

What happens when you hear a sentence?

---

---

---

---

---

---

---

## Parsing

- Assigning the elements of a sentence to linguistic categories.
- The process by which we decide where to place incoming words into the phrase-structure we're building.

---

---

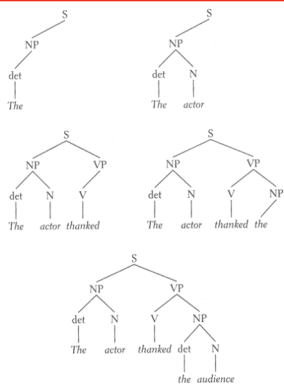
---

---

---

---

---



From DW Carroll (1999) Psychology of language, 3rd ed.

---

---

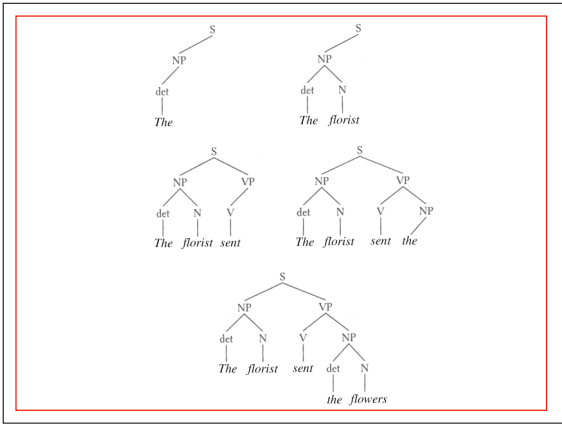
---

---

---

---

---




---

---

---

---

---

---

---

---

**Ambiguous sentences**

- Just and Carpenter's immediacy principle

---

---

---

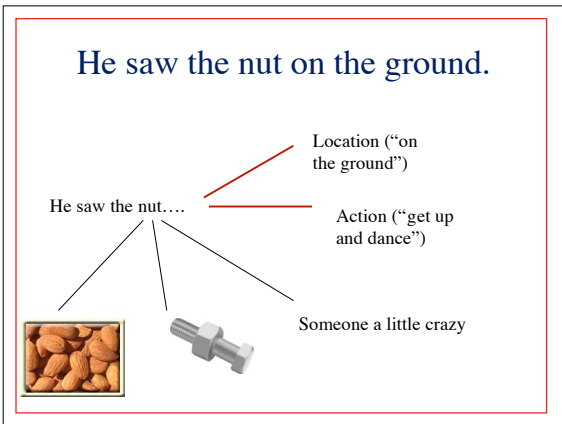
---

---

---

---

---




---

---

---

---

---

---

---

---

## Garden path sentences

- Sentences we interpret in a particular way, and then only later realize that we misinterpreted.
- Produce the impression that we've been led astray, and need to go back to reinterpret.
  - Eye-tracking studies find evidence that we do just that.

---

---

---

---

---

---

---

---

## Strategies for basing decisions

- **Late closure strategy**
  - Whenever possible, we prefer to attach new items to the current constituent.
  - This reduces the burden on memory.

*Tom said that Bill had taken the cleaning out yesterday.*

- Yesterday could be attached to either the main clause or the subordinate clause.
- But we tend to prefer the subordinate clause– the clause we're currently in the middle of.

---

---

---

---

---

---

---

---

## Strategies for basing decisions

- **Minimal attachment principle**
  - We prefer attaching new items into the phrase structure using the fewest syntactic nodes.

*Ernie kissed Marcie and her sister...*

- “And her sister” could be a conjunction (both Marcie and her sister were kissed) or as the start of a new NP.
- We tend to prefer the former.

---

---

---

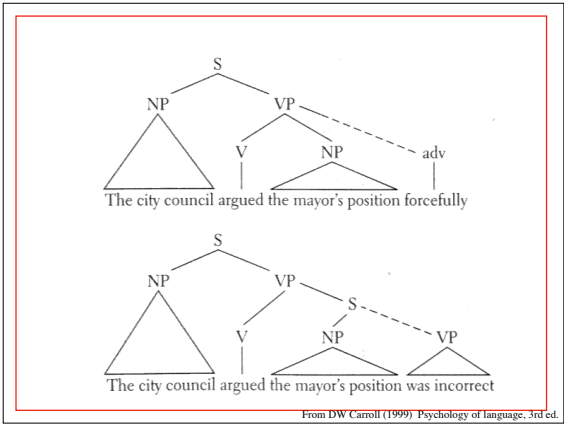
---

---

---

---

---




---

---

---

---

---

---

---

---

### Modular vs. interactive models

- Parsing strategies such as late closure & minimal attachment only include syntactic information.
  - No influence of semantics or other top-down information.
  
- Or, do we use all information available to us?

---

---

---

---

---

---

---

---

### Modular vs. interactive models

*The florist sent the flowers was very pleased*

- Minimal attachment suggests that “sent” is a verb, rather than being the beginning of a relative clause.
- This leads to confusion later on.

- But florists are more likely to send flowers than to receive them.

*The performer sent the flowers was very pleased.*

Rayner and colleagues

---

---

---

---

---

---

---

---

### Biasing paragraph context

- Ferreira & Clifton (1986):

*The editor played the tape and agreed it was a big story.*

- This one can be parsed by minimal attachment

*The editor played the tape agreed it was a big story.*

- This one cannot.

- Should get a garden path for 2<sup>nd</sup> sentence.
- Then put them in one of two contexts:

---

---

---

---

---

---

---

---

### Biasing paragraph context, cont.

*John worked as a reported for a big city newspaper. He sensed that a major story was brewing over the city hall scandal, and he obtained some evidence that he believed pretty much established the mayor's guilt. He gave the tape to his editor and told him to listen to it.*

- This paragraph biases towards the minimal attachment interpretation.
- It should still lead to a garden path.

---

---

---

---

---

---

---

---

### Biasing paragraph context, cont.

*John worked as a reported for a big city newspaper. He sensed that a major story was brewing over the city hall scandal, and he obtained some evidence that he believed pretty much established the mayor's guilt. He ran a tape for one of his editors, and he showed some photos to the other.*

- This paragraph biases away from the minimal attachment principle.

---

---

---

---

---

---

---

---

**But semantics can play a role**

*The defendant examined by the lawyer turned out to be unreliable.*

Versus

*The evidence examined by the lawyer turned out to be unreliable.*

---

---

---

---

---

---

---