steve)



*I'm glad I'm a man, and so is Lola* is, according to [https://en.wikipedia.org/wiki/Syntactic\\_ambiguity#Examples](https://en.wikipedia.org/wiki/Syntactic_ambiguity#Examples) a syntactic ambiguity; since the given sentence given is of the same structure I think it should be a syntactic ambiguity.

posted about 11 hours ago by **EvaFlonner**



Thank you for this link, it's insightful! However, I would argue that this example is not the same. The ambiguity is between "..., and Steve kissed his own wife" and "..., and Steve kissed Adam's wife". The syntactic meaning is the same in both cases; however, the object of the action is not the same.

Conversely, in Wikipedia's example, the ambiguity is between "..., and Lola is glad I am a man", "..., and Lola is a man", and "..., and Lola is glad she is a man". The syntactic meaning of these three phrases *is* different in that case (especially the second one).

posted about 6 hours ago by **romfirst**

Add a comment

**stabuev**

about 10 hours ago



I also think this is discourse-level ambiguity but don't answer the question yet. Also 1 try is few for the question.

Add a comment

**michael x**

about 6 hours ago



I don't agree with the answer provided, either. And I love the title of this thread.

I like learning languages and sometimes I find that different theorists have different theories about grammar. For example, some people say the word "there" in the following sentence is a subject, while others claim it's not a subject :

*There is a book on the table.*

So, I'd like to say there also could be another kind of ambiguity, namely "Ambiguity at grammatical theory level" or more broadly, "Ambiguity at linguistic theory level" that might be able to explain how differently people treat the same sentence just as we can see the comments above.

Or even more broadly, "Ambiguity at definitions of ambiguity level" ... ?



That's why I like maths (and code, to a smaller extent): once things are properly defined, a lot of language ambiguity is lifted :)

posted about an hour ago by **romfirst**

Add a comment

**stabuev**

about 4 hours ago



## Difficulties in NLP



The video player displays a lecture slide titled "Ambiguity at Semantic Level". The slide content includes:

"Alice says they've built a computer that understands you like your mother"

Two definitions of mother:

- female parent
- a stringy slimy substance consisting of yeast cells and bacteria; is added to cider or wine to produce vinegar

This is an instance of word-sense disambiguation

Two red arrows point to the title and the phrase "word-sense disambiguation".

The presenter, a woman with long blonde hair, is standing in front of the slide, gesturing with her hands. A subtitle at the bottom of the video player reads: "is relatively unambiguous to all of us--".

The video player interface shows a progress bar at 5:22 / 8:00, a speed control set to 1.0x, and various icons for volume, full screen, and subtitles.

Another question is why ambiguity at semantic level and word-sense disambiguation are different options in test if by lecture word-sense disambiguation is an example of ambiguity at semantic level? And this is the only example of such ambiguity.

I think this question should be ungraded.

Add a comment

Showing all responses

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Preview

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