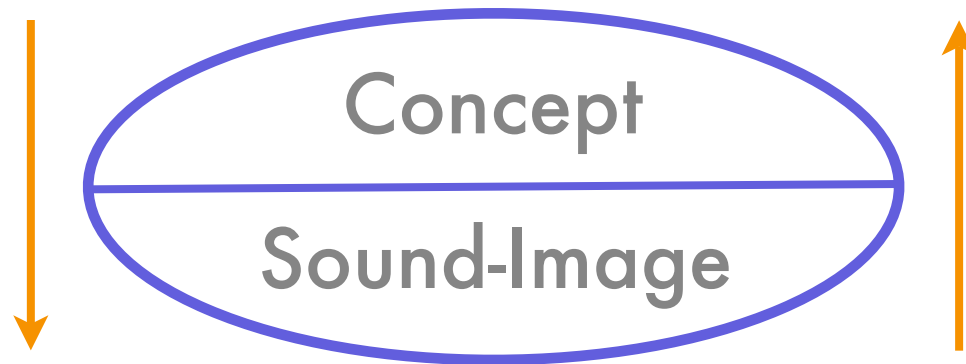# Introduction

LIGN 170, Lecture 1

What is language?

- What kinds of things do words refer to?

- Plato: Words refer directly to real world

  - Toronto, Bill Clinton ...

- What about things with no concrete real world existence?

  - red, anxiety, philosophy, unicorn ...
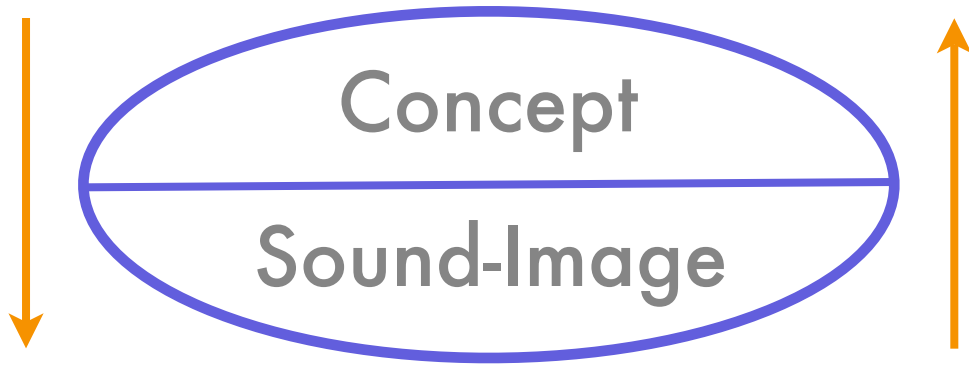
- Mapping words to concepts

Concept / Sound-Image

de Saussure (1857-1913)

- No direct reference to real world needed

  - *Really* mapping mental representations of words and mental representation of concepts

- Different sounds, same category

/t/	actual sound
pot	*aspirated*
stop	*unaspirated*
potter	*flap*
button	*glottal stop*

Concept

Sound-Image

- Real world?

  - Toronto - never been there

  - Bill Clinton - never met him

Warsaw, Poland

Other concepts from de Saussure

- Langue vs. Parole

  - Langue: Knowledge that group of speakers shares about their language

  - Parole: Actual use of language

- Competence vs. Performance

  - Grammatical judgments: Competence

  - Actual language use: Performance

Properties of language

- Arbitrariness

- Displacement

- Productivity

- Duality of Patterning

- Traditional Transmission

from Charles Hockett (1960)

What must language users know how to do?

| Comprehension	Production
Words detected from sounds	Idea of message formed
Word meaning determined	Words selected
Structure analyzed	Words placed in structure
Message interpreted	Message produced

Phonology

- Articulatory phonetics: Actual sounds

Phonology

- Articulatory phonetics: Actual sounds

- Phonemes: Meaningful sound distinctions within a given language

  - right vs. light: /rait/ vs. /lait /
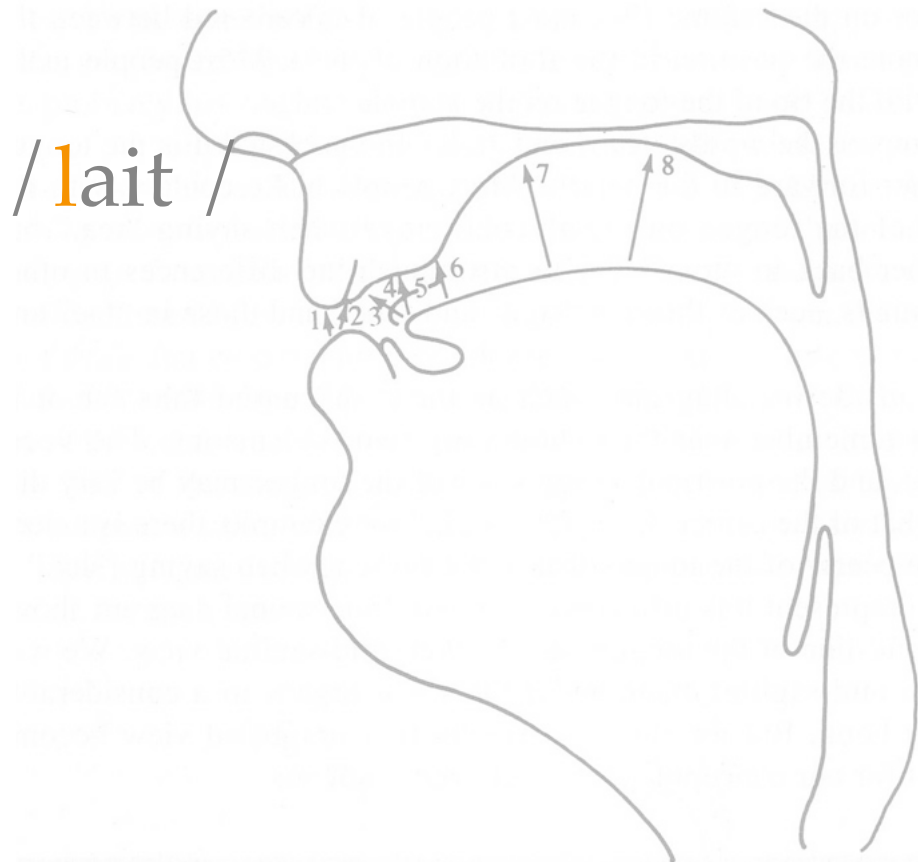
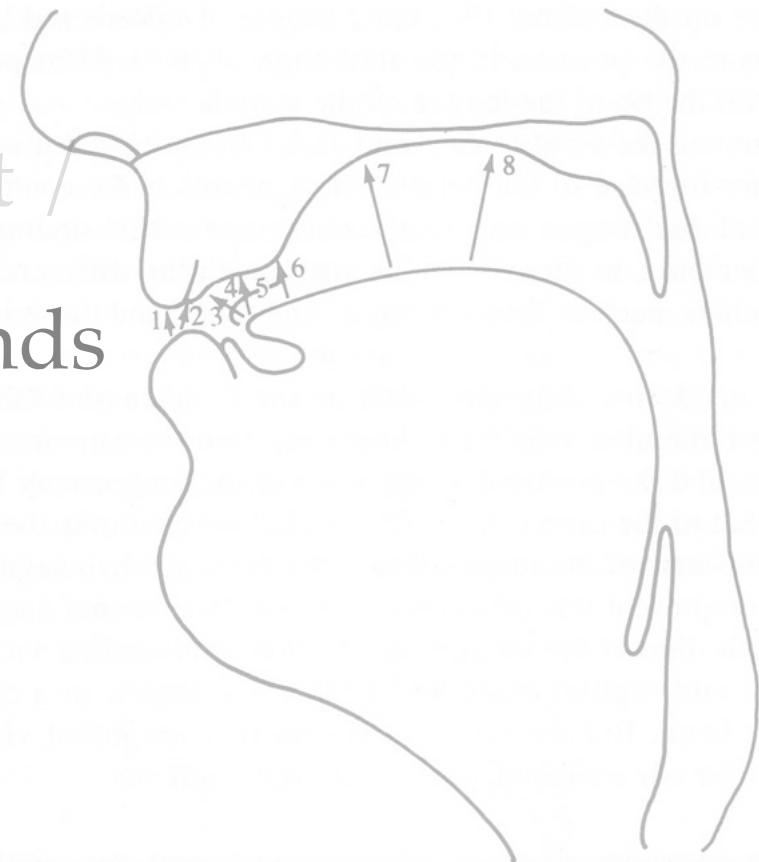# Phonology

- Articulatory phonetics: Actual sounds

- Phonemes: Meaningful sound distinctions within a given language

  - right vs. light: /rait/ vs. /lait /

- Phonotactics: Sequence of sounds

  - trip, trep, tlip

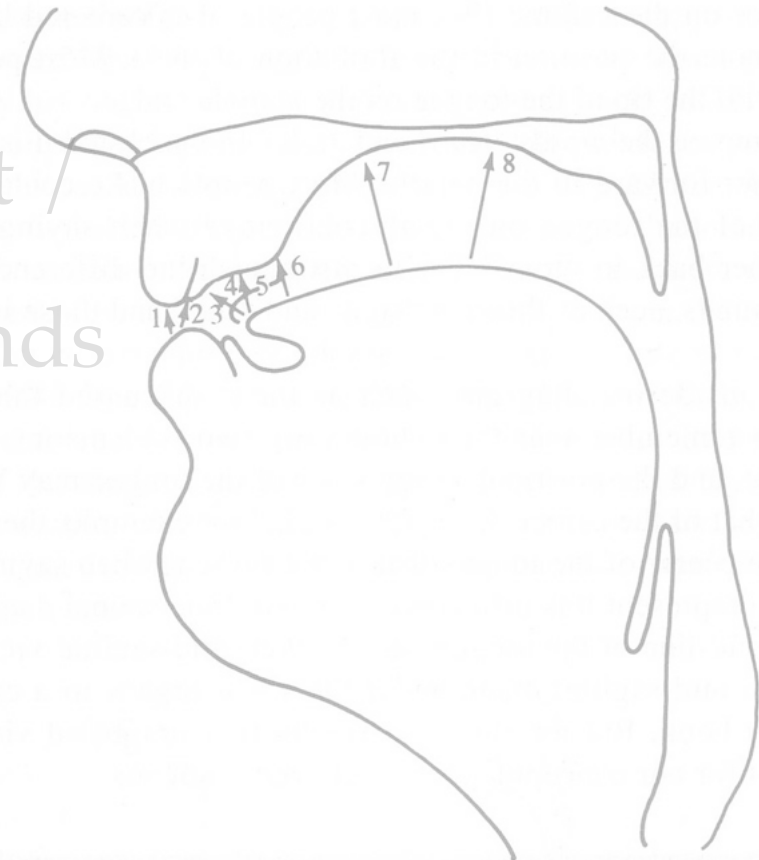 - tlip vs. little: /tlIp/ vs /lItl /

Phonology

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  - tlip vs. little: /tlIp/ vs /lItl /

- Prosody: intonation

Semantics/The lexicon

- Study of meaning

- Lexicon: Mental dictionary

  - Set of the words we know

    - Meaning and Sound

    - Regular vs. irregular

    - Content word vs. function word

    - Open vs. closed-class

    - Frequency of occurrence

- The organization of the lexicon has been debated considerably:
  - How are the entries organized?
  - What information is used to determine meaning?
  - What makes a cup and cup and not a glass?
  - How do we know prototypical examples of categories (Birds: robins vs penguins)?
  - How are words with multiple meanings handled?
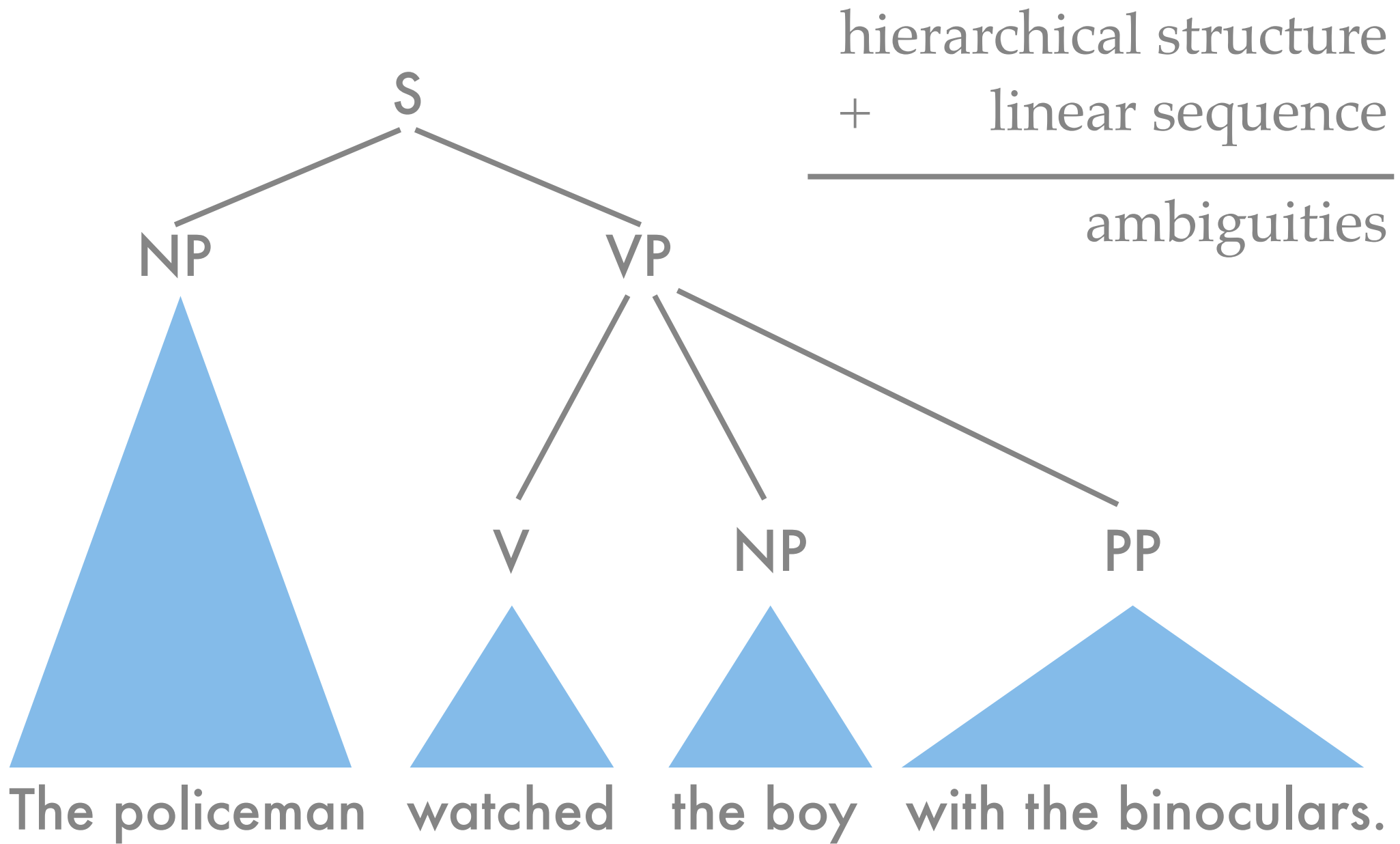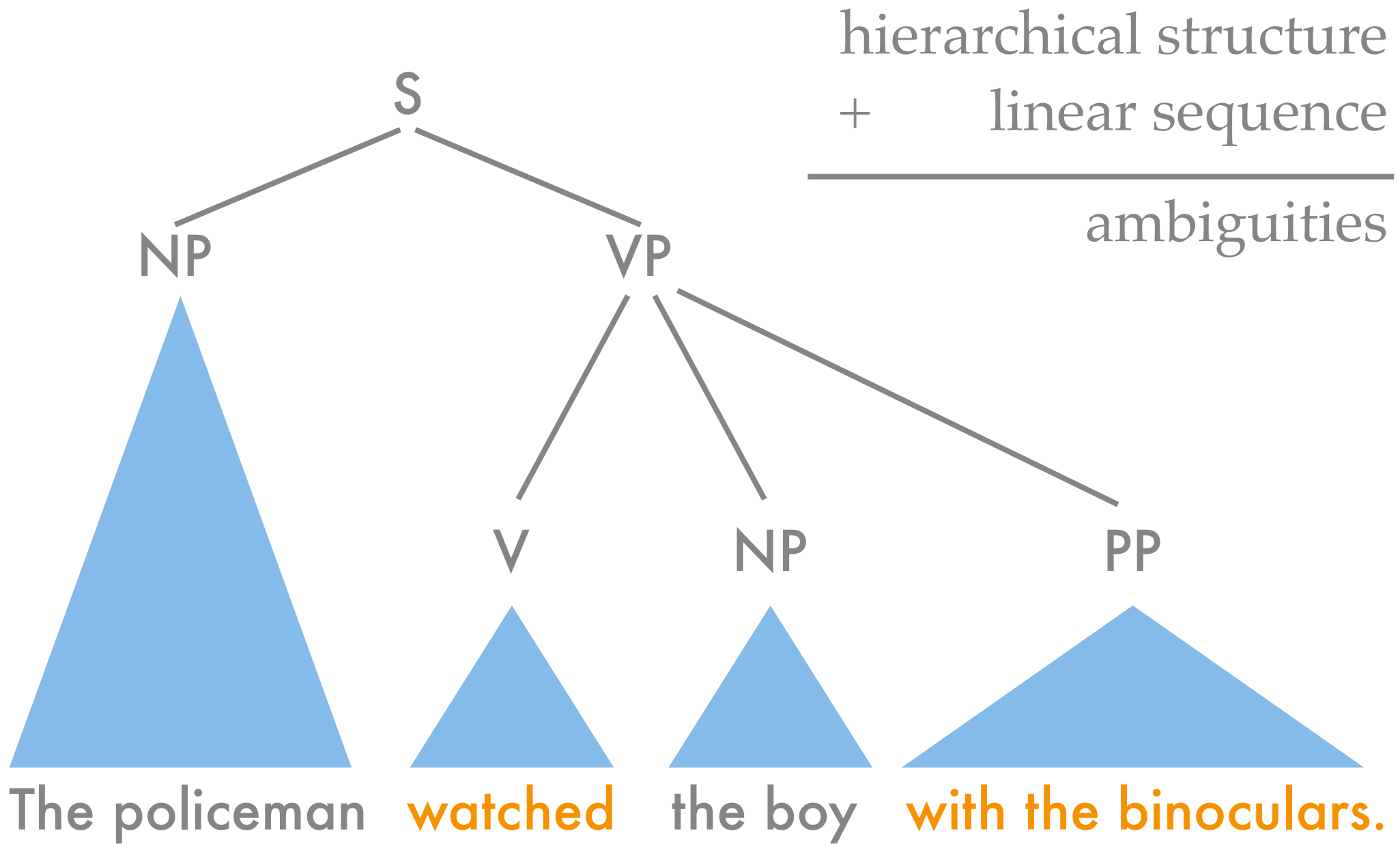
Morphology

- Morpheme: Smallest unit of meaning

  - Free vs. bound morphemes

  - Derivational morphemes

    - govern --> government

  - Inflectional morphemes

    - run --> runs

  - Rule-based vs. irregular morphology

Syntax

- Putting words together in a rule-based system

- Encoding hierarchical relationships between words

- *Boy the policeman binoculars watch the with.

- Word order vs. morphology
- Old English:
  - Se man sloh pone kyning.
  - The man slew the king.
- Modern English:
  - He kissed her.
  - *Her kissed he.

hierarchical structure
+
linear sequence
―――――――――――――
ambiguities

S
NP   VP
V   NP   PP

The policeman   watched   the boy   with the binoculars.

hierarchical structure
+   linear sequence
─────────────────────
ambiguities

$$\frac{\text{hierarchical structure} + \text{linear sequence}}{\text{ambiguities}}$$

S
NP VP
The policeman
V NP
watched
NP PP
the boy with the binoculars.

hierarchical structure

+   linear sequence

_____

ambiguities

S

NP   VP

NP   PP

V   NP

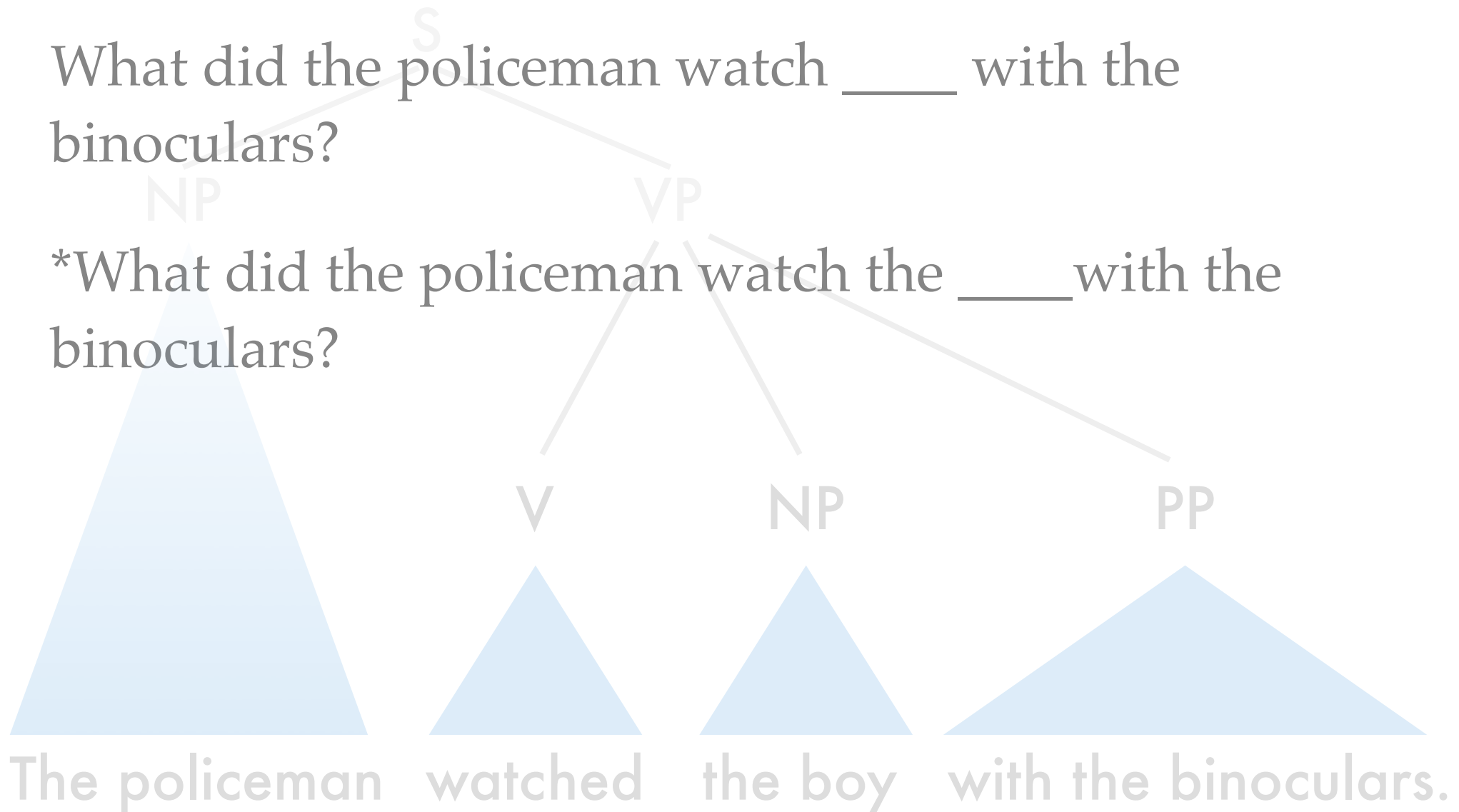The policeman   watched   the boy   with the binoculars.

The boy, the policeman watched with the binoculars.

*Boy, the policeman watched the with the binoculars.

What did the policeman watch ____ with the binoculars?

*What did the policeman watch the ____with the binoculars?

S

NP   VP

V   NP   PP

The policeman   watched   the boy   with the binoculars.

Pragmatics & Discourse

- Language use in real world situations

- Tasks we use it for

- How different contexts change (for example)

  - Use of pronouns

  - Use of different syntactic constructions

  - Use of different registers

Meta-linguistic ability

- Ability to

  - Play with language

  - Understand that you've understood

  - Make judgments about language use

  - Ask yourself: Did I just say that?!

- Develops after acquisition of core language abilities

Relevant concepts from psychology

- Working Memory (short-term)

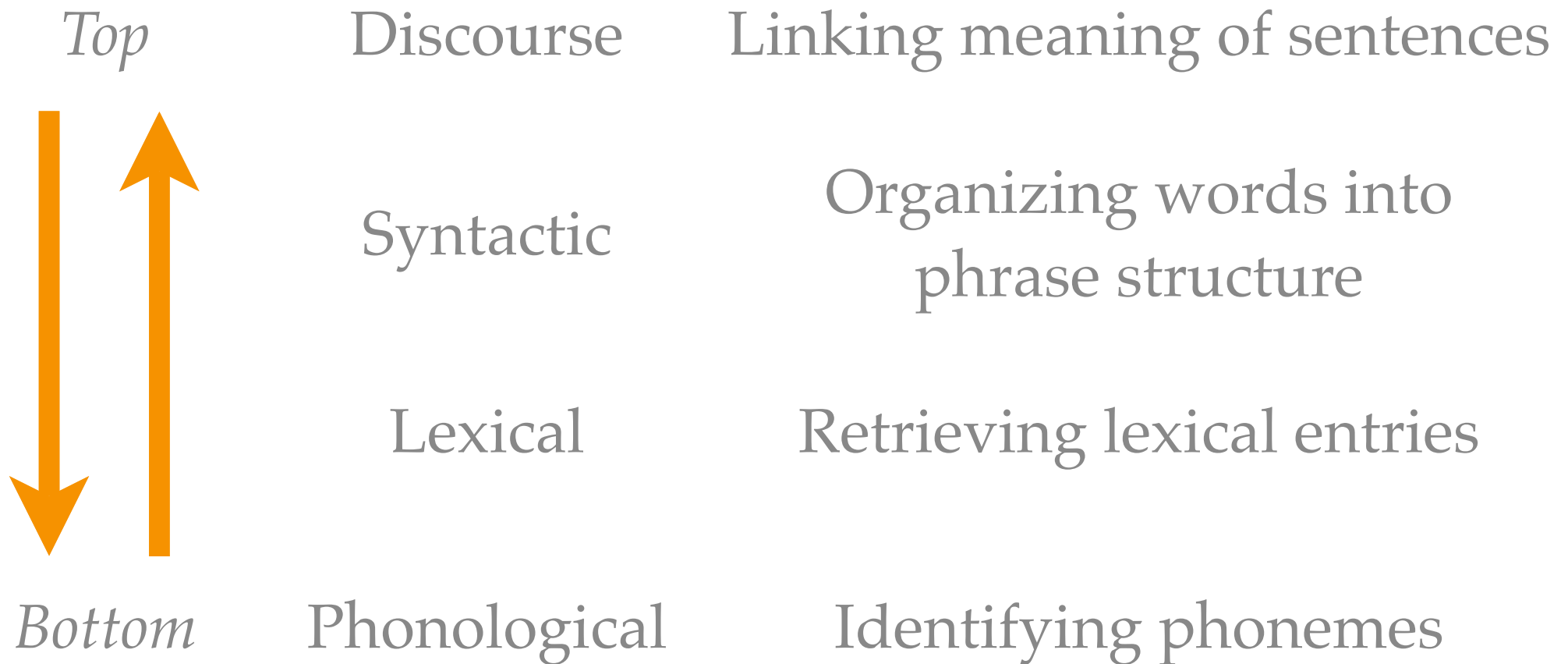 - Total amount of resources we may devote to task

Relevant concepts from psychology

- Working Memory (short-term)

  - Total amount of resources we may devote to task

- Permanent Memory (long-term)

  - Semantic memory - organized knowledge of words, concepts, symbols

  - Episodic memory - record of personal experiences

Serial vs parallel processing

- How does functioning within one process work?

  - Example: Do we search for words one at a time in the lexicon?

- How do different processes interact, if at all?

  - Example: Syntactic processes completed before semantic processes begin?

Bottom-up vs Top-down

Top   Discourse   Linking meaning of sentences

Syntactic   Organizing words into phrase structure

Lexical   Retrieving lexical entries

Bottom   Phonological   Identifying phonemes

Automatic vs. Controlled

- Automatic processes

  - Do not take up many cognitive resources

  - Difficult to influence

- Controlled processes

  - Do take up cognitive resources

  - Can be influenced

Modularity

- How independent from other cognitive systems is the language system?

  - Completely separate -- can be reduced to general cognitive principles.

- How modular are different processes within language?

- Processes completely isolated from each other -- processes completely interact

So, why study all this?

- Language is uniquely human

- Language is complex yet very fast

- Language is an important cognitive function

- Practical benefits: Pedagogy and therapy

  - Language/writing development

  - Second language learning

  - Language recovery

  - Dealing with cross-cultural breakdowns