

Is language innate?

- Humans seem to have a unique ability to learn language without instruction
- Some aspects of language have a **critical period**
- The child's linguistic input, by itself, does not seem to be sufficient for the child to figure out the rules (**poverty of the stimulus**)
- Only universal grammar is innate; details specific to each language have to be learned

- **Phonology**: Study of **sounds** of language
Consonants, vowels, variations among languages...
- **Morphology**: Construction of words out of units that carry meaning (morphemes)

e.g. **Reviewed** = **re** [again] + **view** [look at] + **ed**
[past tense] = *looked at again*

- **Syntax** (grammar): Ordering of words to form sentences

The dog bit the man vs. The man bit the dog

- **Semantics**: Meaning and logical form
- **Pragmatics**: practical aspects of conversations

What did he/she probably mean by that?

What am I supposed to say next?

Syntax

- Abstract rules for creating “legal” sentences
- A **generative grammar** is a system for producing **all and only** the legal structures in the given language
- Example: **Rewrite rules**

Abstract linguistic rules and internal mental symbols

- The **dog** chased the cat
- The **tree** chased the cat
- The **pineapple** chased the cat
- ... etc....
- The **NOUN** chased the cat
- NOUN is an abstract internal category
- How do we generalize this idea to encompass more complicated sentence structures?

$S \rightarrow NPVP$

$NP \rightarrow \text{det AdjP N}$

$VP \rightarrow V NP$

$\text{AdjP} \rightarrow \text{Adj AdjP}$

$\text{AdjP} \rightarrow _$

$N \rightarrow \text{cat}$

$N \rightarrow \text{boy}$

$V \rightarrow \text{smelled}$

$V \rightarrow \text{saw}$

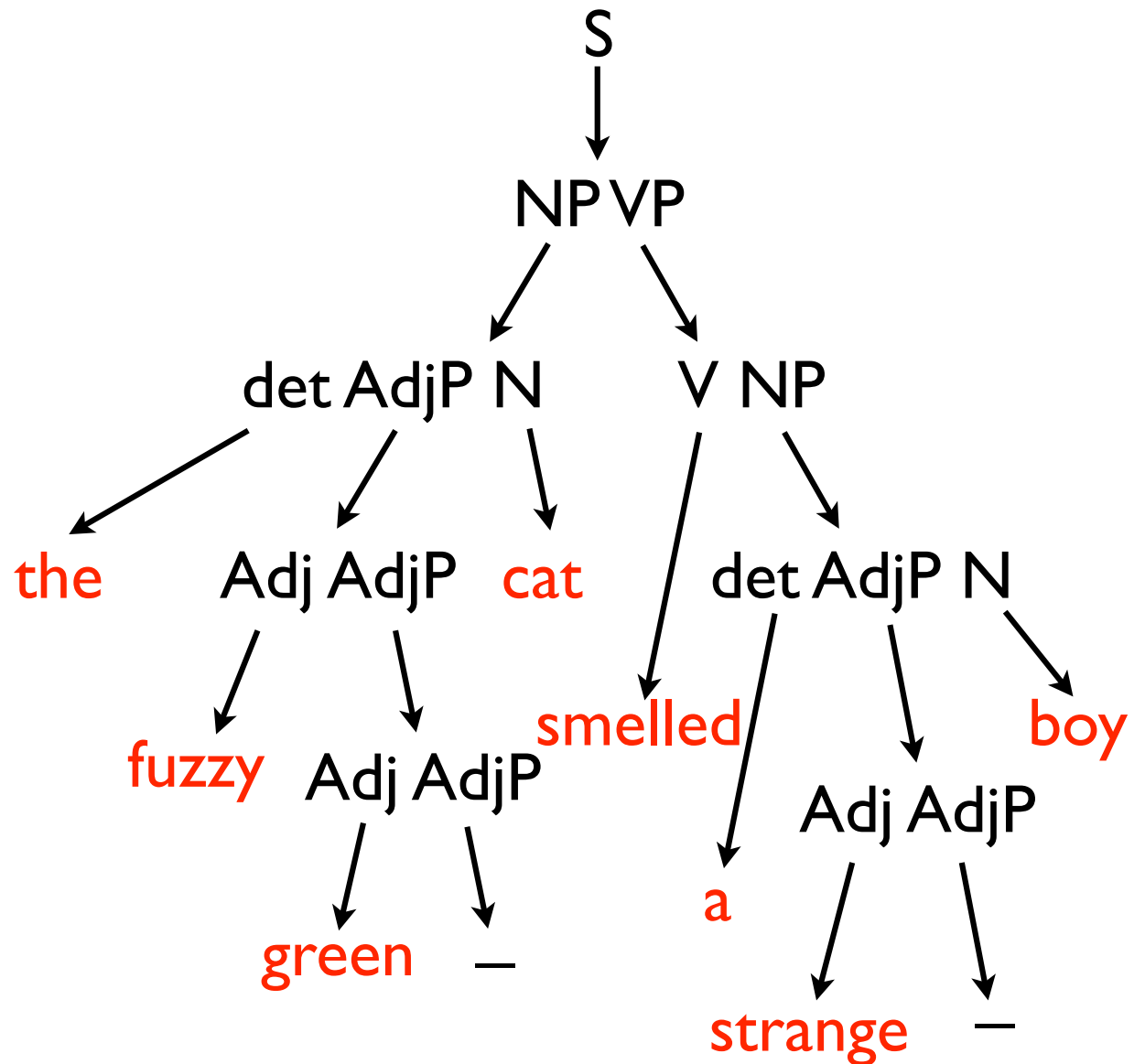
$\text{Adj} \rightarrow \text{fuzzy}$

$\text{Adj} \rightarrow \text{strange}$

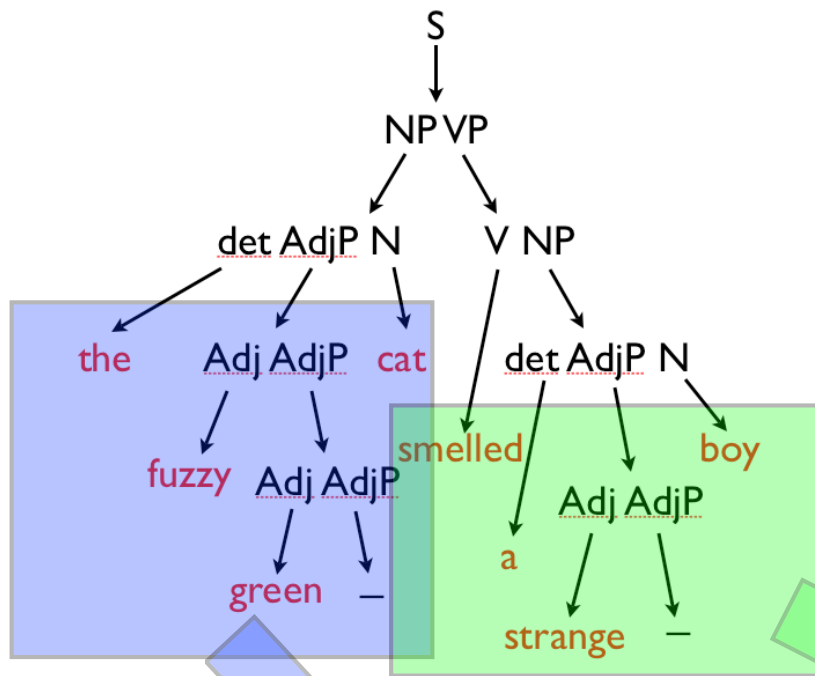
$\text{Adj} \rightarrow \text{green}$

$\text{det} \rightarrow \text{the}$

$\text{det} \rightarrow \text{a}$



Hierarchical structure in syntax



Tone localization experiments seemed to confirm the “psychological reality” of these boundaries.

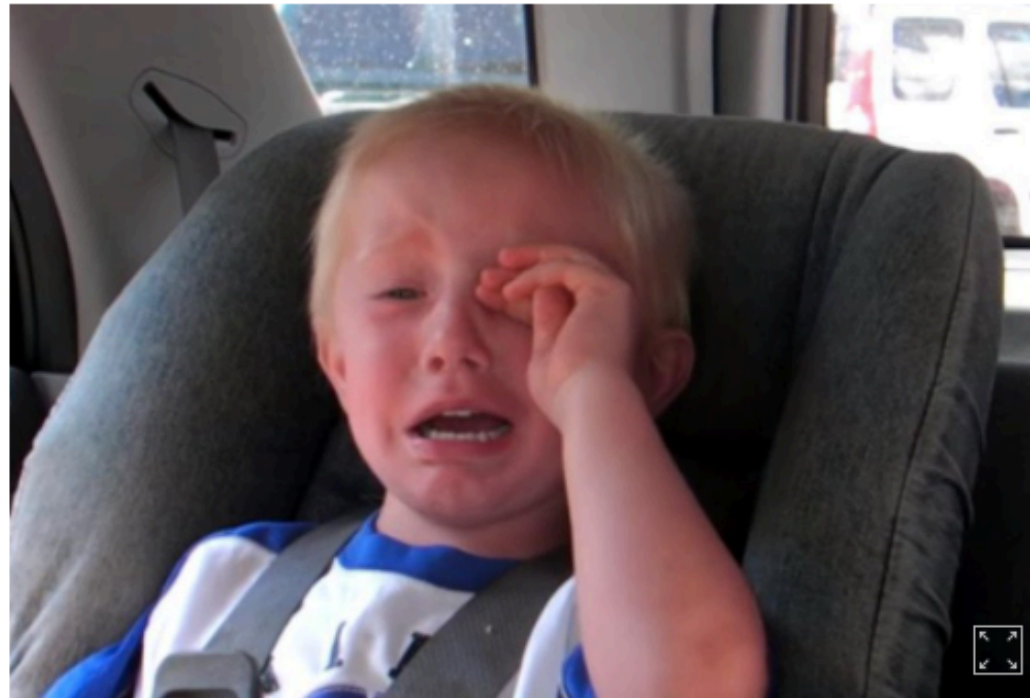
[The fuzzy green cat] [smelled [a strange boy]]

Syntactic ambiguity

- Syntactic ambiguity occurs when a sentence can be parsed (assigned a tree structure) in **two or more different ways**
 - *Time flies like a river*
 - *I killed a huge lion in my pajamas*
 - *The girl hit the dog with the stick*
 - *I like chocolate more than my wife*

'Bear right' GPS message terrifies bear-fearing boy

By [Ben Hooper](#)



A young boy is terrified after his sister misinterpreted a "bear right" GPS instruction as a warning about a bear on the right side of the vehicle. Screenshot: JukinMedia

COLORADO SPRINGS, March 31 (UPI) -- A couple perplexed by their
