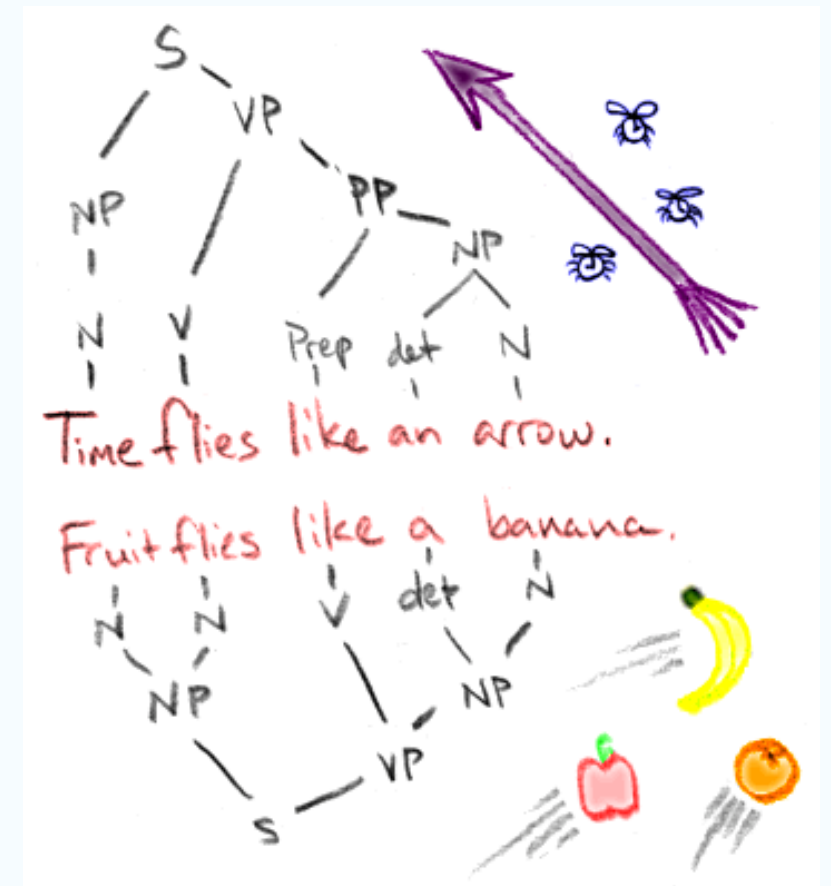




# Syntax I: From words to phrases

Reading: FRH Ch. 3

PLIN0006: Introduction to Language



Question:

How are words of a language combined  
into sentences?



# Three Basic Observations

- 1) Words combine to form sentences.
- 2) The process of combination is **unbounded**.
- 3) The process of combination is **constrained**.

# Unboundedness: Relative Clauses

- [<sub>S</sub> The world is round]
- [<sub>S</sub> **Galileo said that** [<sub>S</sub> the world is round]]
- [<sub>S</sub> **Sue thinks that** [<sub>S</sub> **Galileo said that** [<sub>S</sub> the world is round]]]
- [<sub>S</sub> **It is clear that** [<sub>S</sub> **Sue thinks that** [<sub>S</sub> **Galileo said that** [<sub>S</sub> the world is round]]]]]
- etc.

# Unboundedness: Possession

- My friend laughed.
- My friend's **cousin** laughed.
- My friend's **cousin's colleague** laughed.
- My friend's **cousin's colleague's wife** laughed.
- etc.

# Unboundedness: Coordination

- Sue left.
- Sue **and John** left.
- Sue, **John, and Jim** left.
- Sue, **John, Jim, and Anne** left.
- etc.

# Constraints on Combination

- John died                      *but*              \*Died John
- The woman smiled              *but*              \*Woman the smiled
- He ate an orange              *but*              \*He ate orange

# Word-Level Account

- **Account #1 (word-level):**

Knowing how to form sentences means knowing which words can combine with each other, and in which order.

- **Stating what may combine:**

‘John’, ‘Mary’, and ‘Sue’ may combine with ‘died’, ‘ate’, ‘talked’, ...

- **Constraints on combination:**

‘died’, ‘ate’, and ‘talked’ may not precede ‘John’, ‘Mary’, ‘Sue’, ...



# Unboundedness on the Word-Level

- Let us assume two rules of combination:
  - 1) 'thinks' and 'said' may precede 'that'
  - 2) 'that' may precede 'Galileo' and 'Sue'
- This is sufficient to build unbounded sentences.

- Example:

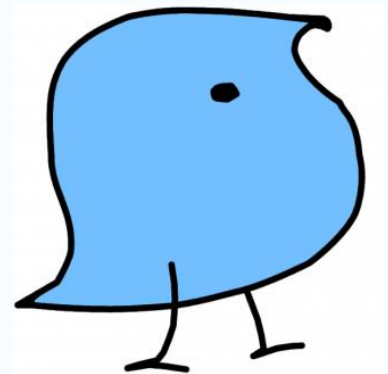
'Sue said that Galileo thinks that Sue thinks that Galileo said that.'

# Problems with Word-Level Unboundedness

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The word-level account cannot be correct:

- Missed generalisation: entire categories of words exhibit **identical** combinatorial properties.
- Children make this generalisation during acquisition.
- Adult humans also make this generalisation when taking a variant of the **wug test**.



# Word-Class Based Account

- **Account #2 (word-class based):**

Knowing how to form sentences means knowing which **word classes** (i.e. grammatical categories) can combine with each other, and in which order.

- **Stating what may combine:**

Nouns (e.g. 'John') may combine with intransitive verbs (e.g. 'died').

- **Constraints on combination:**

Intransitive verbs may not precede nouns.

# Unboundedness with Word Classes

- Let us assume two rules of combination:
  - 1) A sub-class of verbs (including 'say', 'think') may precede complementisers (e.g. 'that').
  - 2) Complementisers may precede determiners and nouns.
- This, again, is sufficient to build unbounded sentences.
- Example:

'John knows that Sue said that Galileo thinks that he knows that.' **13**

# Problems with Word-Class Based Accounts

- The account is clearly superior to the word-level account, it allows us to capture some generalisations.
- However, it still fails to capture some class-based generalisations:
  - ‘John bit the apple.’
  - ‘John bit Sue.’
- What generalisation can we make about ‘the apple’ and ‘Sue’?

# Phrasal Account

- **Account #3 (phrasal):**

Knowing how to form sentences means knowing which grammatical categories can combine to form **phrasal categories**, and in what order, and knowing how to combine phrases into larger phrases.

- **Stating what may combine:**

$NP \rightarrow (Dem) (Num) (Adj) N$

- **Constraints on combination:**

Within an NP, (Dem) (Num) and (Adj) must precede N.

# Unboundedness with Phrases

- Let us assume two phrase-structure rules:

1)  $S \rightarrow (C) NP VP$

2)  $VP \rightarrow V (NP) (PP/S)$

- This system is able to now fully capture the class generalisation. Phrasal rules can **generate** unbounded sentences.

- Example:

[<sub>S</sub> Sue [<sub>VP</sub> told [<sub>NP</sub> Jim] [<sub>S</sub> that [<sub>NP</sub> Galileo] [<sub>VP</sub> said [<sub>S</sub> that [<sub>NP</sub> the world]  
[<sub>VP</sub> is round]]]]]]]]

# Summary: Sentence Formation

- Words are grouped into word classes (grammatical categories)
- Grammatical categories combine with one another to form larger and larger phrases, which also have a category.
- The way phrases are combined produces **hierarchical structure**, but **linear order** is also relevant.
- Speakers must know how the words in one's language can be linearly and hierarchically grouped.