



Chapter 2, sections 2.1-2.3:
First Attempts at a Theory of Grammar

Acceptability *vs.* Grammaticality

- A sentence is **acceptable** if native speakers say it sounds good.
- A sentence is **grammatical** (with respect to a particular grammar) if the grammar licenses it.
- Linguists are sometimes sloppy about the difference.

Competence vs. Performance

- The Distinction

- Competence - knowledge of language
- Performance - how the knowledge is used

- Examples

That Sandy left bothered me.

That that Sandy left bothered me bothered Kim

That that that Sandy left bothered me bothered Kim bothered Bo

The horse raced past the barn fell

Simple Theories of Grammar

- A list of sentences
- Regular expressions/finite state grammars
- Context-Free Phrase Structure Grammar

Regular Expressions

- *the noisy dogs left*

D A N V

- *the noisy dogs chased the innocent cats*

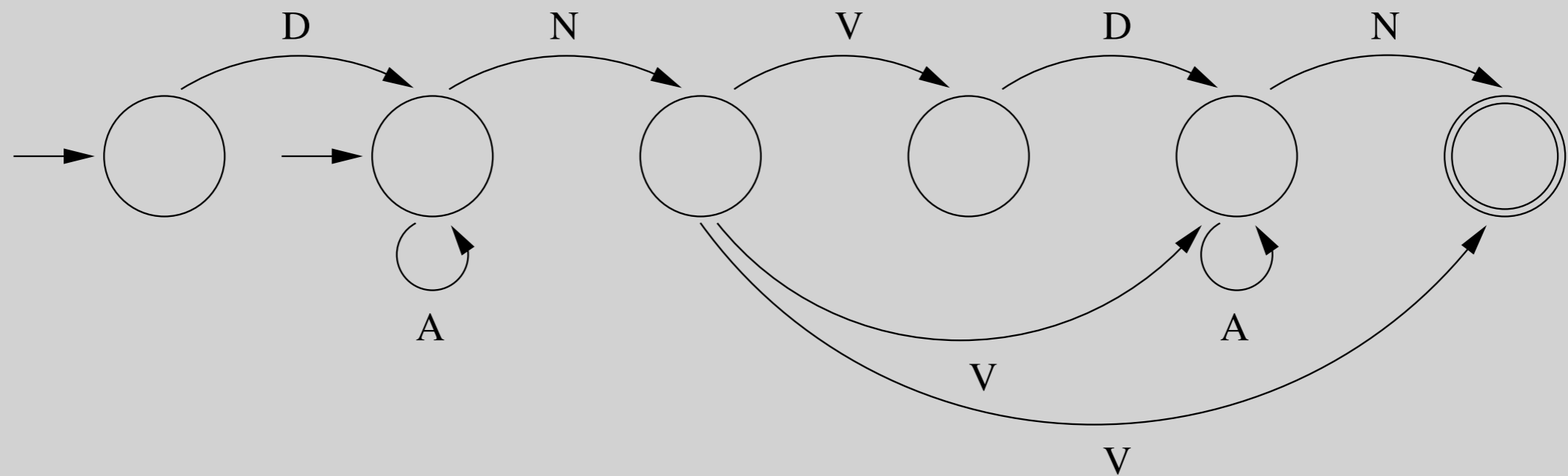
D A N V D A N

dogs chased cats

the nasty noisy dogs chased the poor little cats

- $a^* = \{\emptyset, a, aa, aaa, aaaa, \dots\}$
- $a^+ = \{a, aa, aaa, aaaa, \dots\}$
- $(D) A^* N V ((D) A^* N)$

A Finite State Machine



This is equivalent to $(D) A^* N V ((D) A^* N)$

Context-free (phrase structure) Grammar

- Lexicon: a list of pairs $\langle \text{word}, \text{category} \rangle$
- Set of rules: $C_0 \longrightarrow C_1 \dots C_n$
- Lexical and nonlexical categories
(N, V, S, NP, VP, etc)
- Designated ‘initial symbol’

A Toy Grammar

RULES

$S \longrightarrow NP VP$

$NP \longrightarrow (D) A^* N PP^*$

$VP \longrightarrow V (NP) (PP)$

$PP \longrightarrow P NP$

LEXICON

D: *the, some*

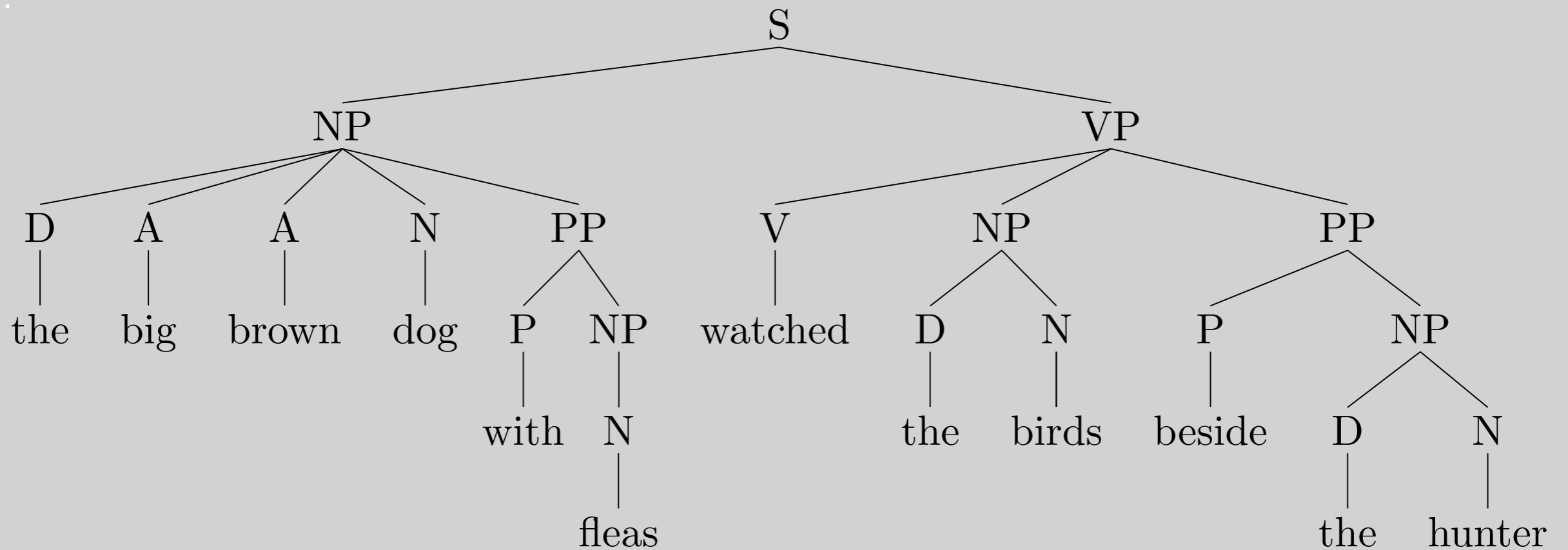
A: *big, brown, old*

N: *birds, fleas, dog, hunter, I*

V: *attack, ate, watched*

P: *for, beside, with*

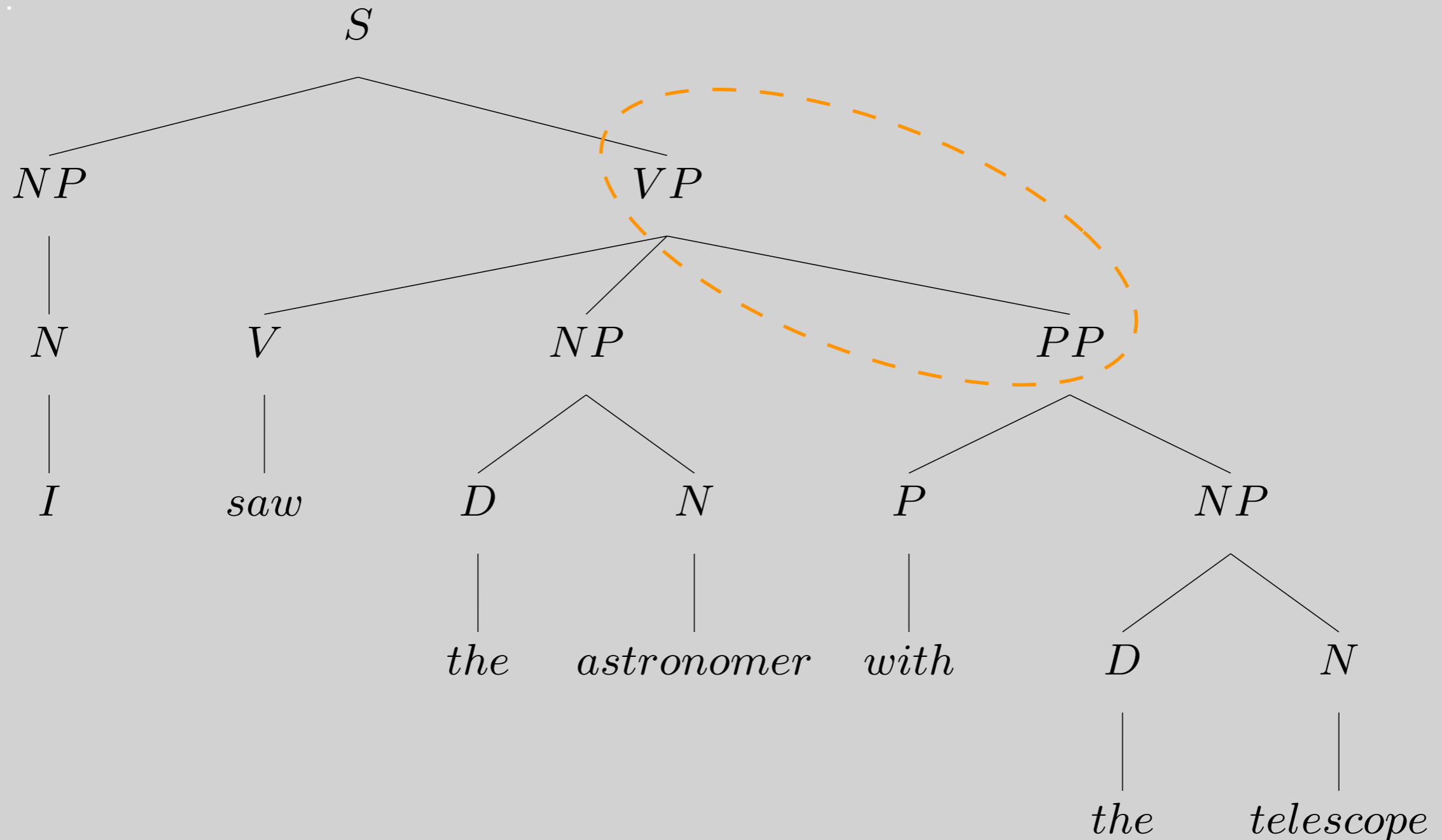
A Sample Tree



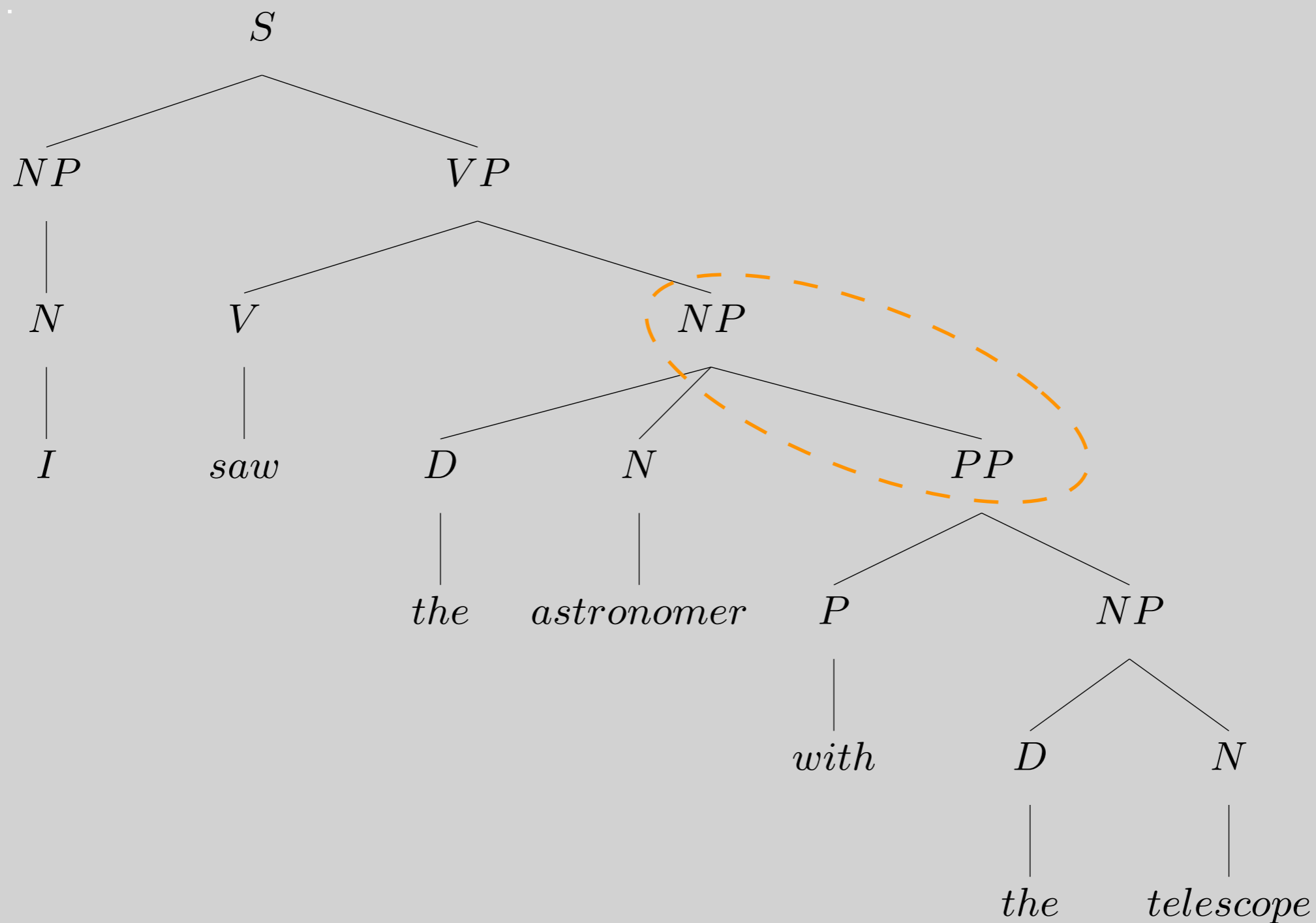
Structural Ambiguity

I saw the astronomer with the telescope.

Structure 1: PP under VP



Structure 1: PP under NP



Constituency Tests

- Recurrent Patterns

The quick brown fox with the bushy tail jumped over the lazy brown dog with one ear.

- Coordination

The quick brown fox with the bushy tail and the lazy brown dog with one ear are friends.

- Sentence-initial position

The election of 2000, everyone will remember for a long time.

- Cleft sentences

It was a book about syntax they were reading.

General Types of Constituency Tests

- Distributional
- Intonational
- Semantic
- Psycholinguistic

... but they don't always agree.