A Brief and Friendly Introduction to Psycholinguistics

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- How can a fixed set of knowledge and resources be deployed to manage this uncertainty?

This is the study of language processing.

And how can such knowledge and resources be learned from finite input? This is the study of language acquisition.

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What is "language processing"?

- Language processing is the study of how humans comprehend and produce language (sentences, words within sentences, and sequences of sentences, etc.) in real time.
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What is "language acquisition"?

 Language acquisition is the study of how humans acquire knowledge of their native language (as infants and as children)

Today

In this talk I'll focus on language comprehension, and then discuss a bit about language production.

Theoretical Desiderata

Realistic models of human sentence comprehension must account for:

- Language has structure
- Robustness to arbitrary input
- Accurate disambiguation
- Inference on basis of incomplete input (Tanenhaus et al., 1995; Altmann and Kamide, 1999; Kaiser and Trueswell, 2004)
- Processing difficulty is differential and localized

The colored word sequences all have something in common:

- ► The girl gave the dog a big sloppy kiss.
- I gave the dog a big sloppy kiss.
- Every boy on the left side of the room gave the dog a big sloppy kiss.
- ► The teacher of this class gave the dog a big sloppy kiss.

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In linguistics, this commonality is that the colored word sequences are all of the same **phrase type**.

In this case, the phrase type is called a **noun phrase**. Languages have many different phrase types, and we can describe the grammar of a languages in how its phrase types come together.

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Robustness

Real linguistic input is not always totally well-formed...

I think when she finally came to the realization that, you know, no, I can not, I can not take care of myself.

I mean, for somebody who is, you know, for most of their life has, has, uh, not just merely had a farm but had ten children had a farm, ran everything because her husband was away in the coal mines.

And, you know, facing that situation, it's, it's quite a dilemma.

... but usually we come to understand it pretty well anyway.



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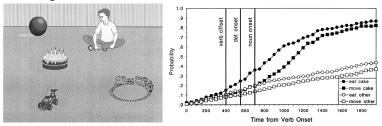


That's probably not what you were thinking of...



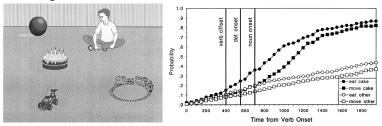


"The boy will eat/move the cake..."



"The boy will **eat/move** the cake..."

Comprehenders do not wait until the whole sentence has been heard to make inferences about what it means or will wind up meaning:



"The boy will eat/move the cake..."

That is, comprehension is incremental



Processing difficulty is differential

Using multiple relative clauses in a sentence can make processing difficult:

This is the malt that the rat that the cat that the dog worried killed ate.

It's not the meaning of the sentence, or the use of relative clauses, that makes it hard:

This is the malt that was eaten by the rat that was killed by the cat that was worried by the dog.

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Did you believe that this sentence was English?

This is the malt that the rat that the cat that the dog worried killed ate.

Consider this simple example: This is the cat that the dog worried.

And this one:
This is the rat that the cat killed.

Which cat did the killing? Suppose it was the cat that the dog worried.

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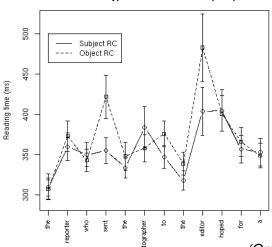
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[self-paced reading demo, Example1]

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Word-by-word reading times for sentences with different types of relative clauses (RCs)



(Grodner and Gibson, 2005)



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- ▶ Why would this be the case?

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References I

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