

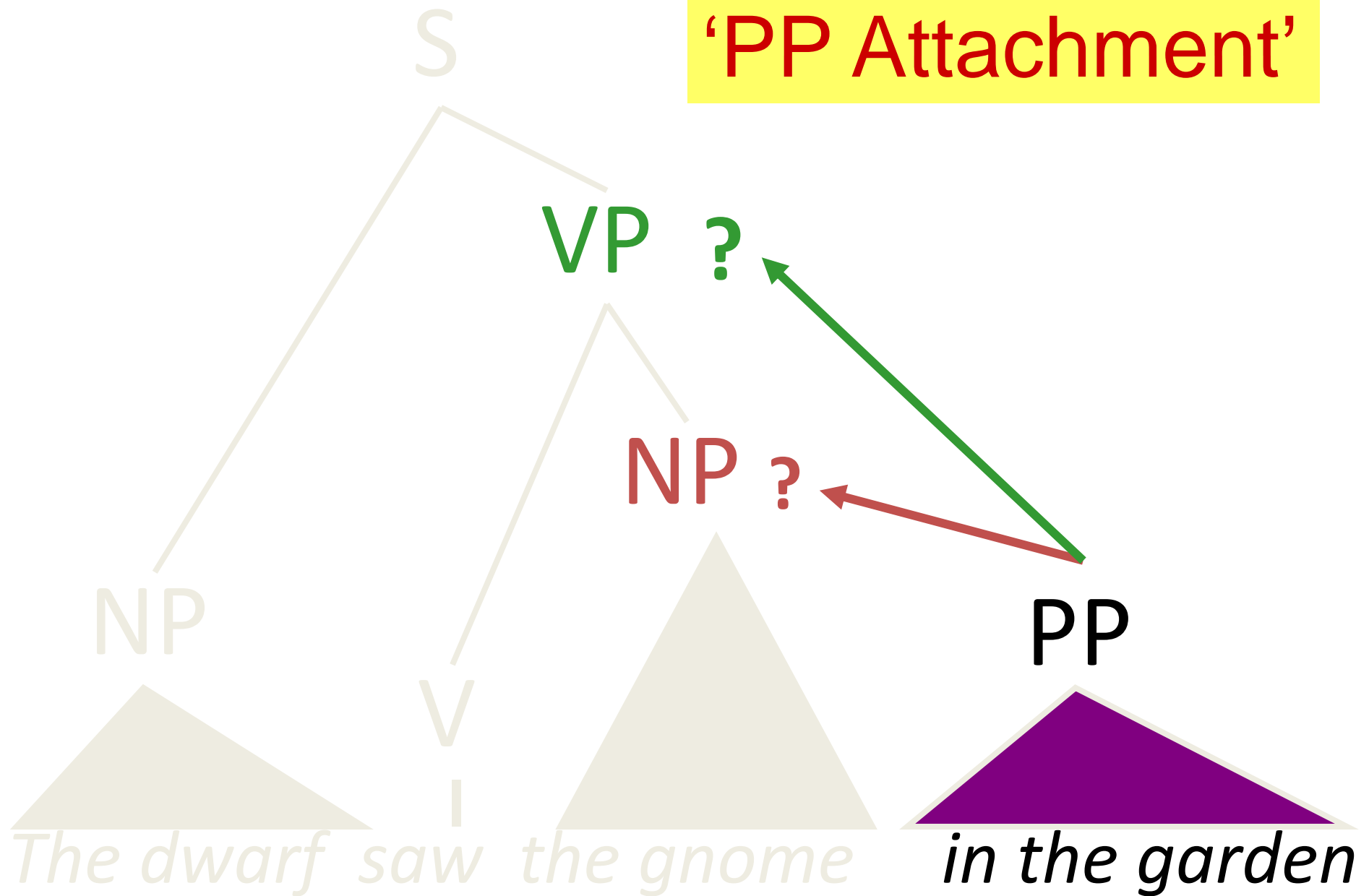
# Introduction to Syntactic Structure: Part Two

- Why do we need syntactic structure?
  - who needs it?
  - for what?
- How do we find syntactic structure?
- How do we describe syntactic structure?
  - constituents
  - phrase structure rules

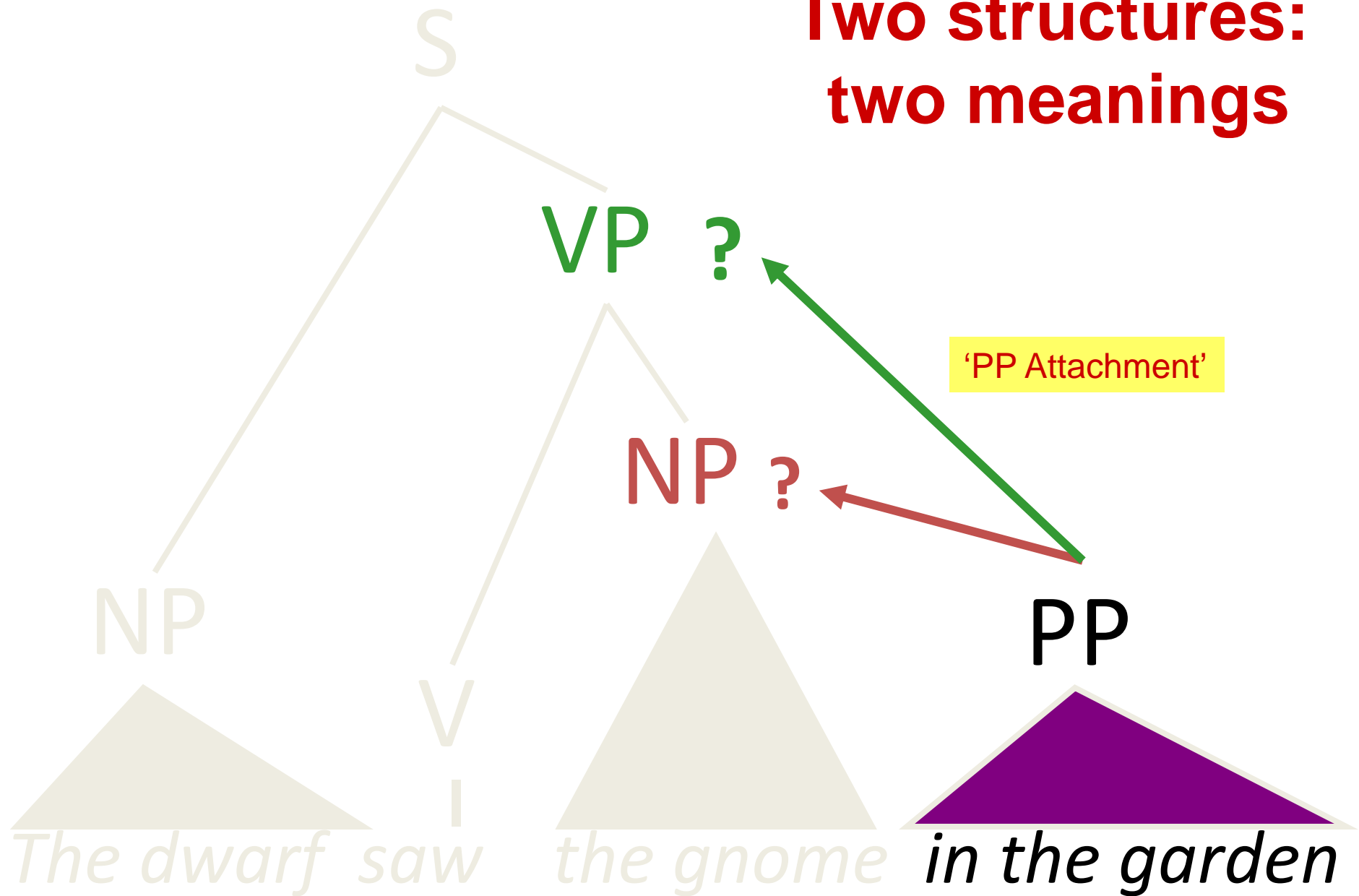
# Introduction to Syntactic Structure: Part Two

- Why do we need syntactic structure?
  - who needs it?
  - for what?
- How do we find syntactic structure?
- How do we describe syntactic structure?
  - constituents
  - phrase structure rules
  - **function and form :  
structure and interpretation**

# 'PP Attachment'



**Two structures:  
two meanings**

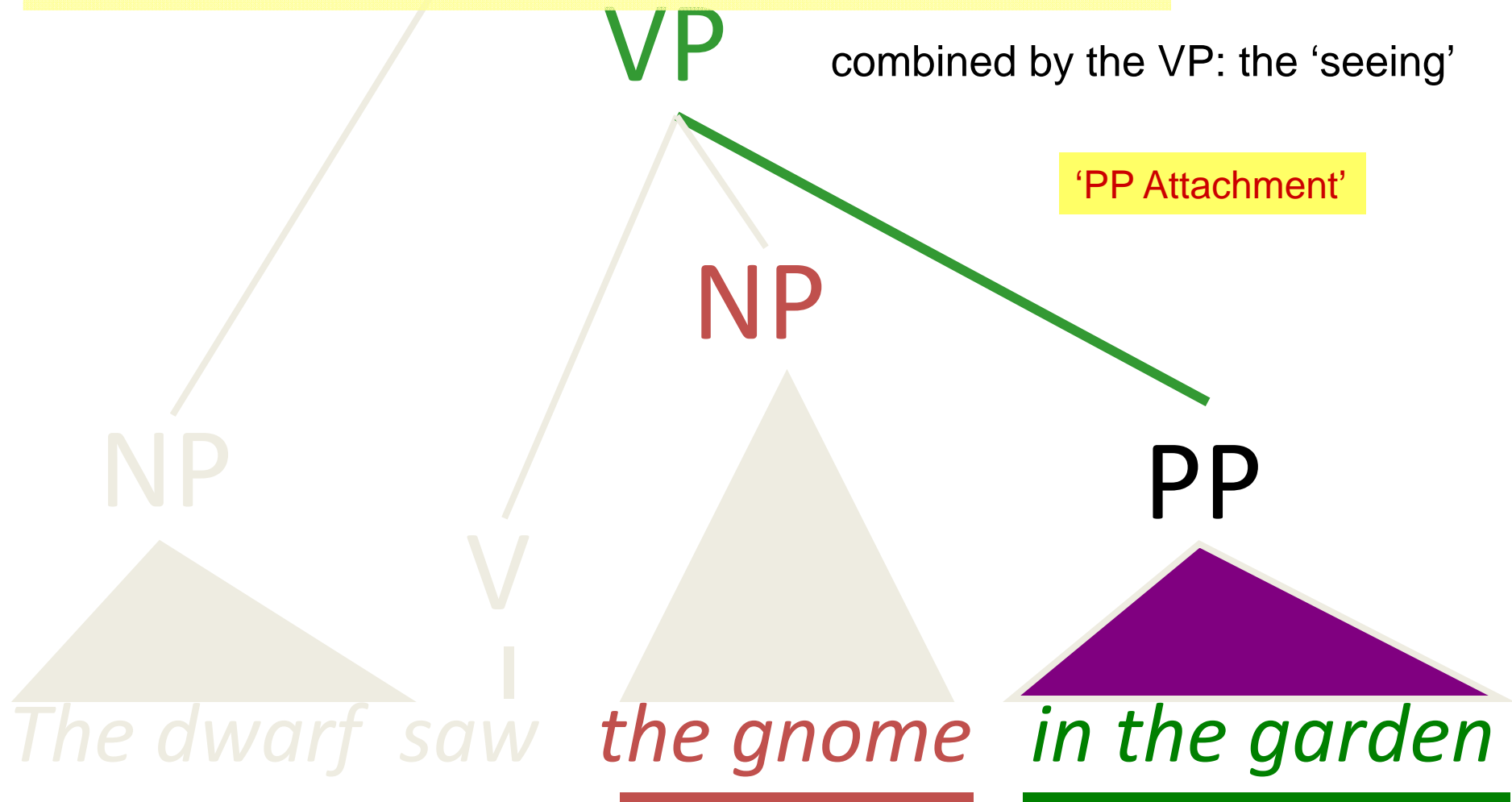


it was the gnome who was seen in the garden

the gnome was seen in the garden

in the garden the dwarf saw the gnome

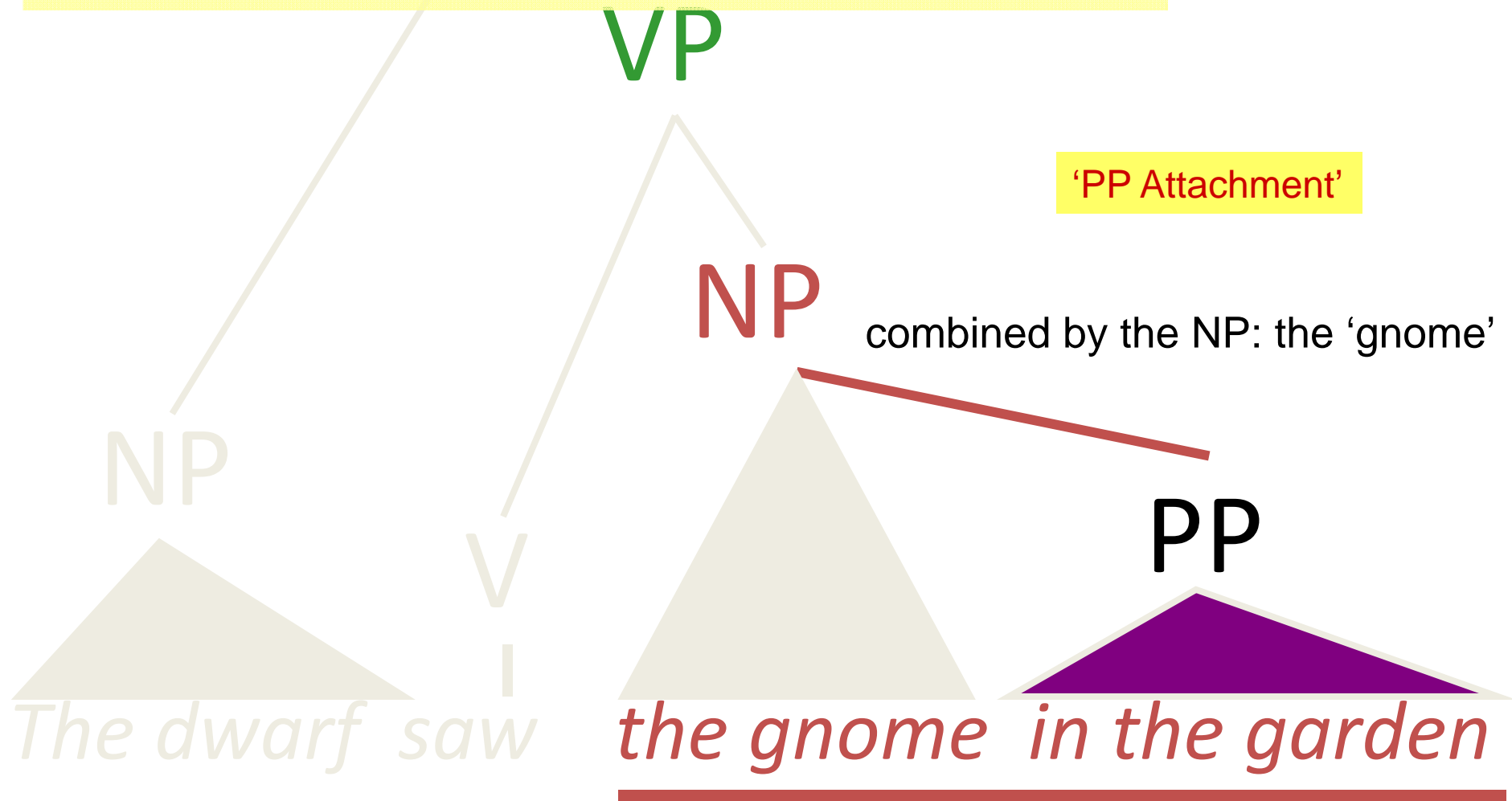
Two structures:  
two meanings



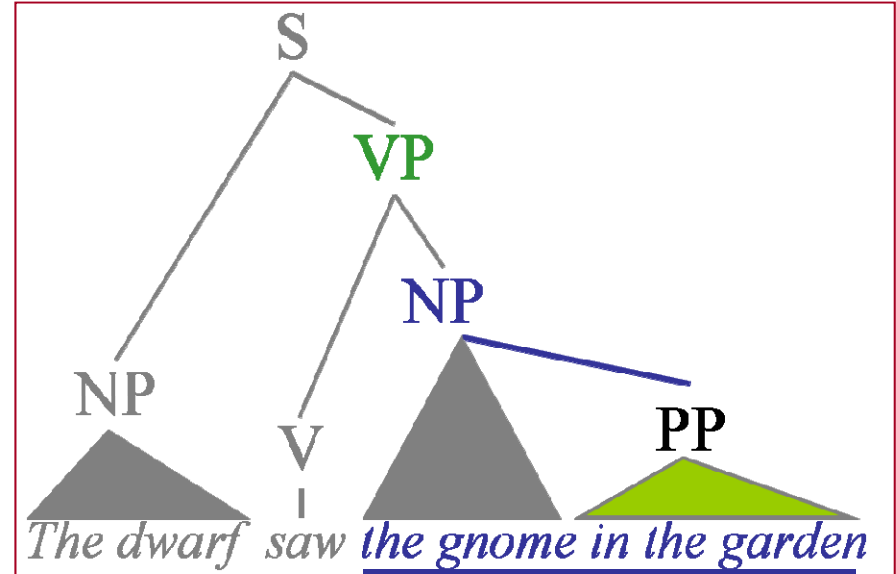
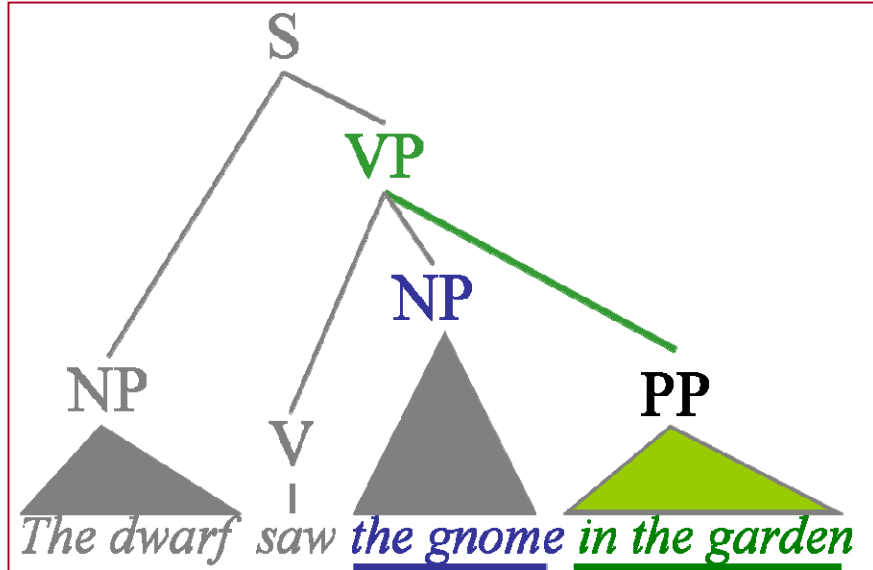
it was the gnome in the garden who was seen  
the gnome in the garden was seen

?? the gnome in the garden the dwarf saw

Two structures:  
two meanings



## Two structures: two meanings

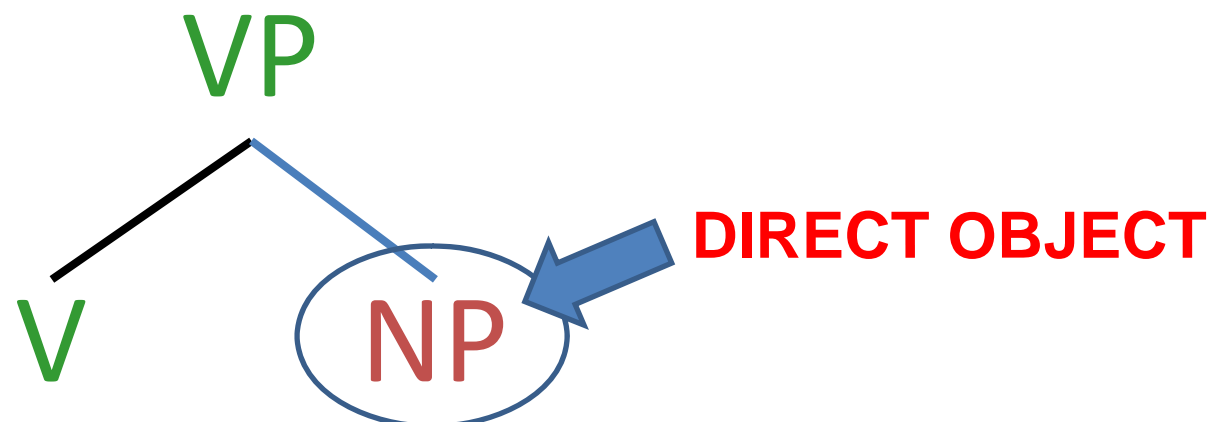
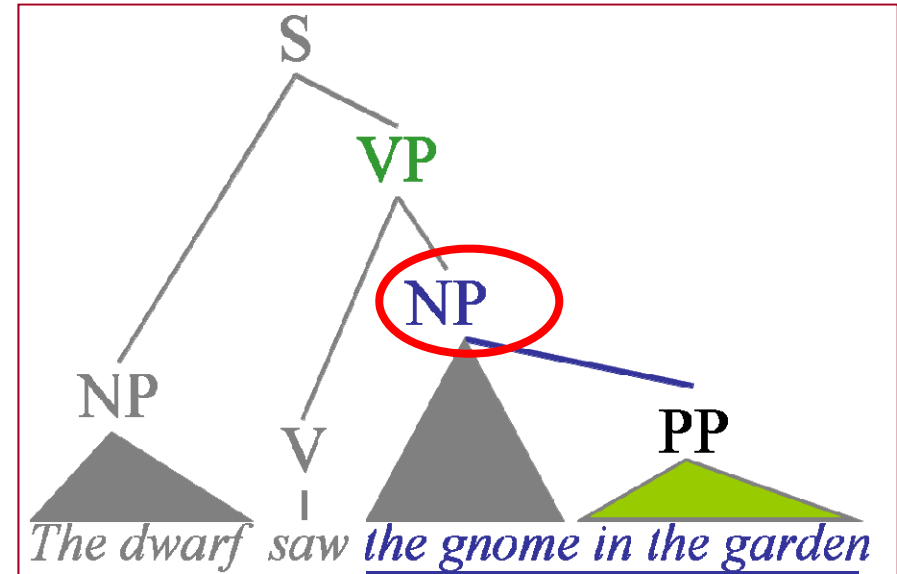
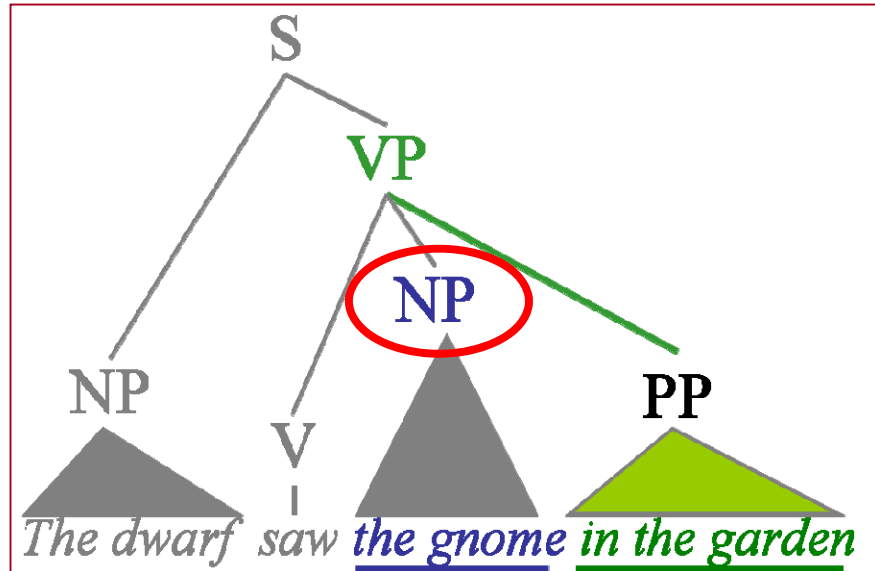


same string of words, different structures...

**structural ambiguity**

each tree corresponds to a different meaning

# Relation to FUNCTION !!!





# What do all these trees do?

- help construct structure...
- guide interpretation...
- guide functional interpretation...

# Syntactic Structure is necessary for explaining...

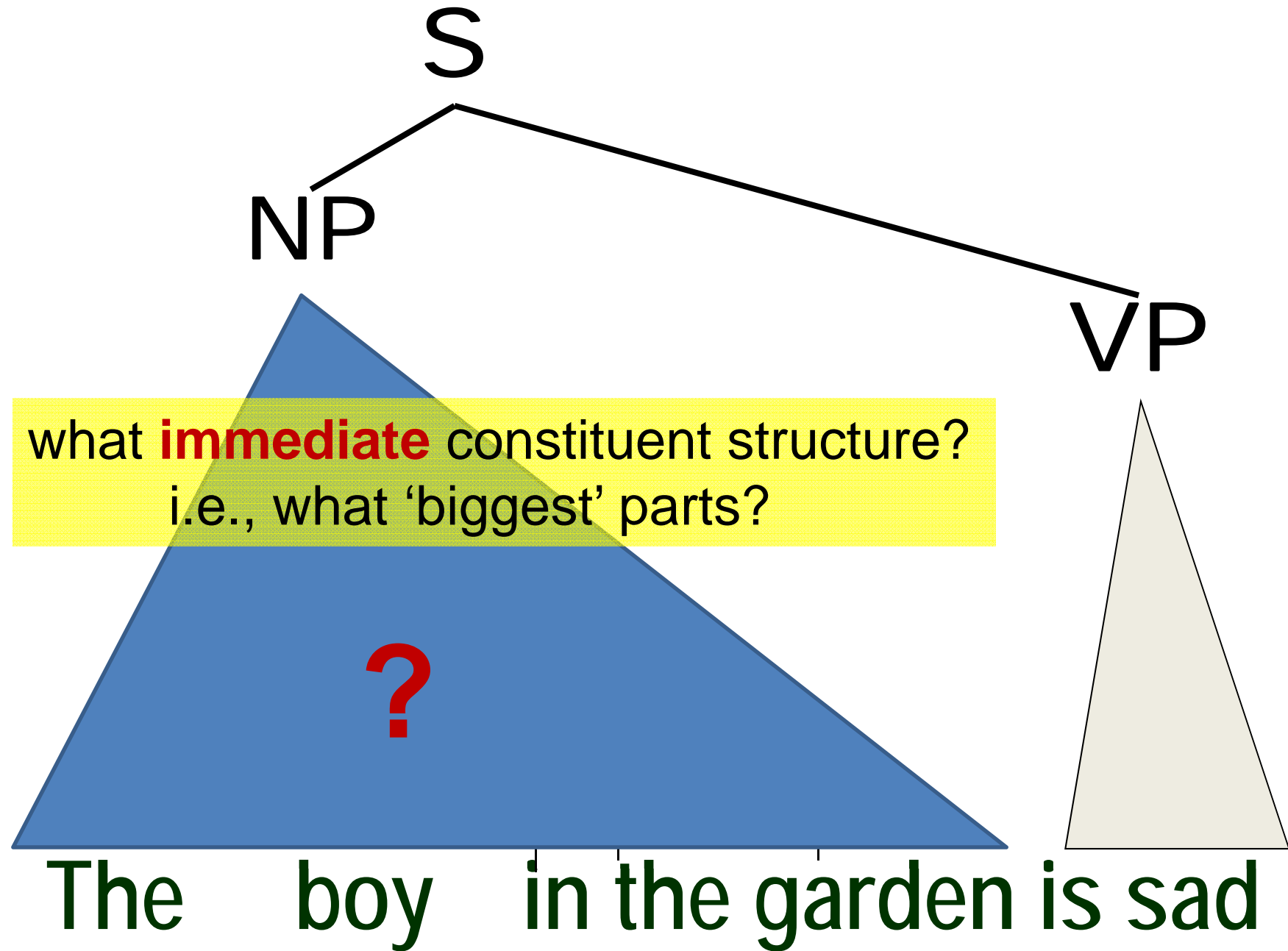
- how particular interpretations of sentences can be found
- why people seem to know what kinds of 'transformations' can be made to sentences and how
- why the tests and probes give the results that they do

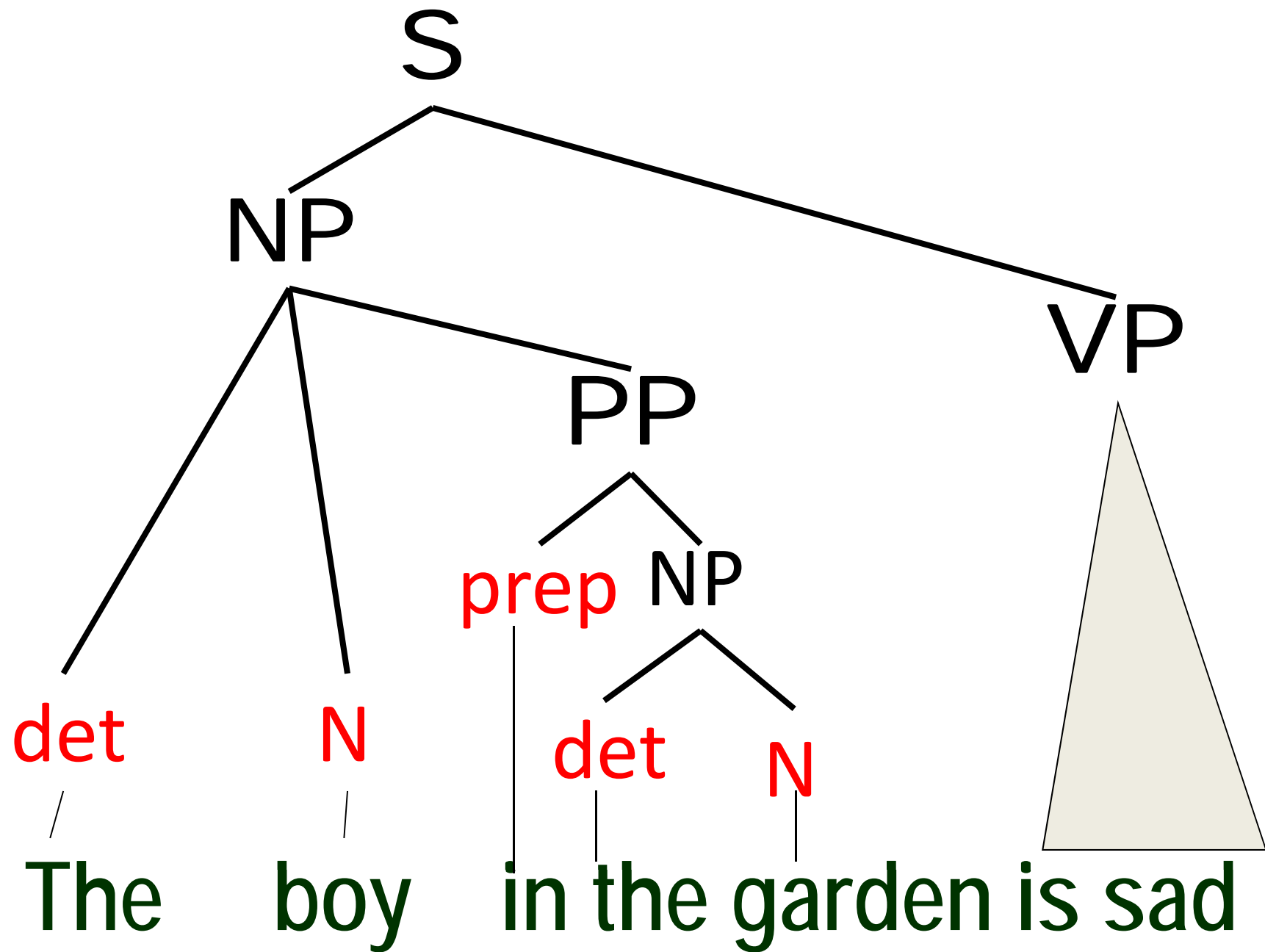
## But... two related issues...

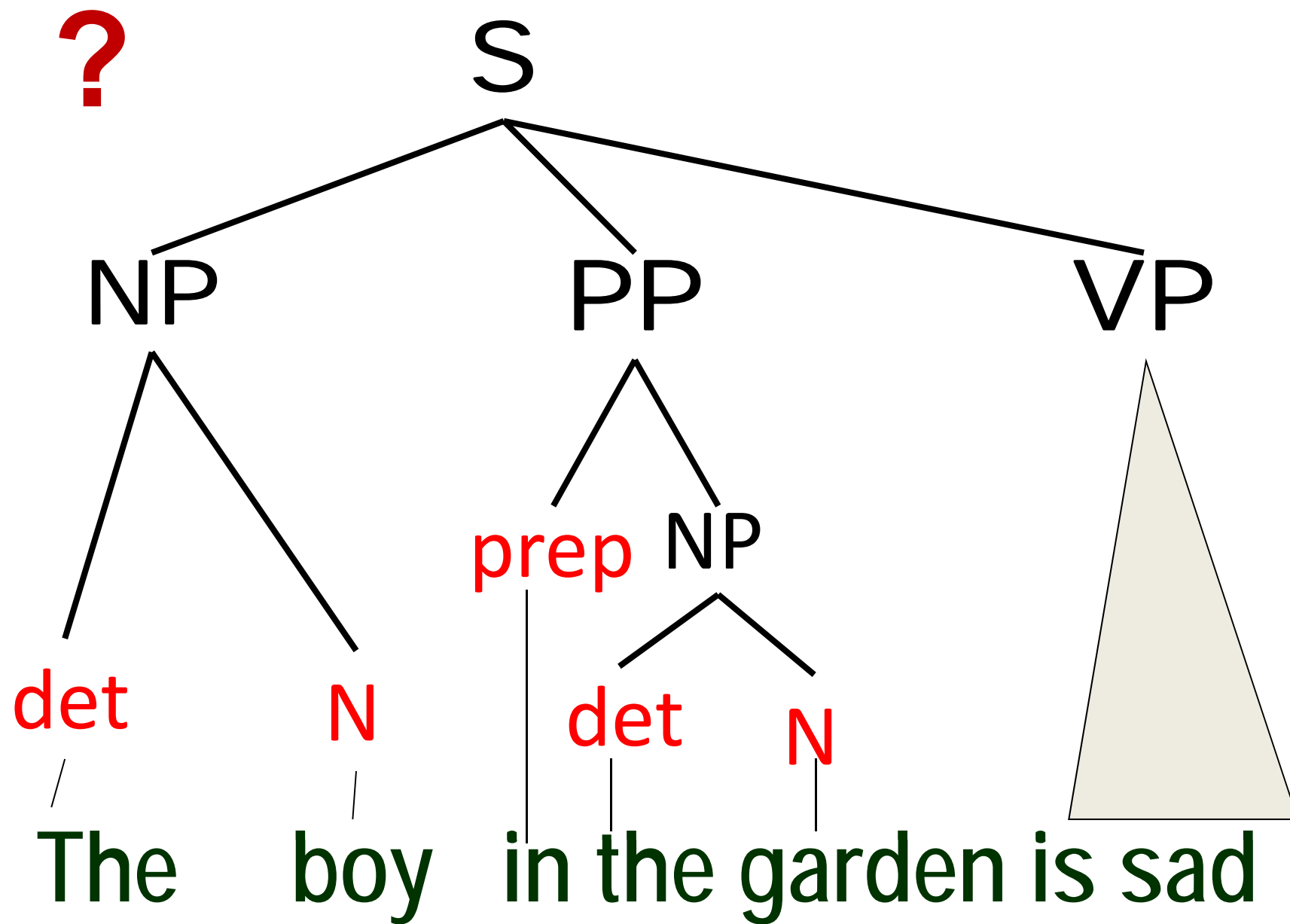
- as linguists: do we just have to keep on writing down different trees for different sentences?
- as language users and language learners: how can we learn such complicated structures?

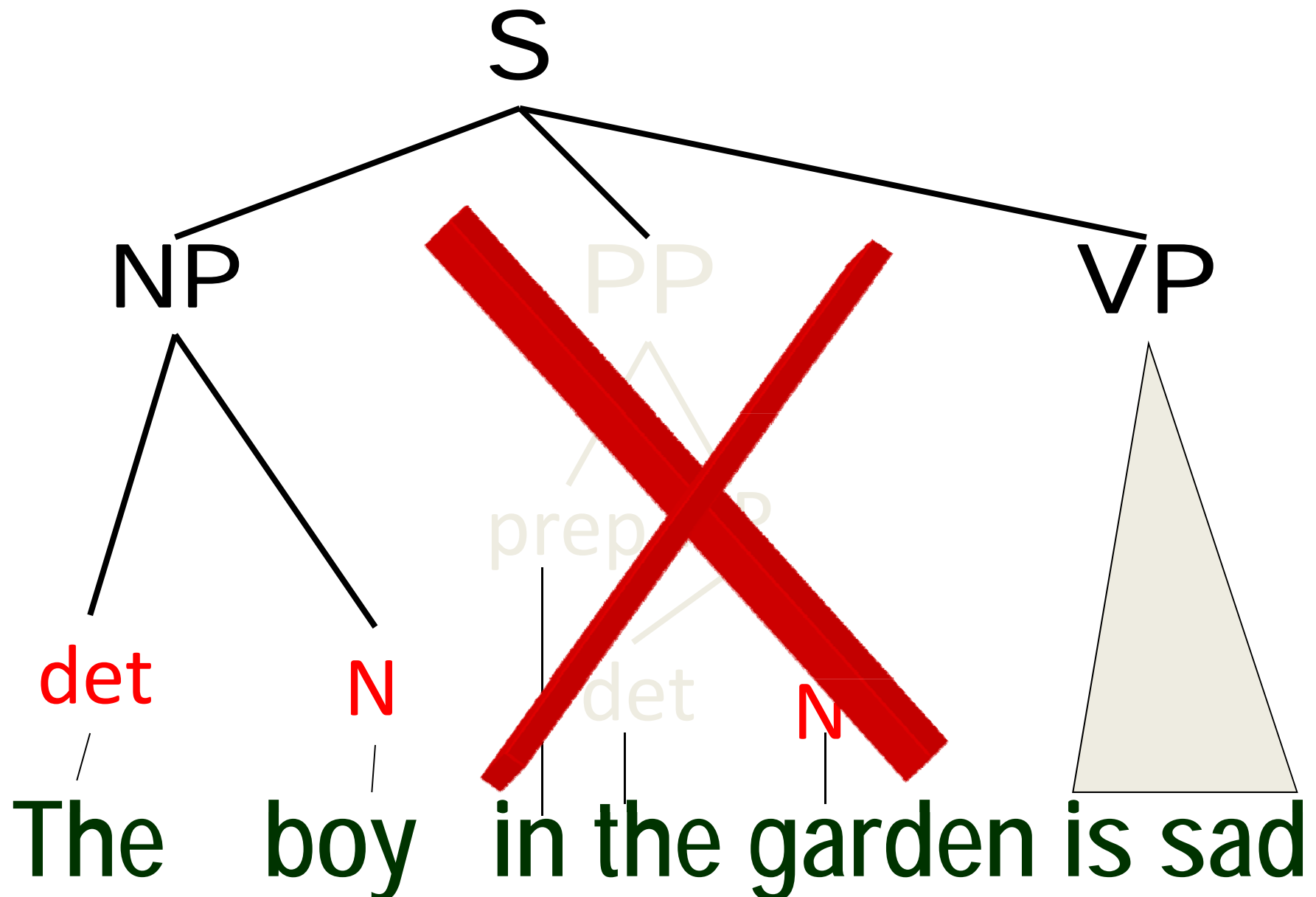
# The boy in the garden is sad

what **immediate** constituent structure?  
i.e., what 'biggest' parts?



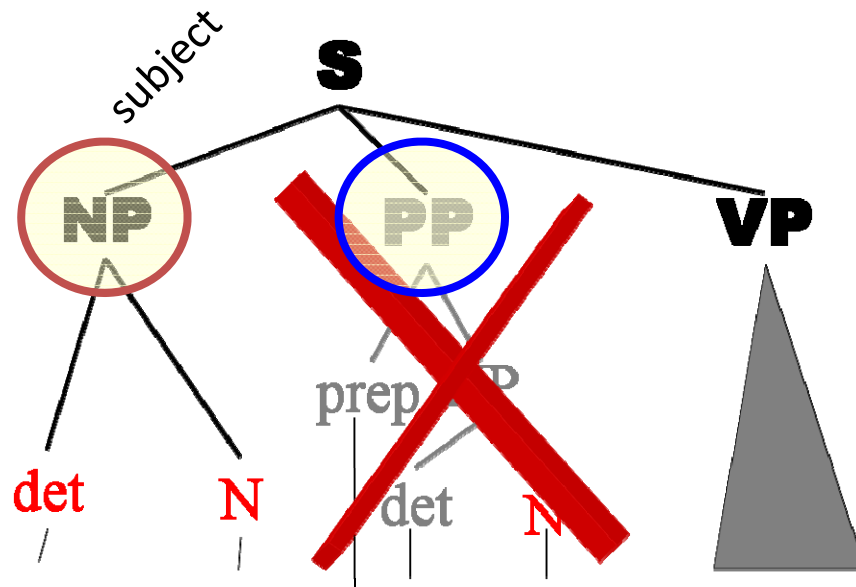






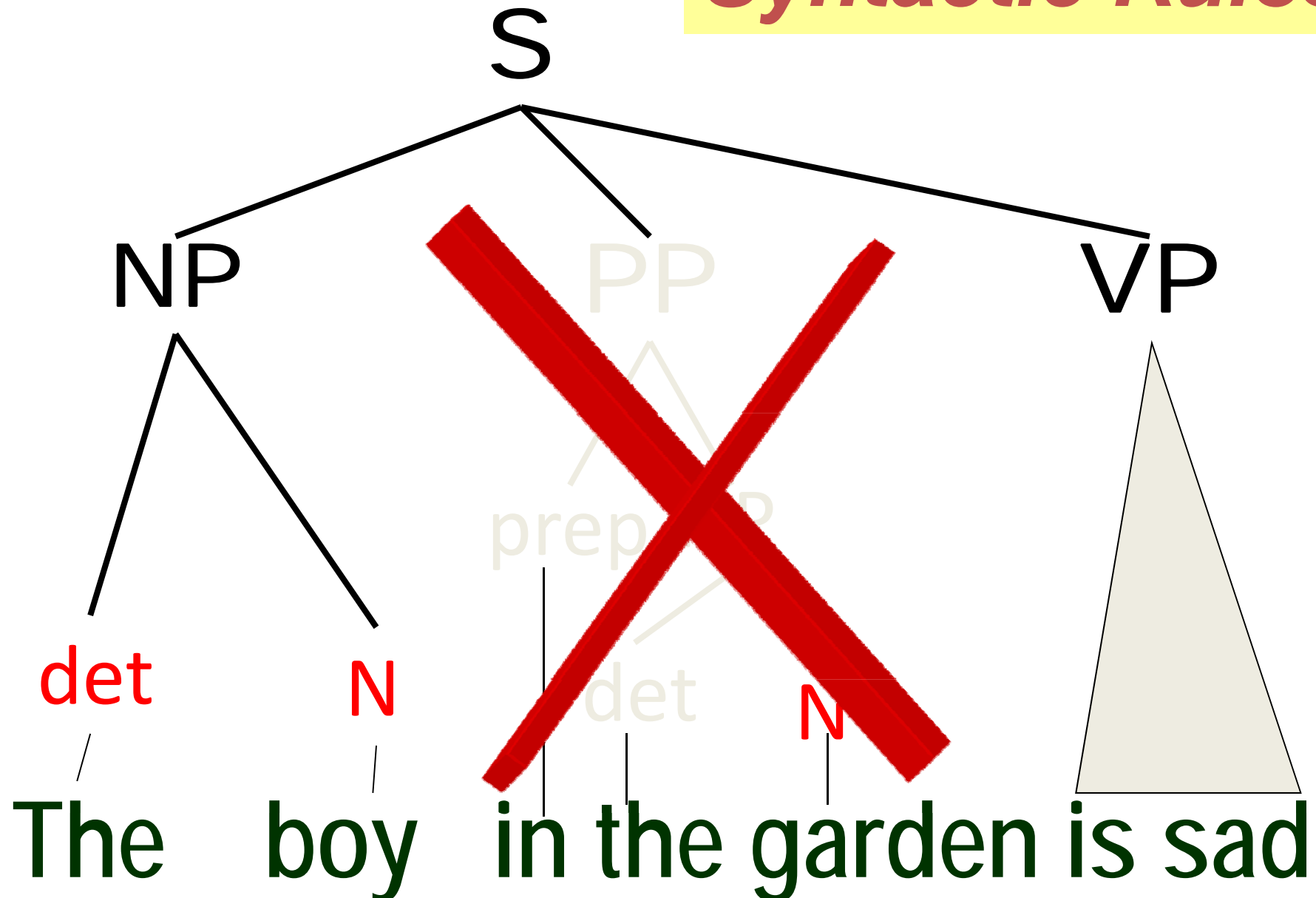


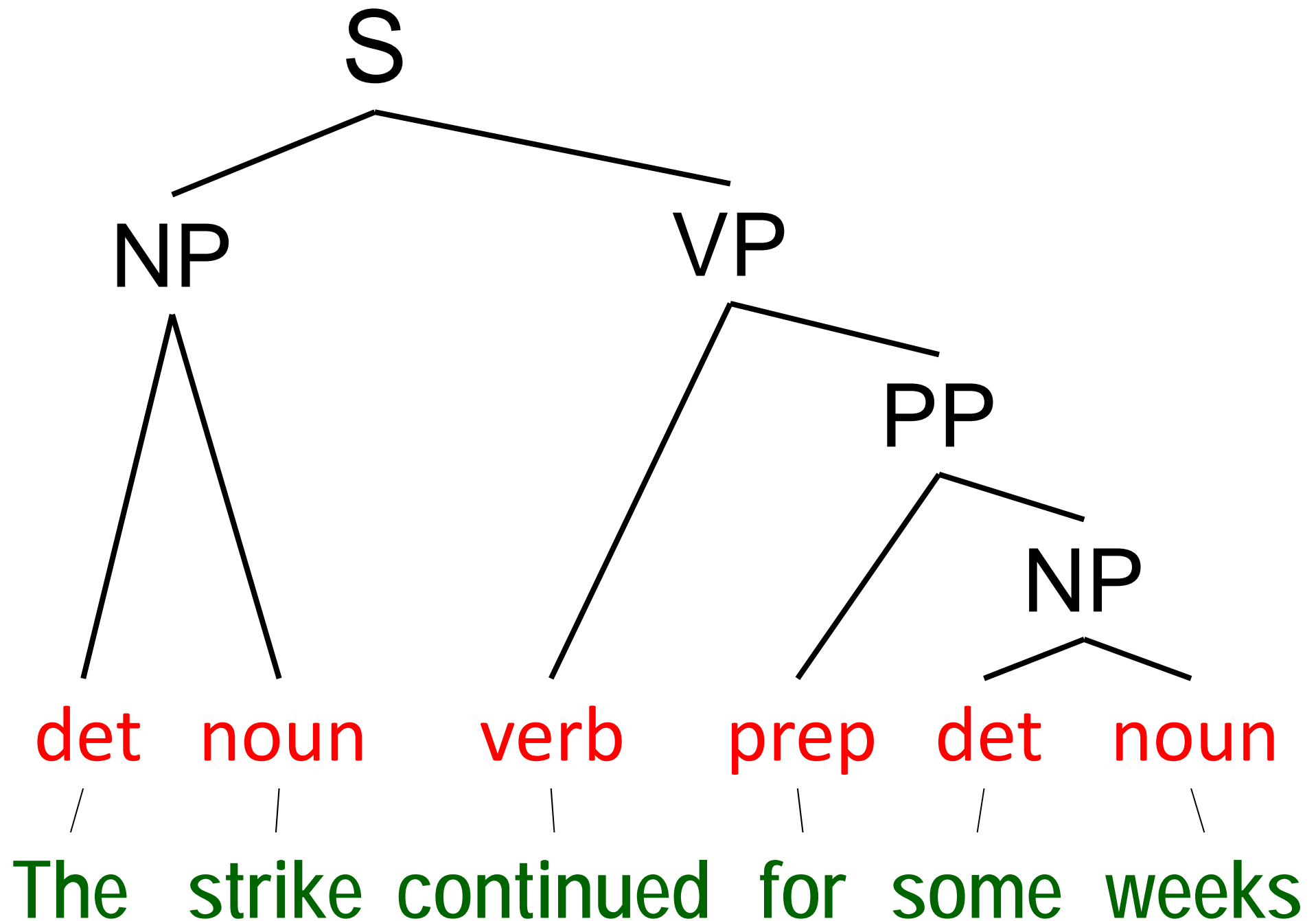
The boy in  
the garden  
is sad

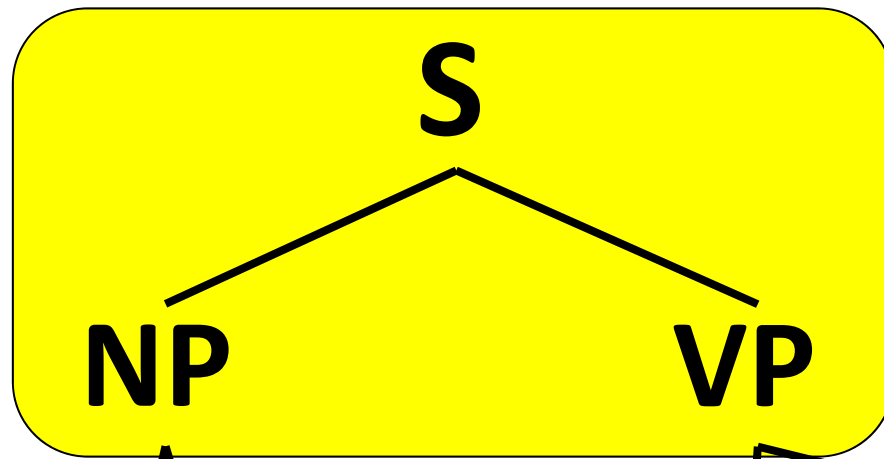


- \* He in the garden is sad
- \* It is the boy that in the garden is sad

# *Syntactic Rules*







$S \rightarrow NP VP$

det noun

verb

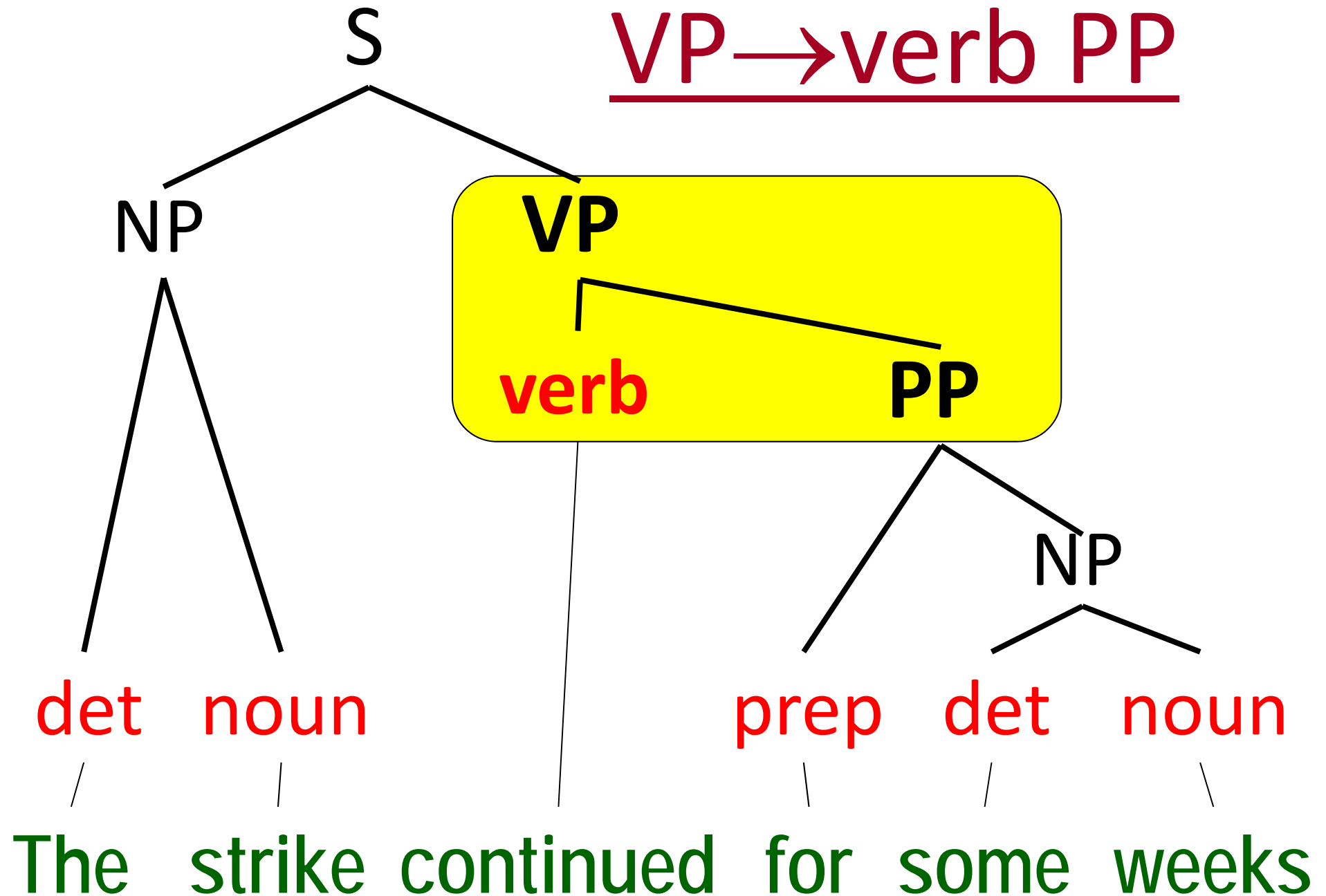
prep

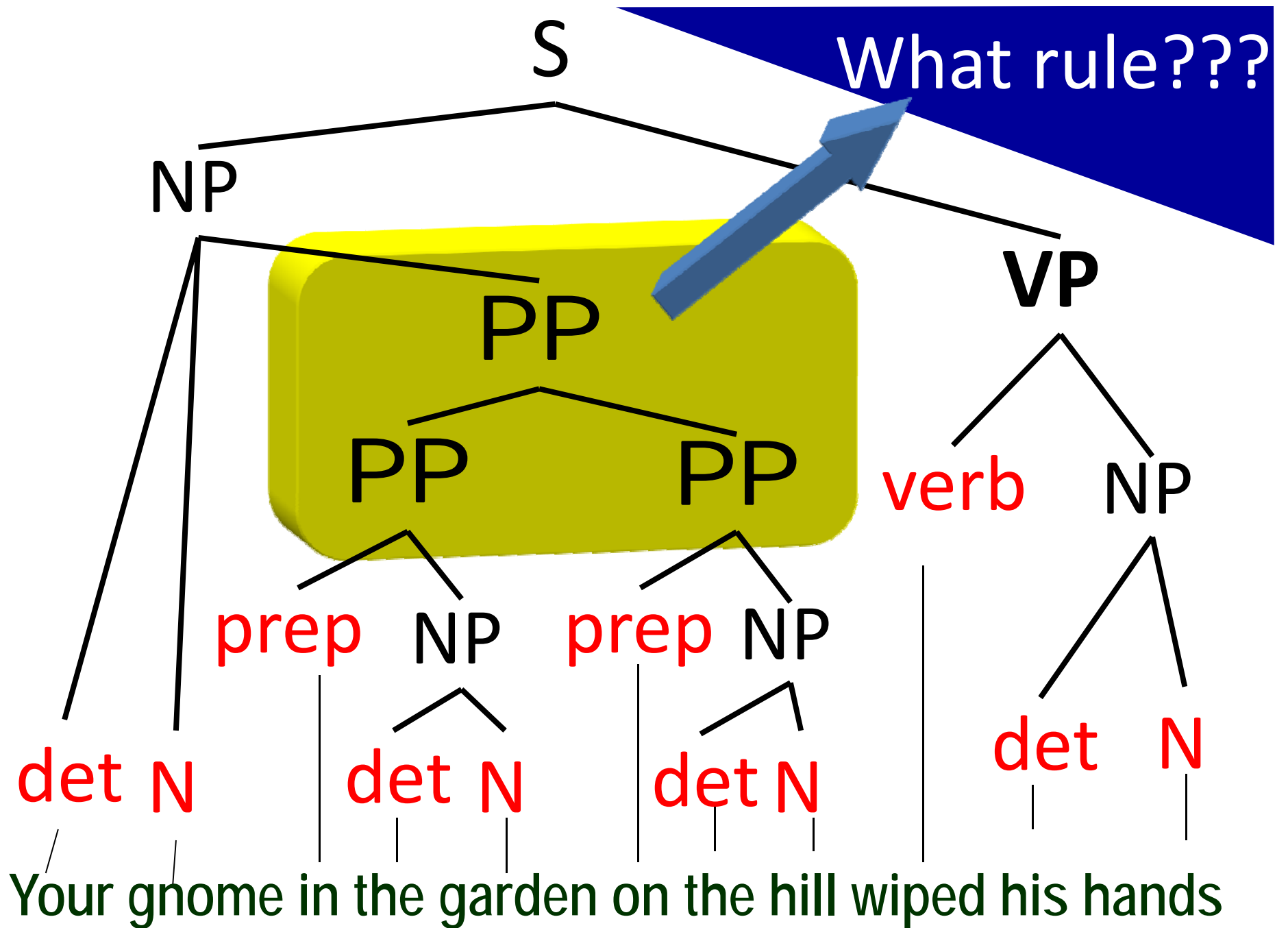
det

noun

The strike continued for some weeks

VP → verb PP



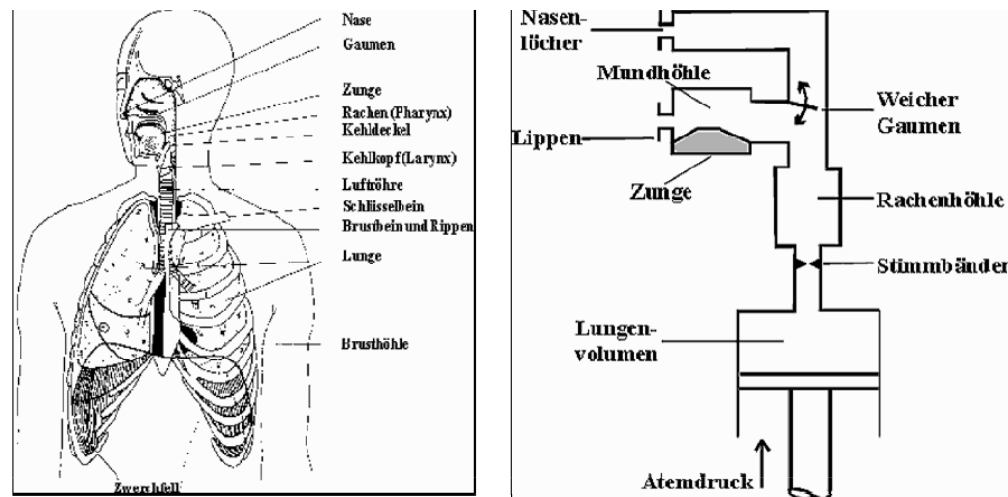


# Phrase Structure Grammar

- A language can be described as:
  - a collection of phrase structure rules
    - $S \rightarrow NP VP$
    - $VP \rightarrow V NP (PP)$
  - a collection of lexical items
    - $N \rightarrow \{\text{cat, dog, boy, girl}\}$
    - $V \rightarrow \{\text{ate, sat, run}\}$
    - $D \rightarrow \{\text{a, the}\}$

# Phrase Structure Rules

make possible a very different  
kind of model

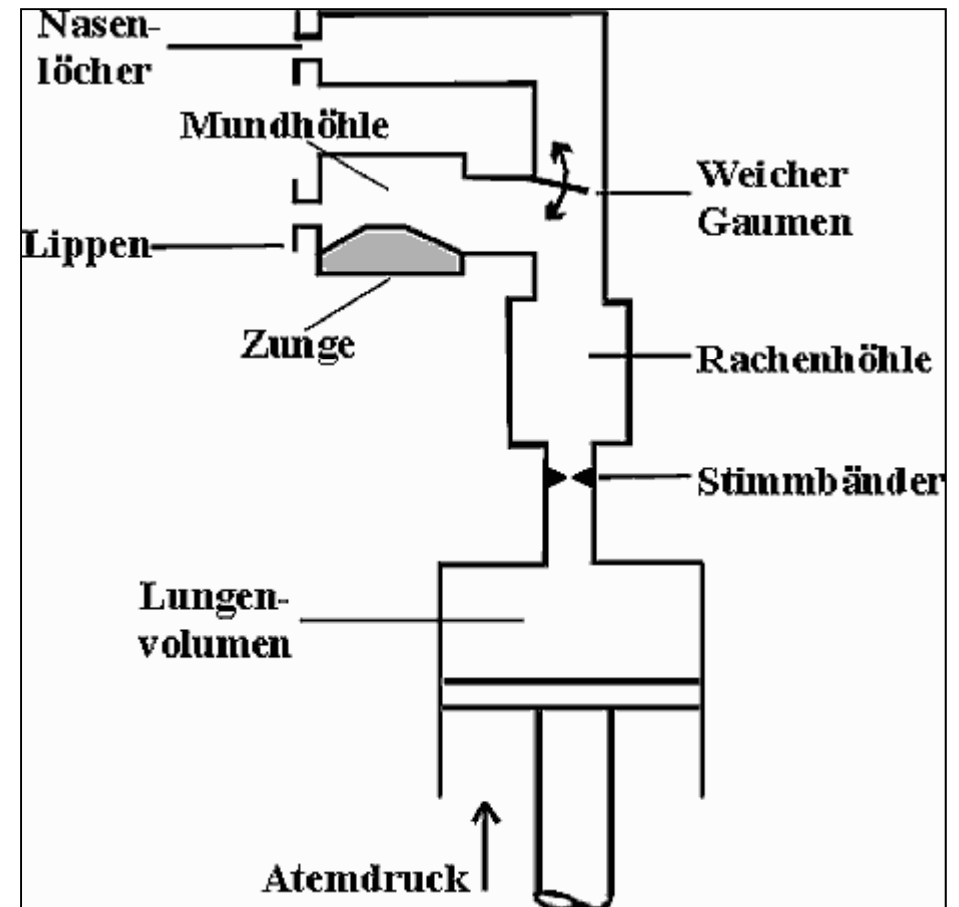
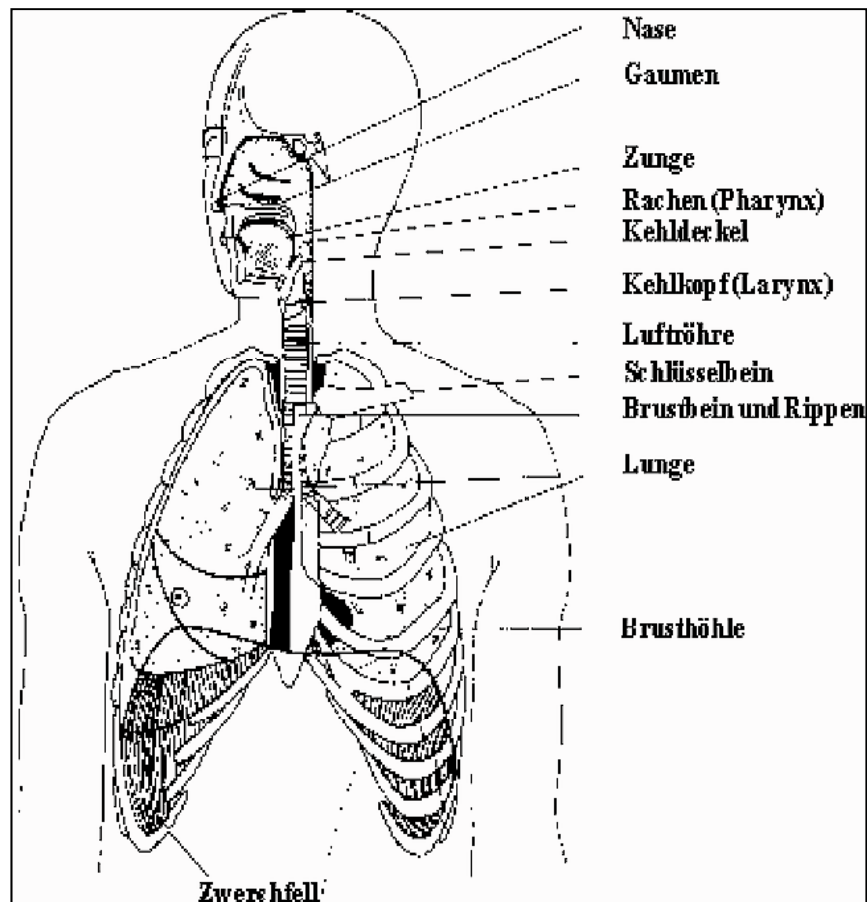


**FORM**

**FUNCTION**

← *models* →

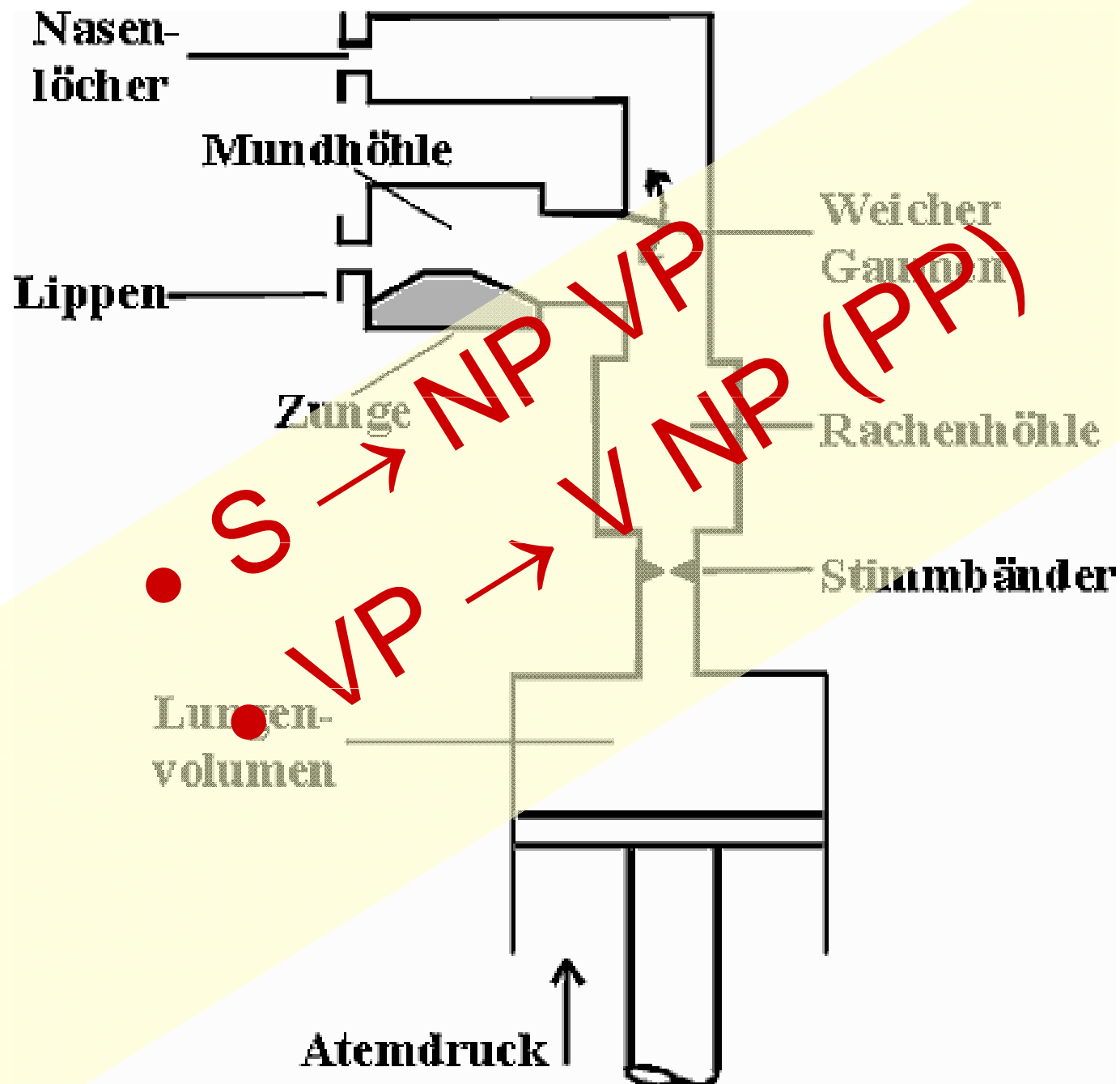




FORM

FUNCTION

← *models* →



# New Model of Syntax / Grammar

- A generative model
  - where we can follow the rules and build sentences
  - or even better, some ‘machine’ can follow the rules and build sentences
- Noam Chomsky (1957)
  - **Autonomous Syntax**

# Phrase Structure Rules

- change the nature of linguistic description
- not just describing what structures may occur, but defining what structures **can** occur
- **definitional** not prescriptive

# Phrase Structure Rules

But it is still possible to write bad rules  
just as it is possible to draw bad  
structures!

- which structures occur and which not is an **empirical** issue

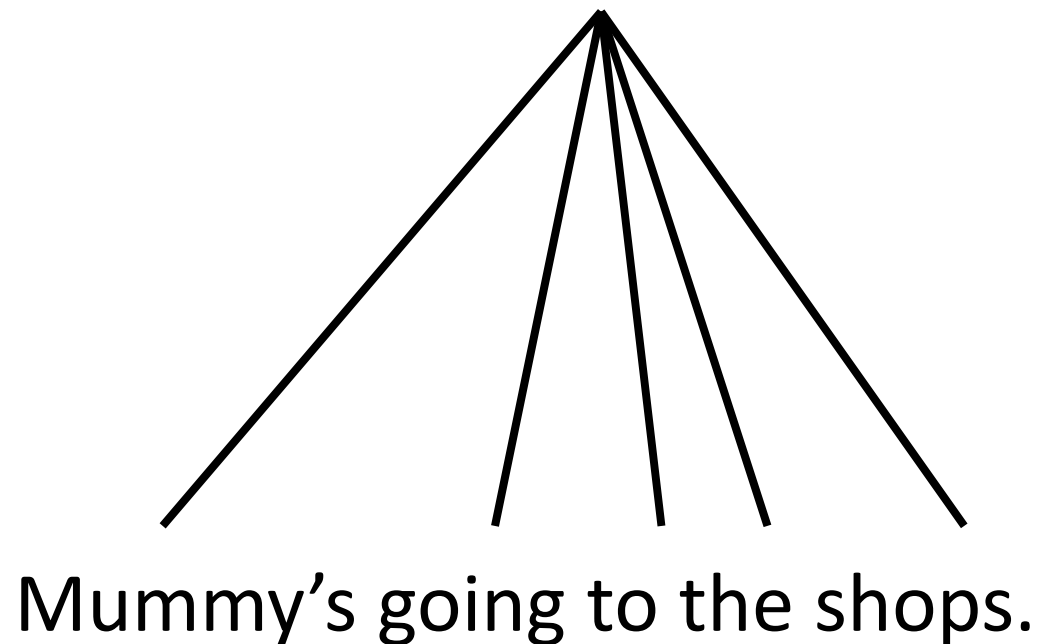
Can we 'force' good rules to be constructed?

why, for example, do  
children learn the  
'right' rules????!

This is a serious issue, because how  
do language learners  
(i.e., children) know how not to  
make up the wrong rules!

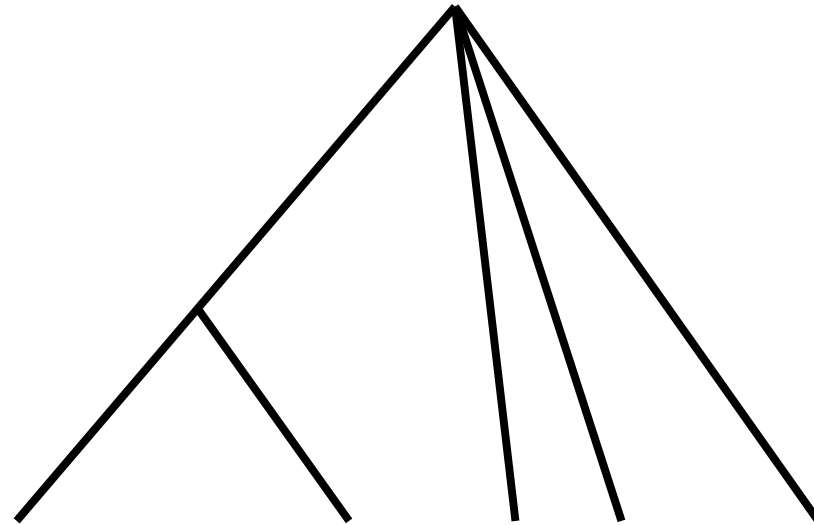
Imagine a simple sentence that a child  
learning language might hear

*what tree might fit?*



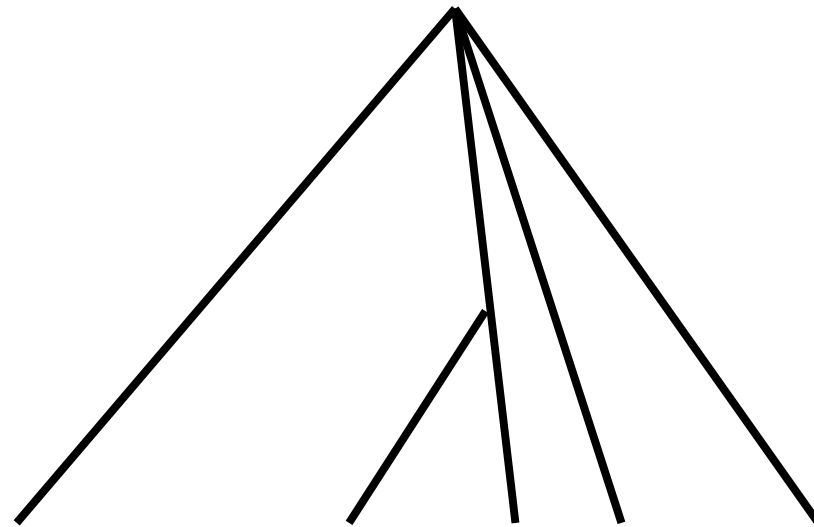


Imagine a simple sentence that a child  
learning language might hear



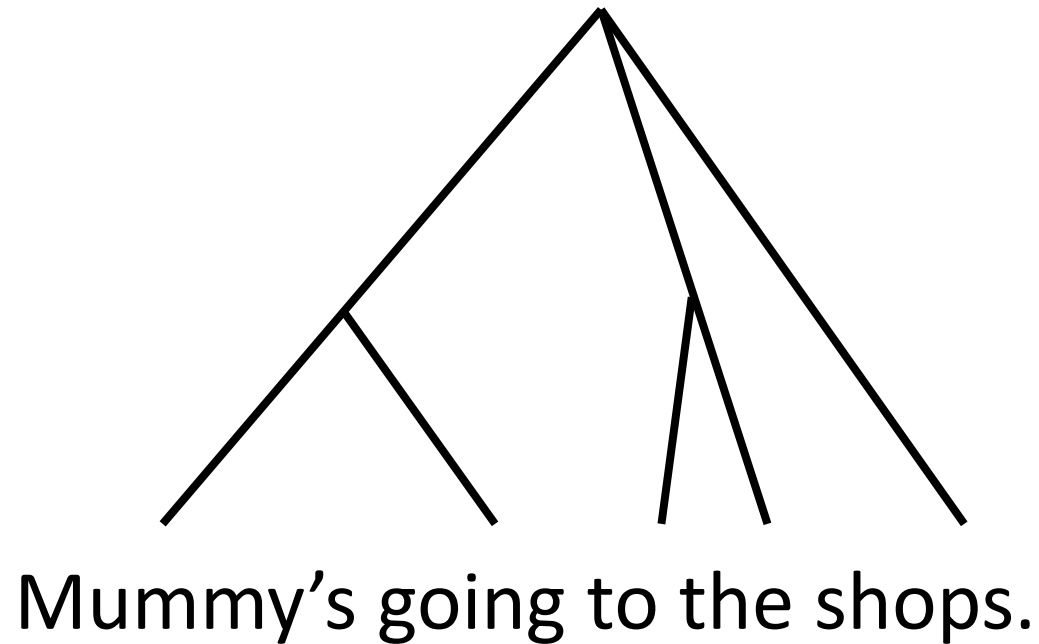
Mummy's going to the shops.

Imagine a simple sentence that a child  
learning language might hear

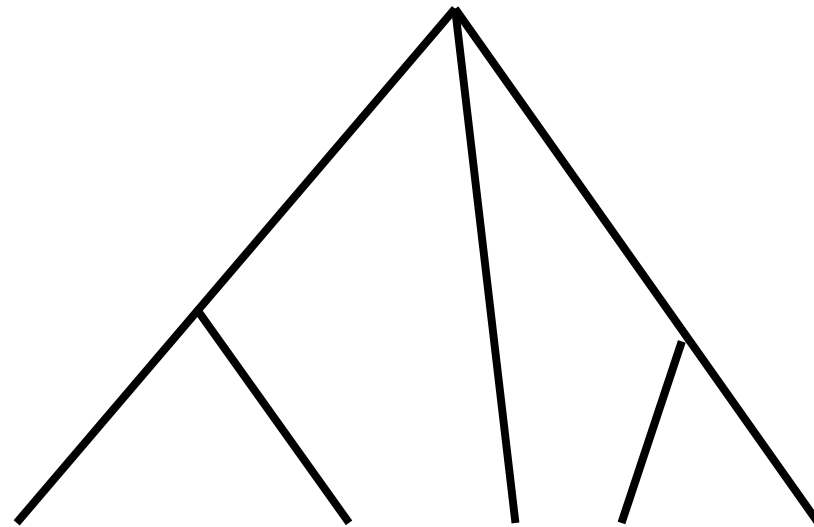


Mummy's going to the shops.

Imagine a simple sentence that a child  
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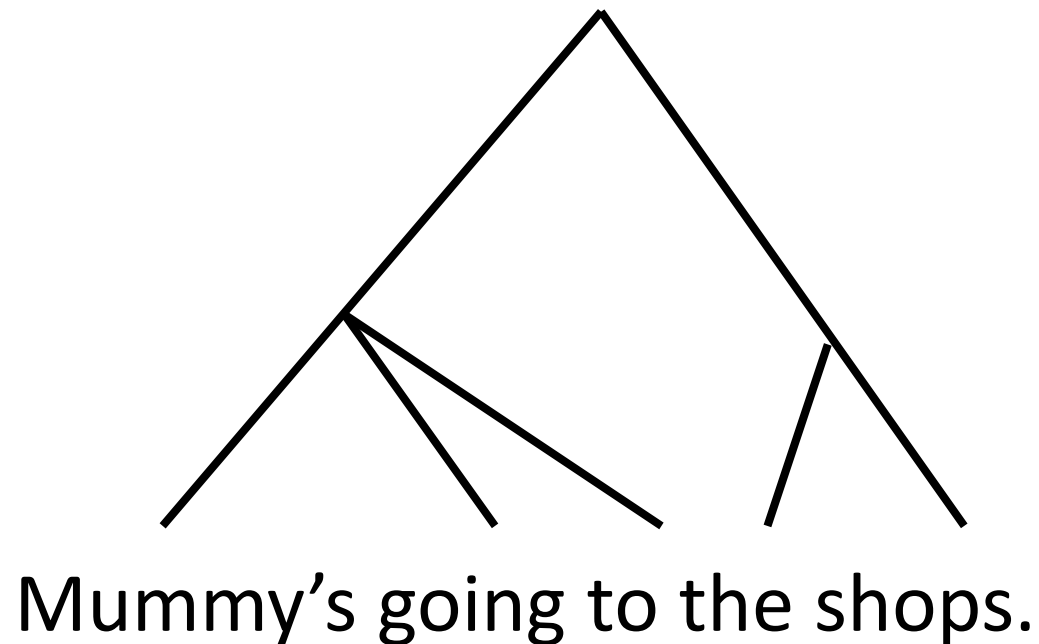


Imagine a simple sentence that a child  
learning language might hear

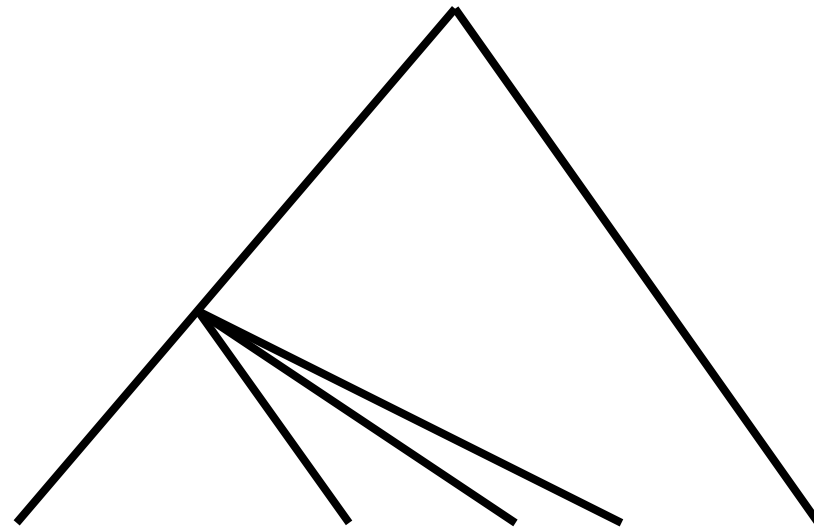


Mummy's going to the shops.

Imagine a simple sentence that a child  
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Imagine a simple sentence that a child  
learning language might hear

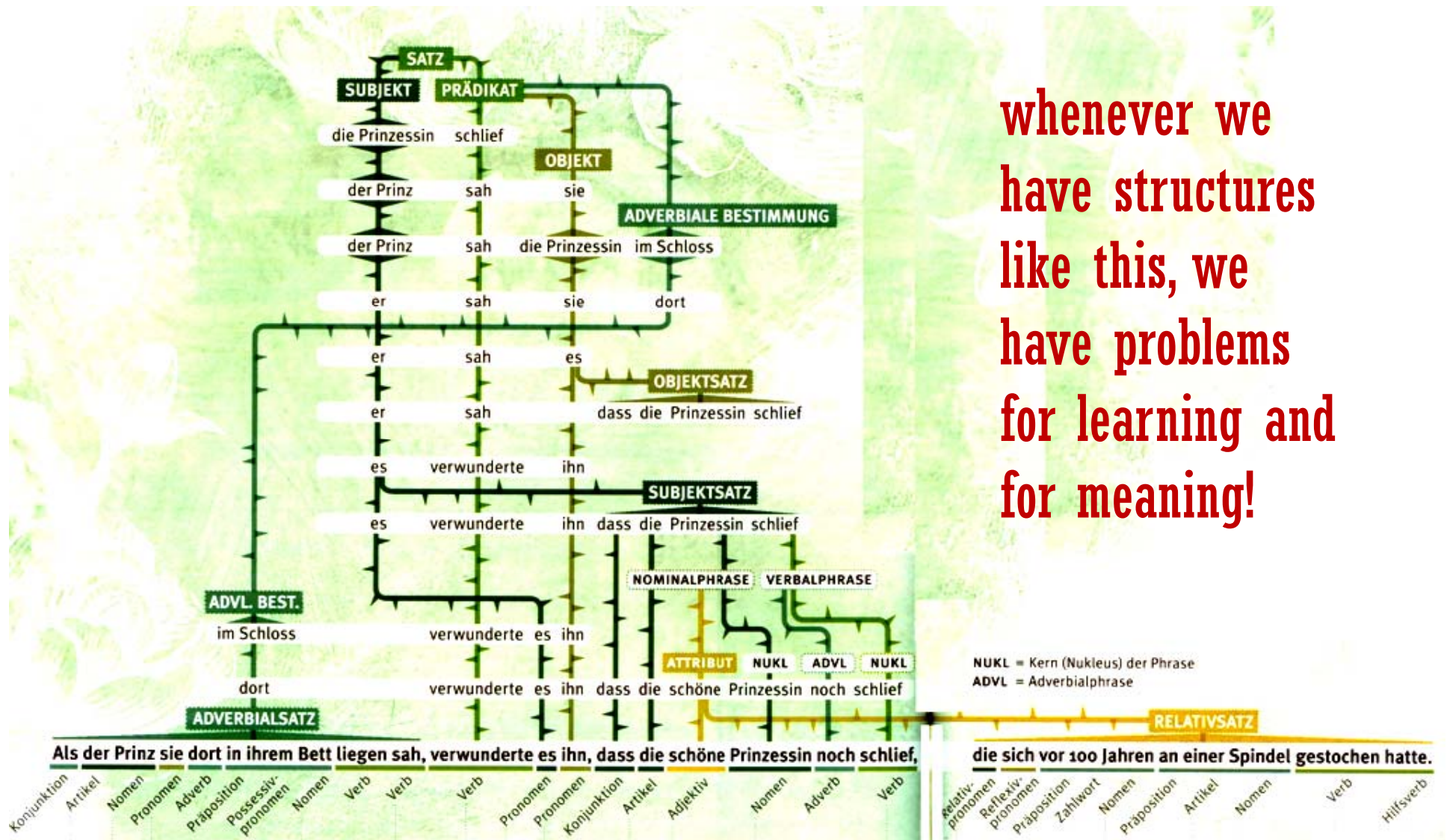


Mummy's going to the shops.

# Syntactic Structure as (tangled) tree

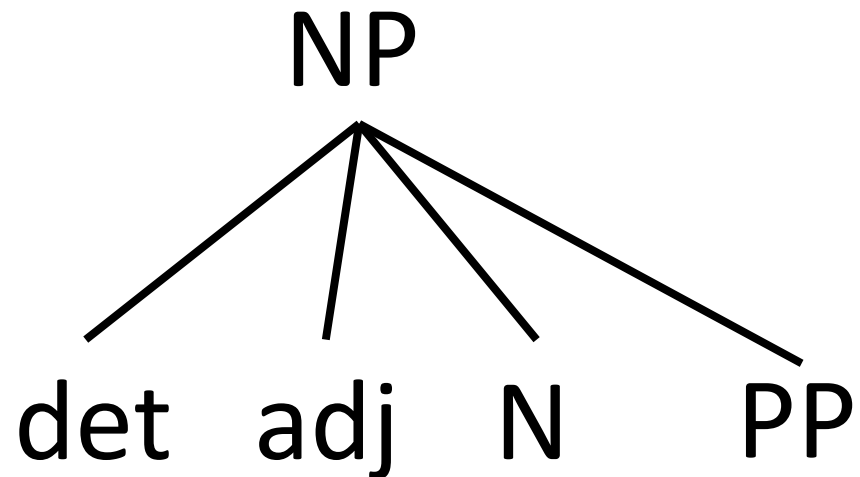
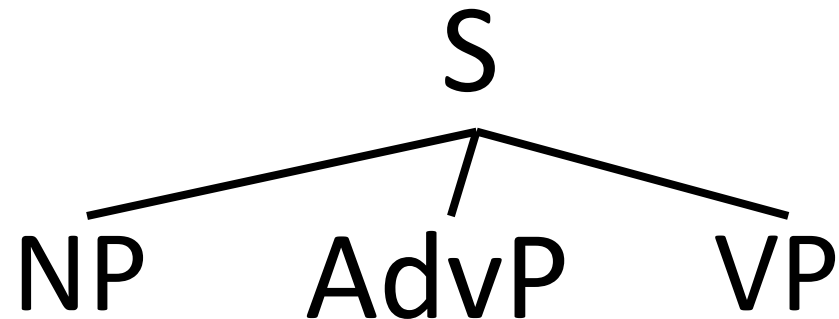
GeoWissen 40 (2007: p56-7)

whenever we  
have structures  
like this, we  
have problems  
for learning and  
for meaning!



# 'flat' structures

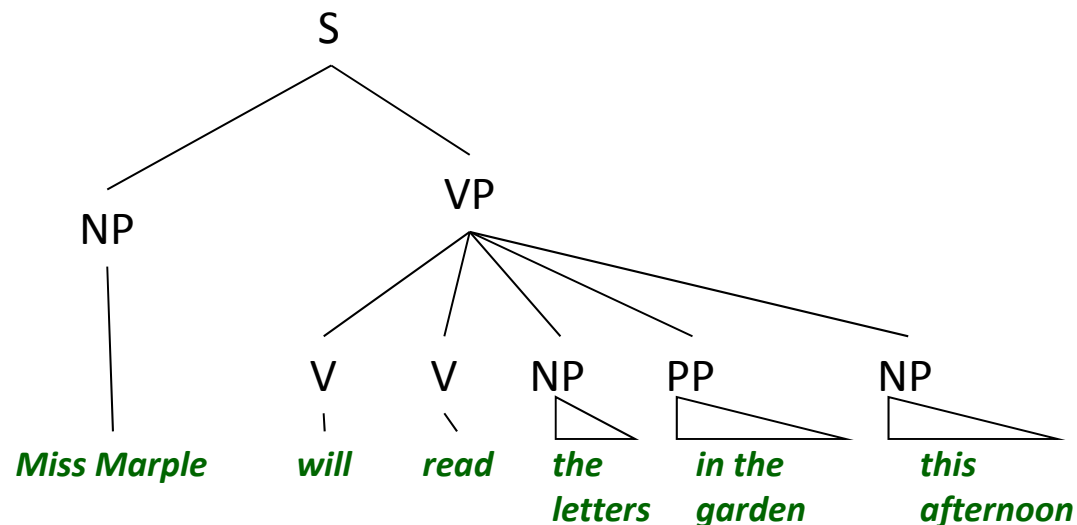
whenever we  
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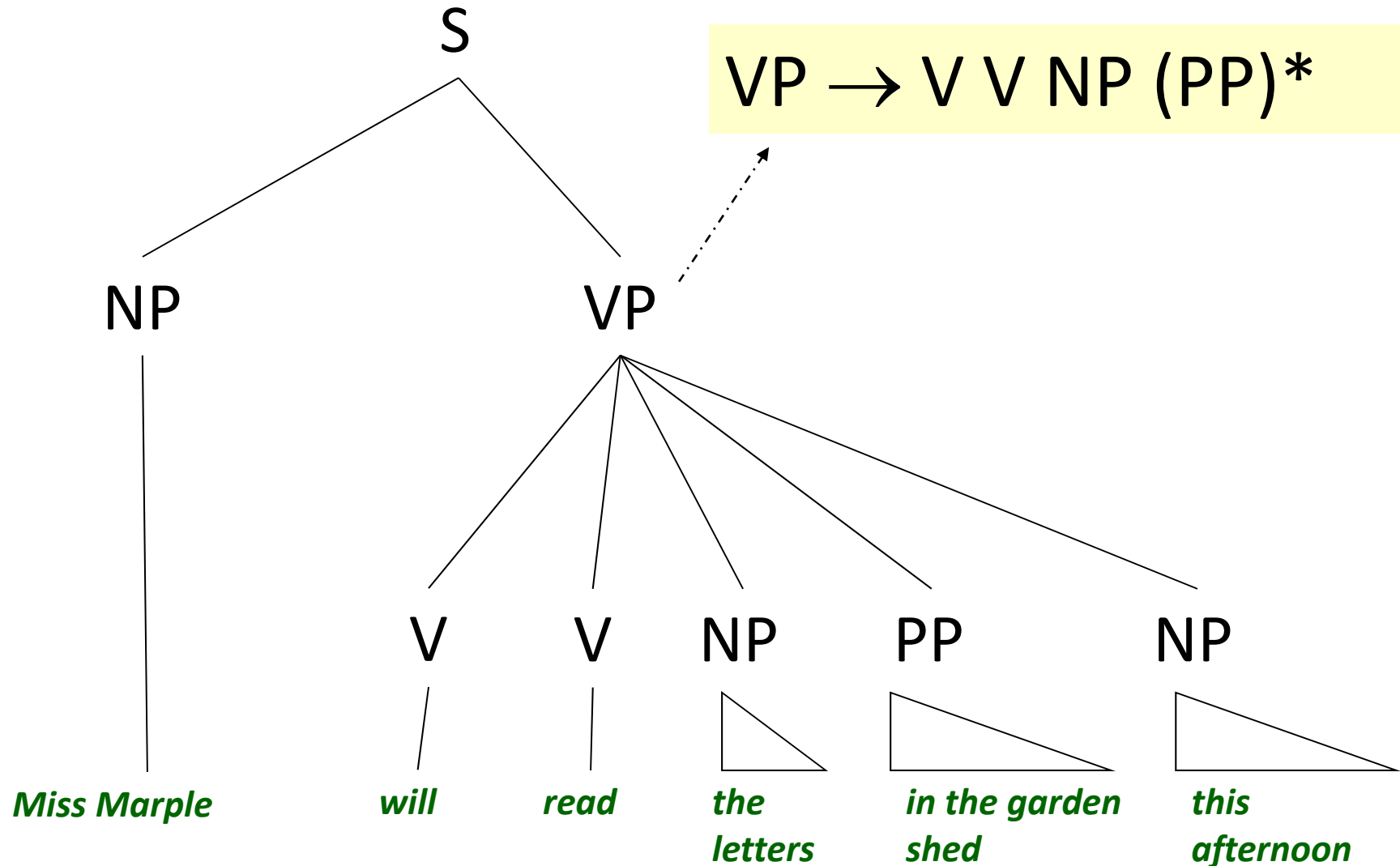


# Arguments against 'flat' structures:

- Miss Marple will read the letters in the garden shed this afternoon



# A horribly flat sentence structure



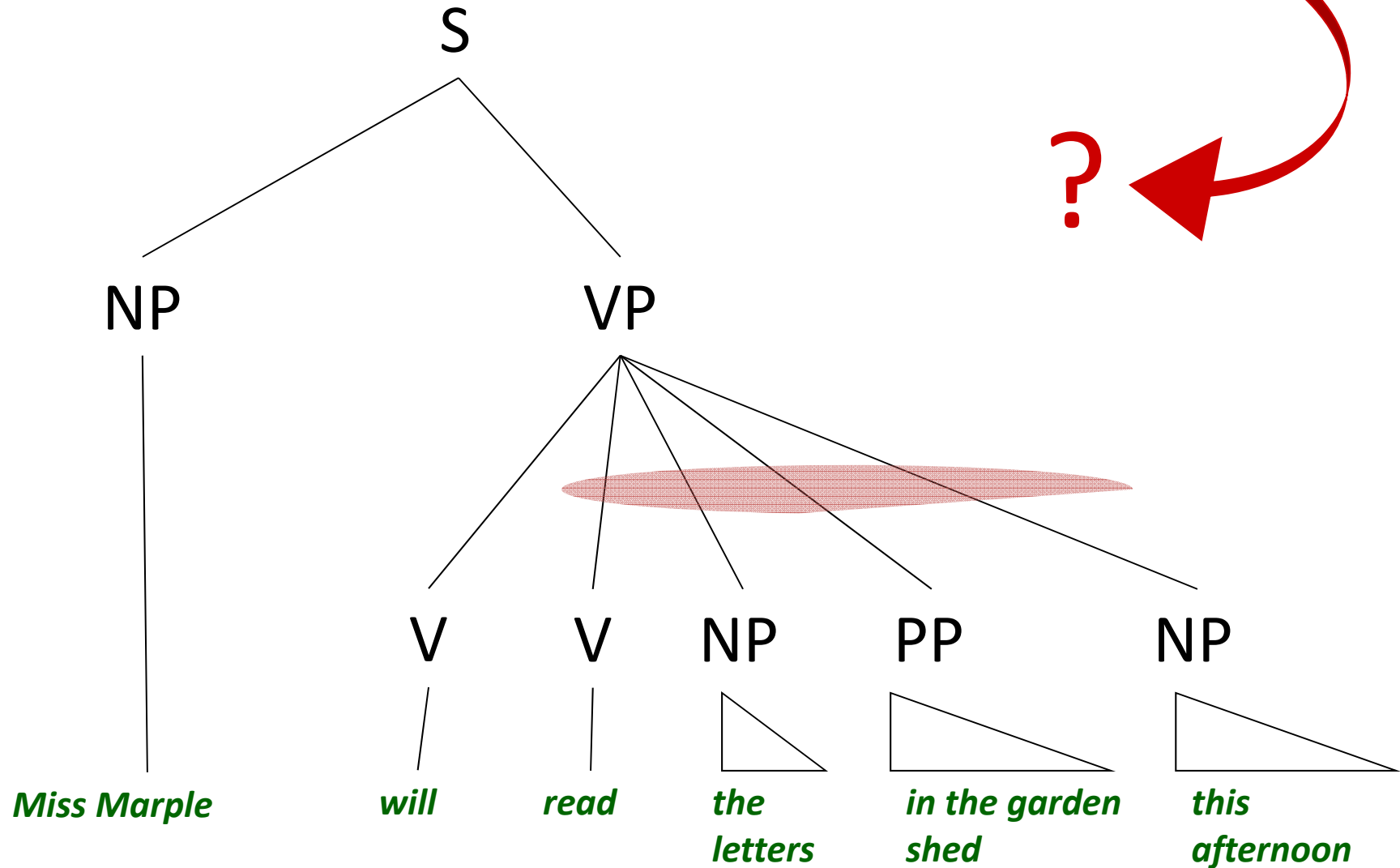
# Arguments against 'flat' structures:

- Miss Marple will read the letters in the garden shed this afternoon

# Arguments against 'flat' structures:

- Miss Marple will read the letters in the garden shed this afternoon and Hercule Poirot will do so too.

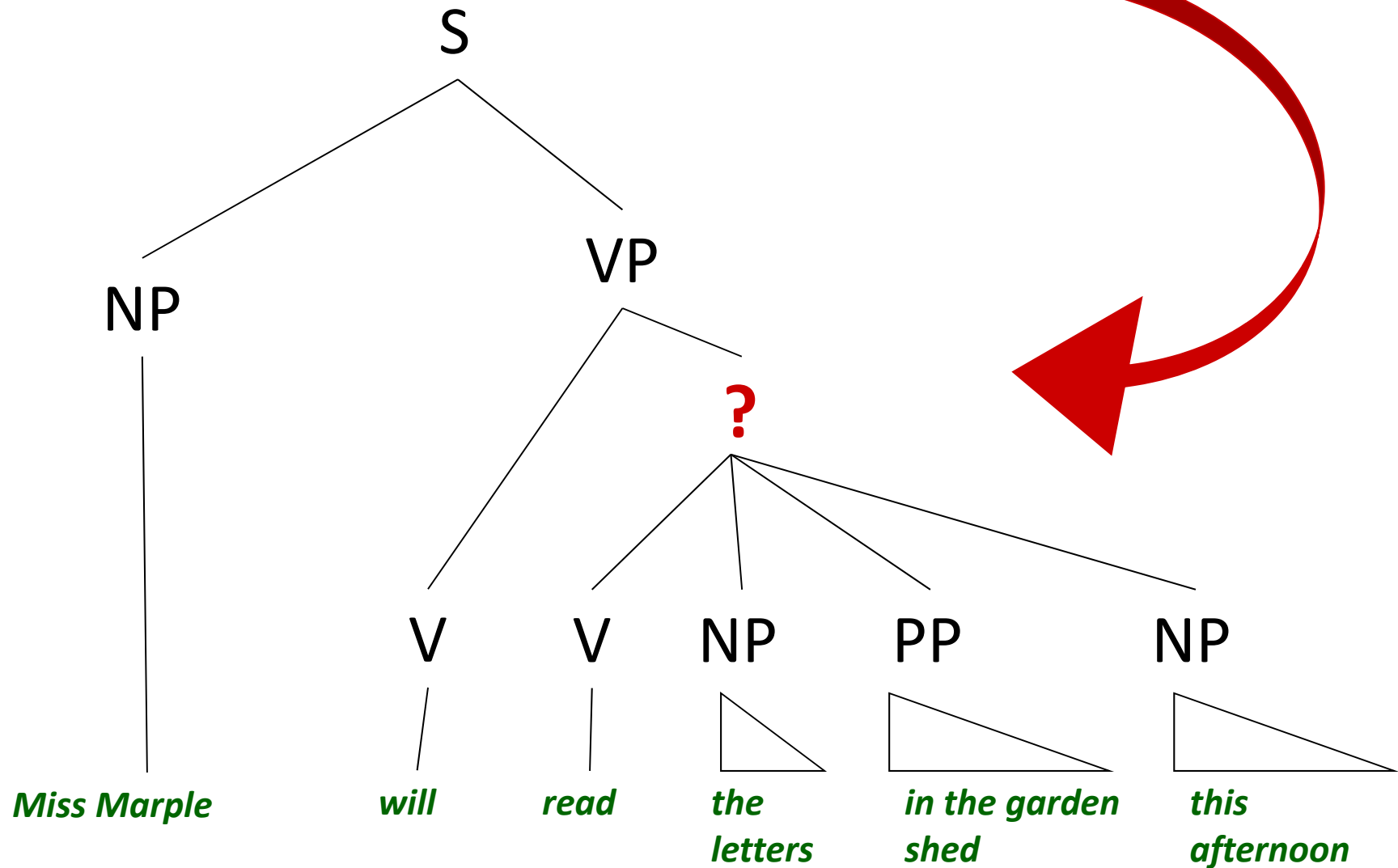
... and HP will do so too



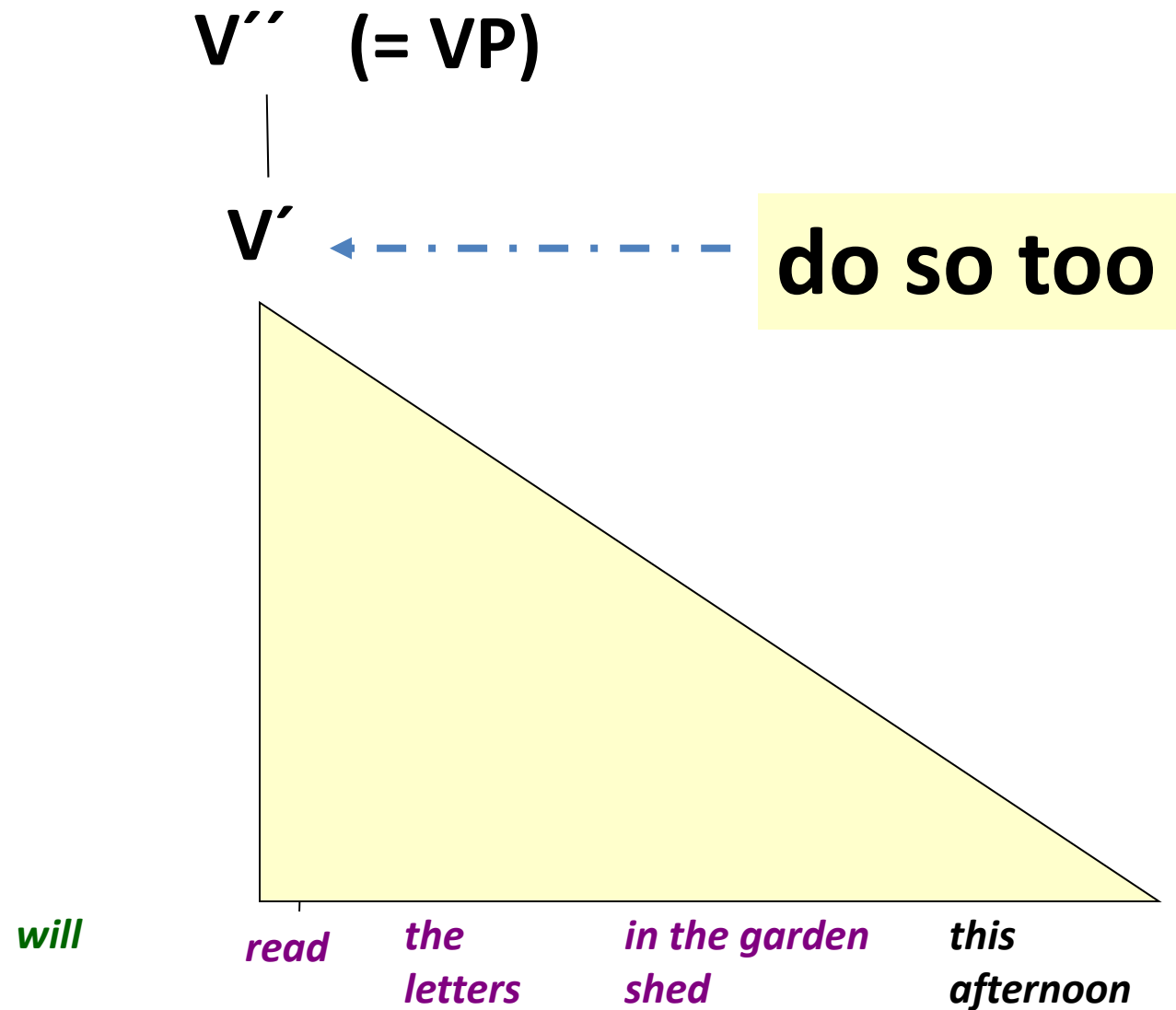
# Arguments against 'flat' structures:

- Miss Marple will read the letters in the garden shed this afternoon and Hercule Poirot will do so too.

... and HP will do so too



# The new VP structure

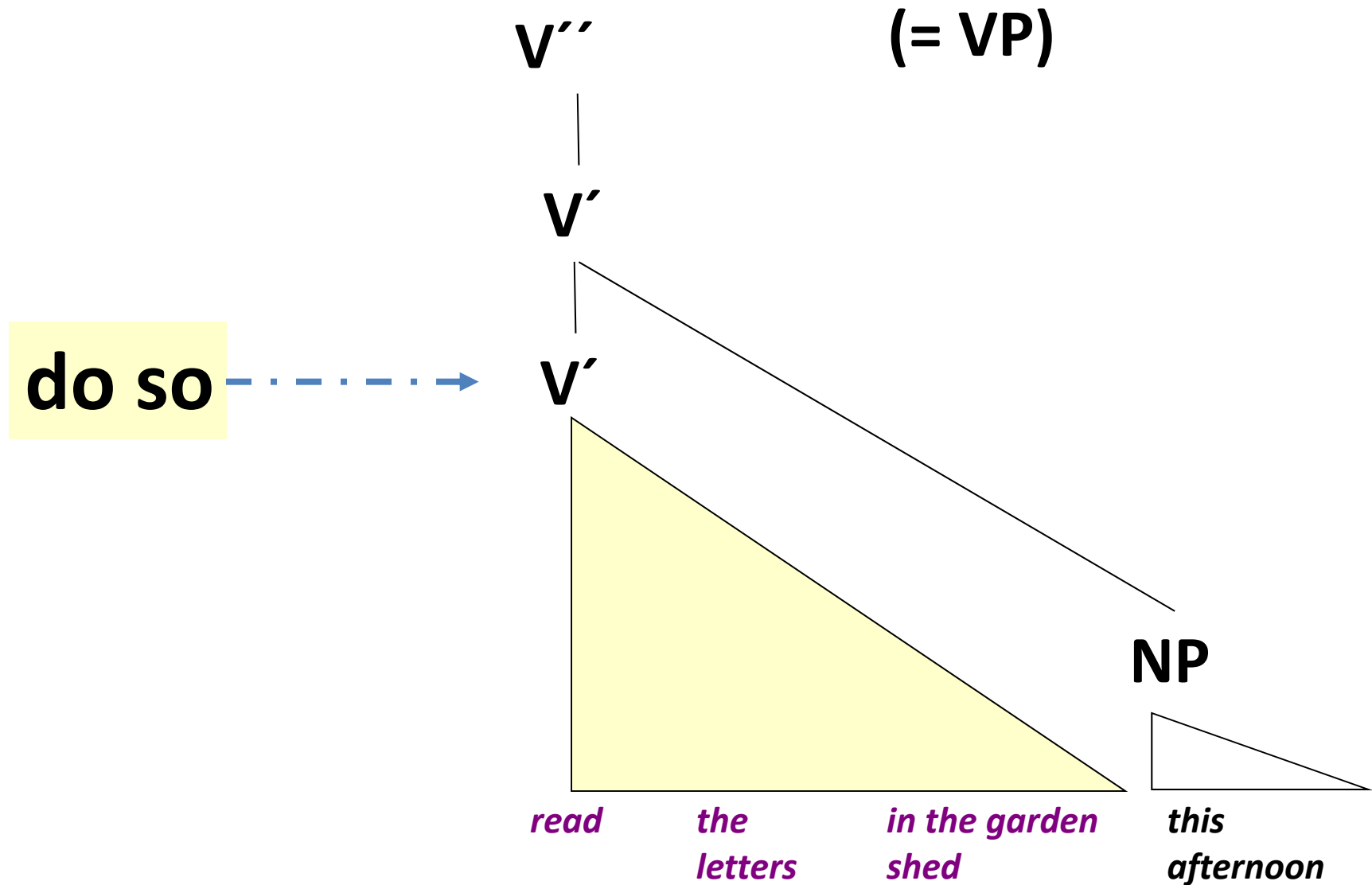




# Arguments against 'flat' structures:

- Miss Marple will read the letters in the garden shed this afternoon and Hercule Poirot will do so too.
- Miss Marple will read the letters in the garden shed this afternoon and Hercule Poirot will **do so tonight**.

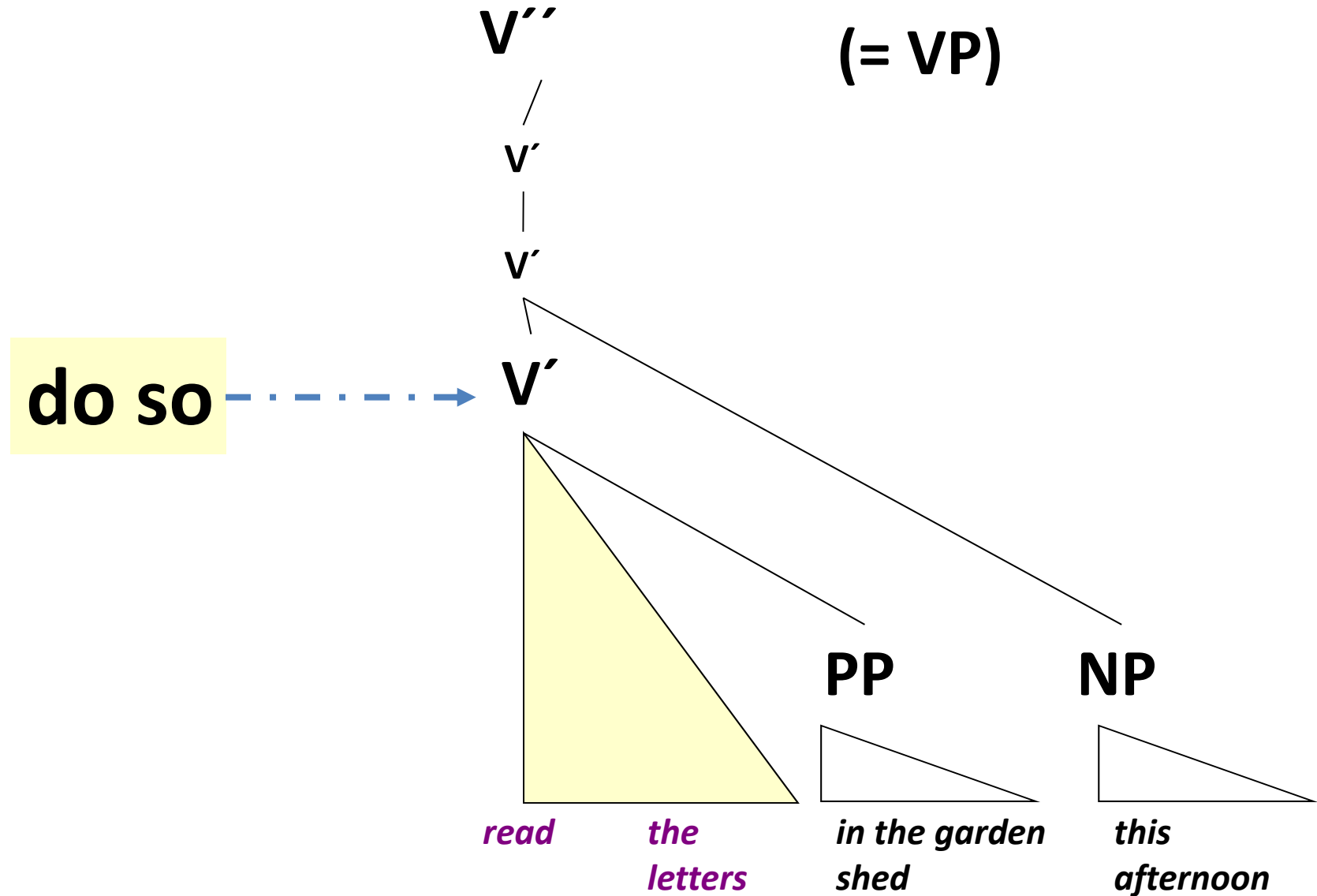
# The new VP structure



# Arguments against 'flat' structures:

- Miss Marple will read the letters in the garden shed this afternoon and Hercule Poirot will do so too.
- Miss Marple will read the letters in the garden shed this afternoon and Hercule Poirot will do so tonight.
- Miss Marple will read the letters in the garden shed this afternoon and Hercule Poirot will do so in the garage tonight.

# The new VP structure

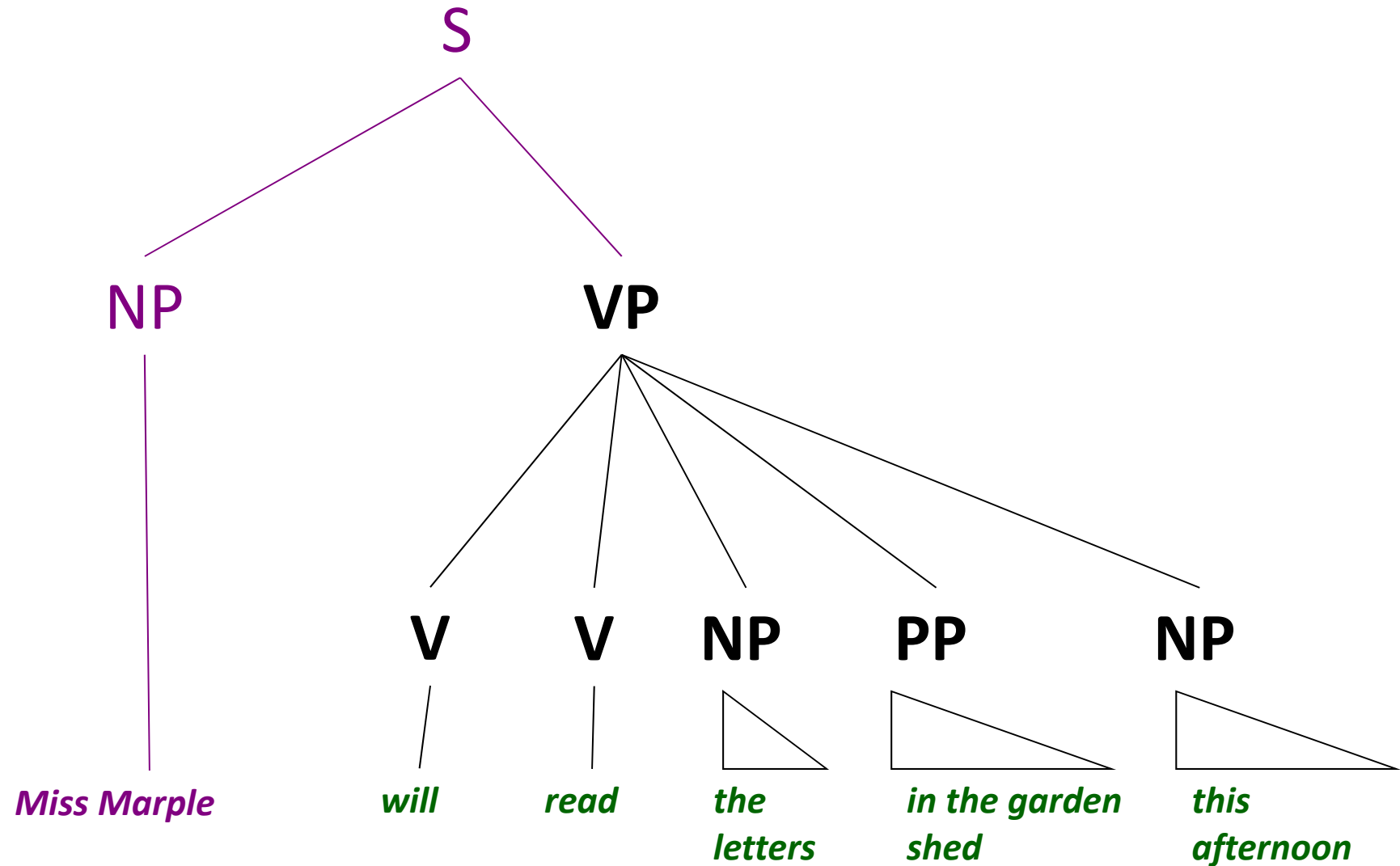


# Can we go any further?

- Miss Marple will read the letters in the garden shed this afternoon and Hercule Poirot will do so the diaries in the garage after dinner.

?

# The old VP structure



# Arguments against 'flat' structures:

—VP → V NP (PP)\* ??????

- Miss Marple will read the letters in the garden shed this afternoon and Hercule Poirot will do so too.
  - Miss Marple will read the letters in the garden shed this afternoon and Hercule Poirot will do so tonight.
  - Miss Marple will read the letters in the garden shed this afternoon and Hercule Poirot will do so in the garage tonight.
- 
- \* Miss Marple will read the letters in the garden shed this afternoon and Hercule Poirot will do so the diaries in the garage after dinner.

# The new VP structure

do so



$v''$

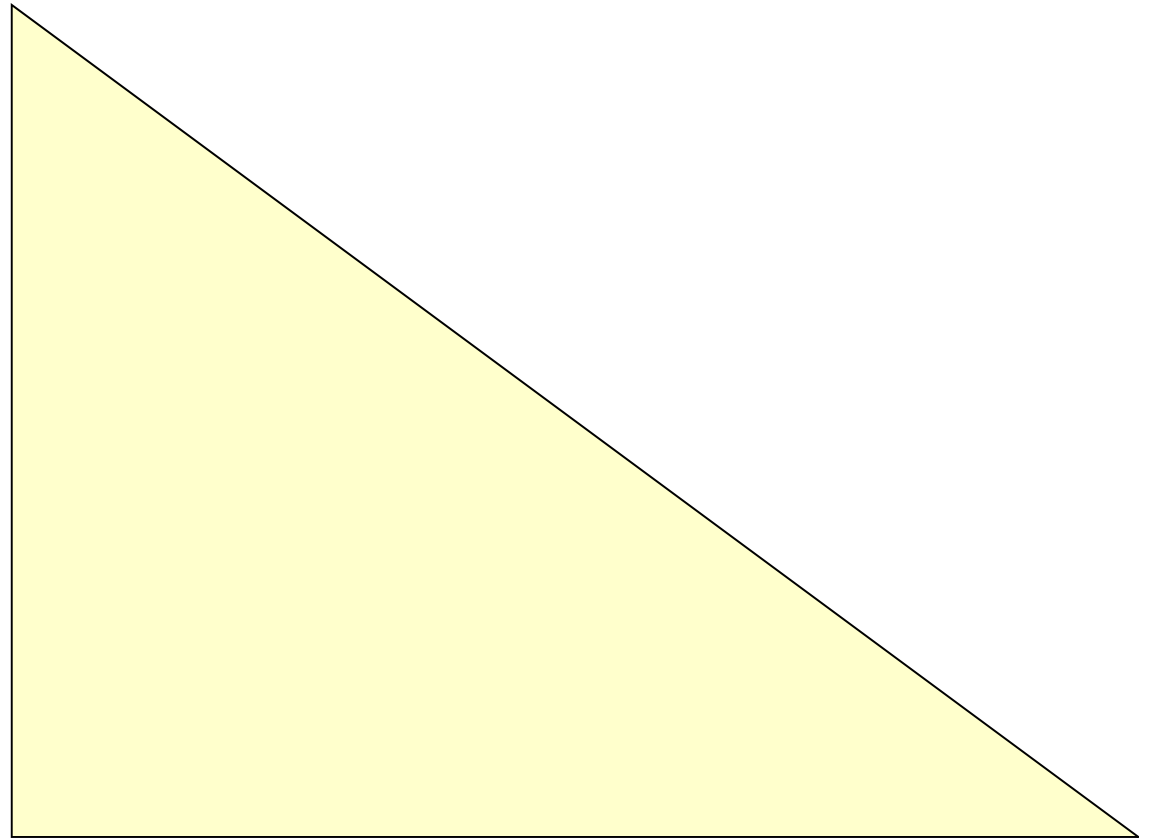
(= VP)

*read*

*the  
letters*

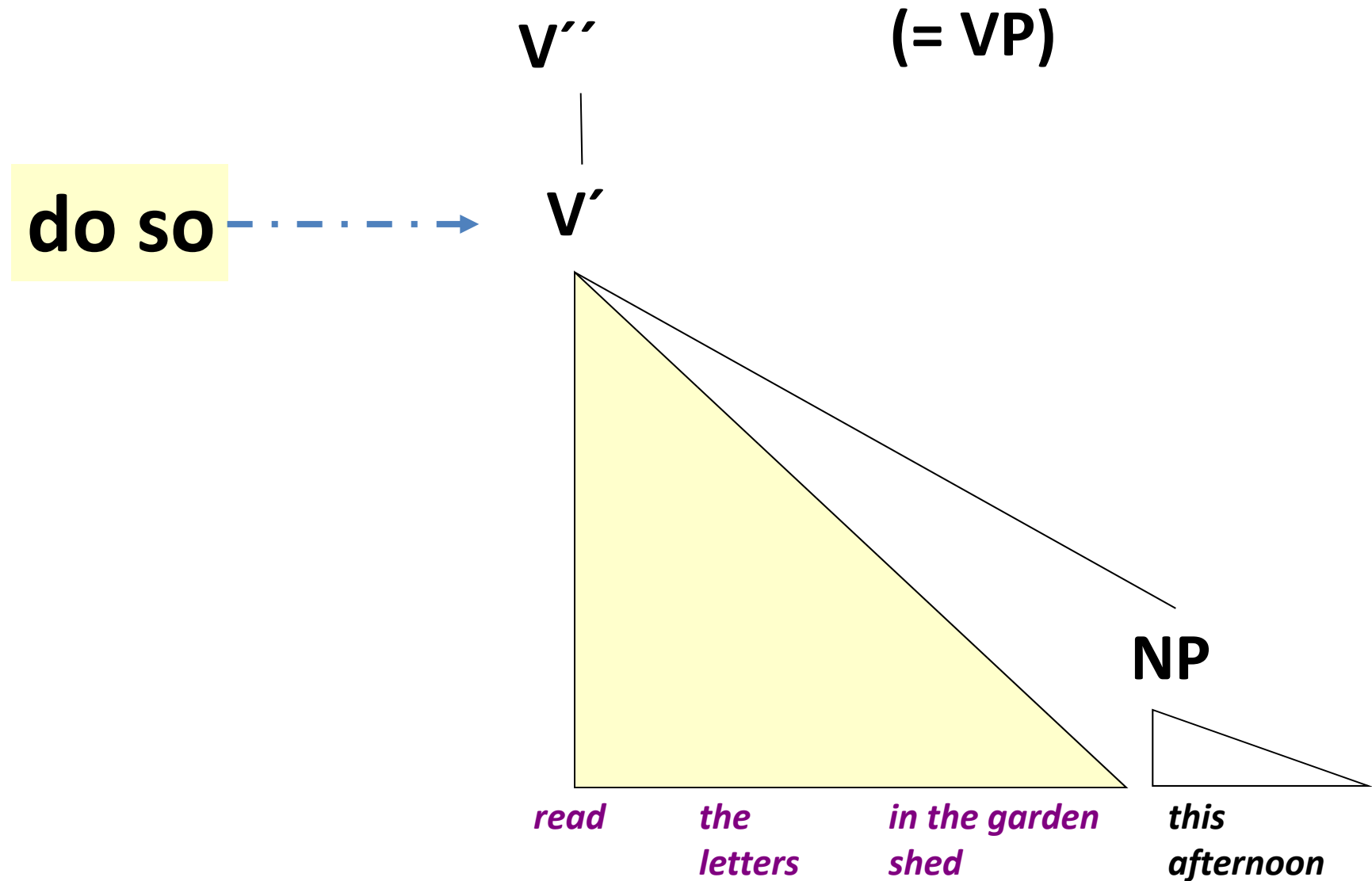
*in the garden  
shed*

*this  
afternoon*

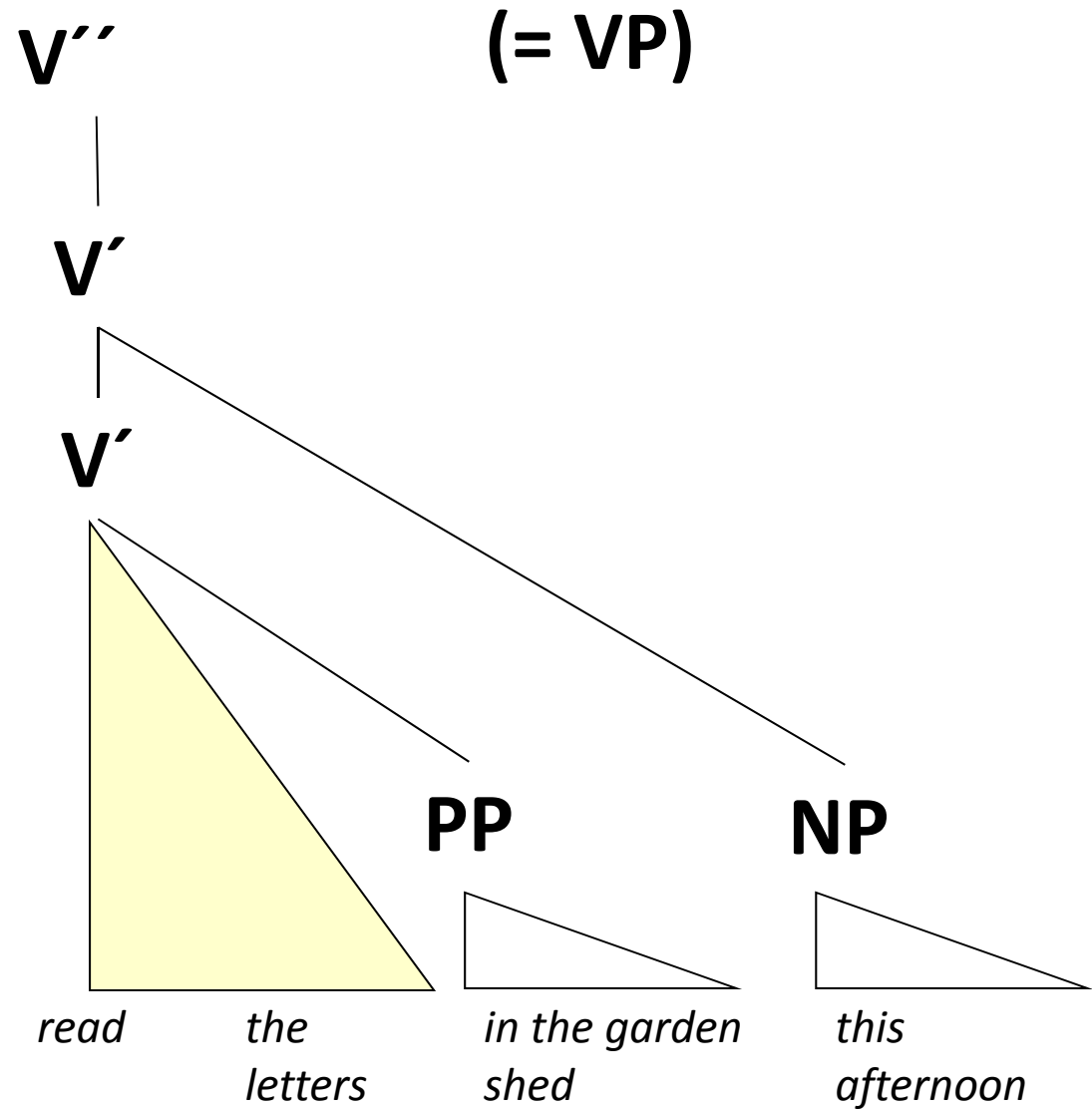




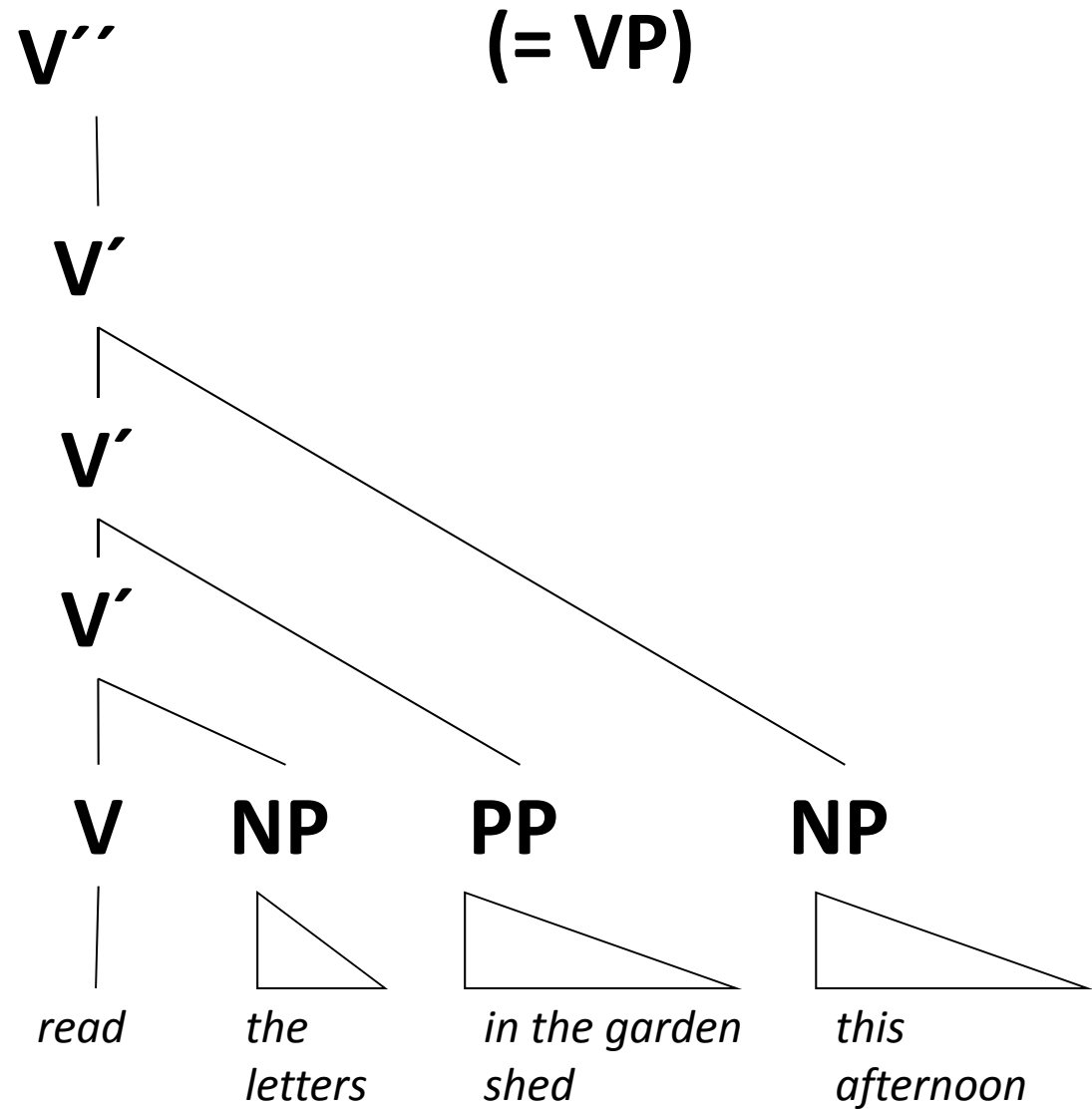
# The new VP structure



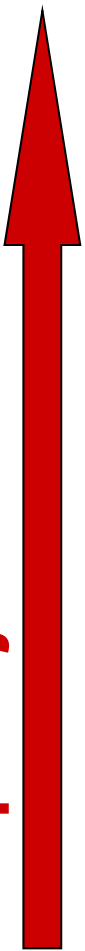
# The new VP structure

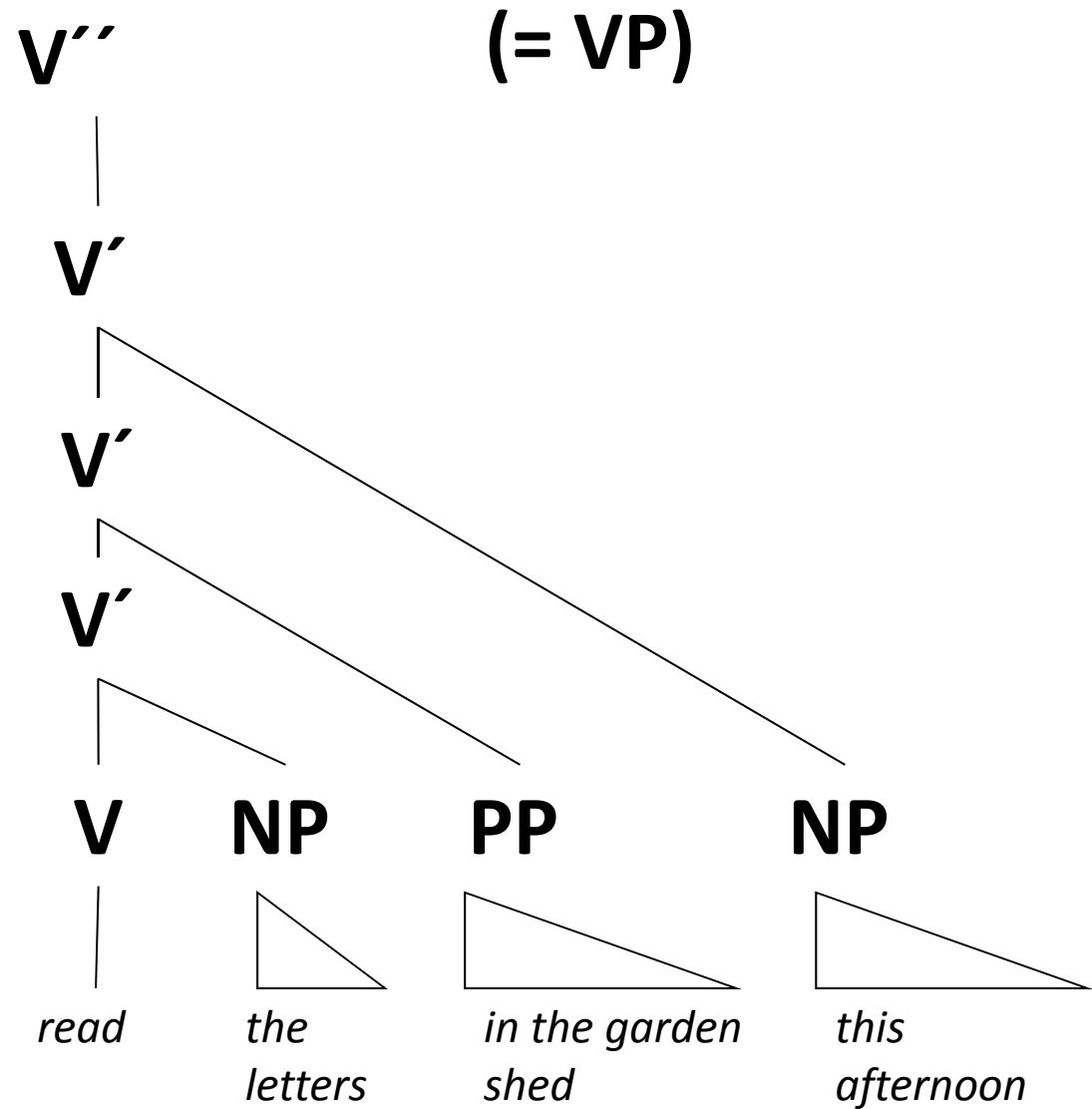


# The new VP structure



# The new VP structure

'projections'  


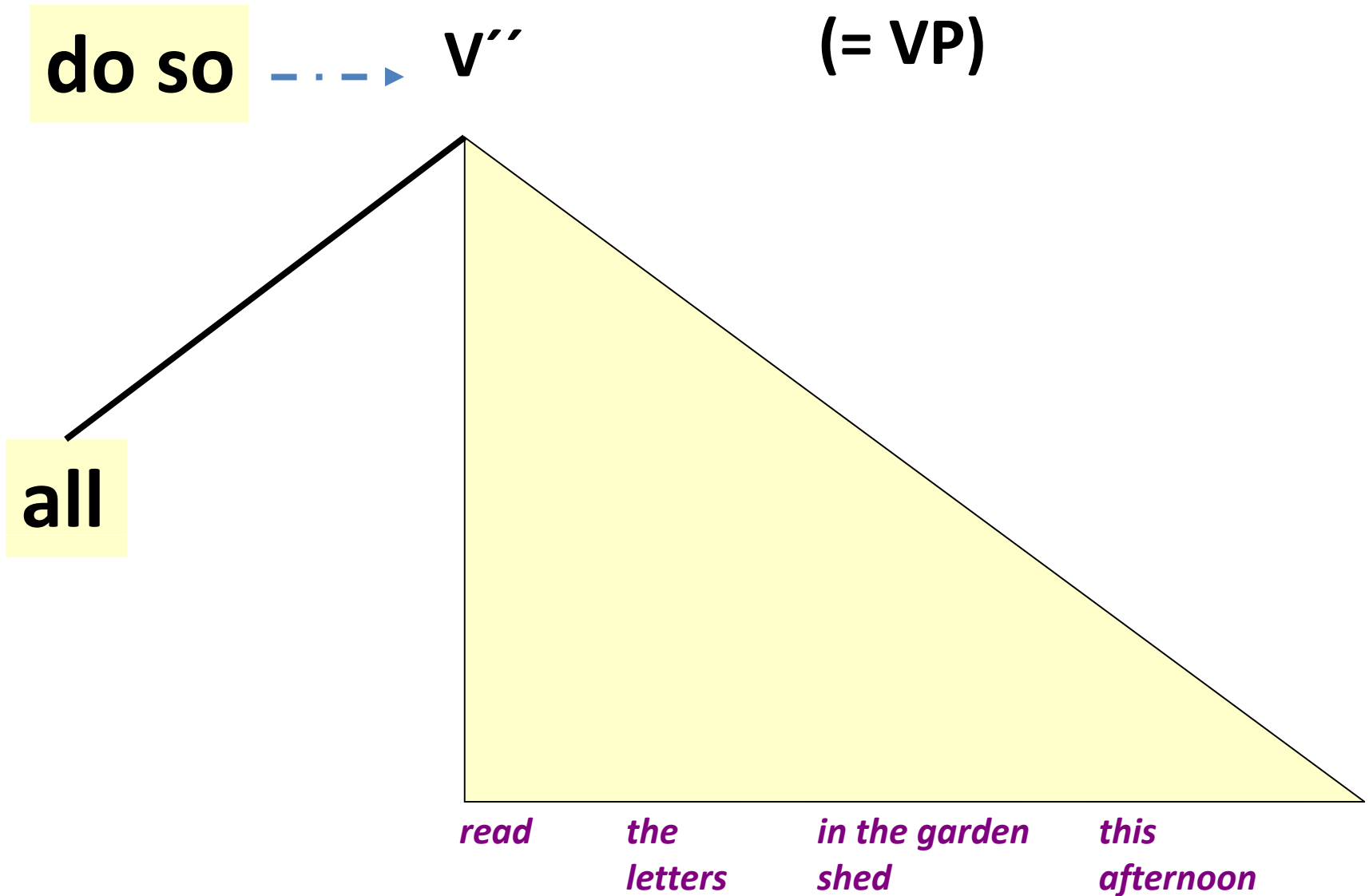


- All the detectives have read the letters in the garden shed after lunch.
- They have?

- All the detectives have read the letters in the garden shed after lunch.
  - They have?
- 

- The detectives have all read the letters in the garden shed after lunch.
- \* They have all?
- The police have all done so too.

# The new VP structure

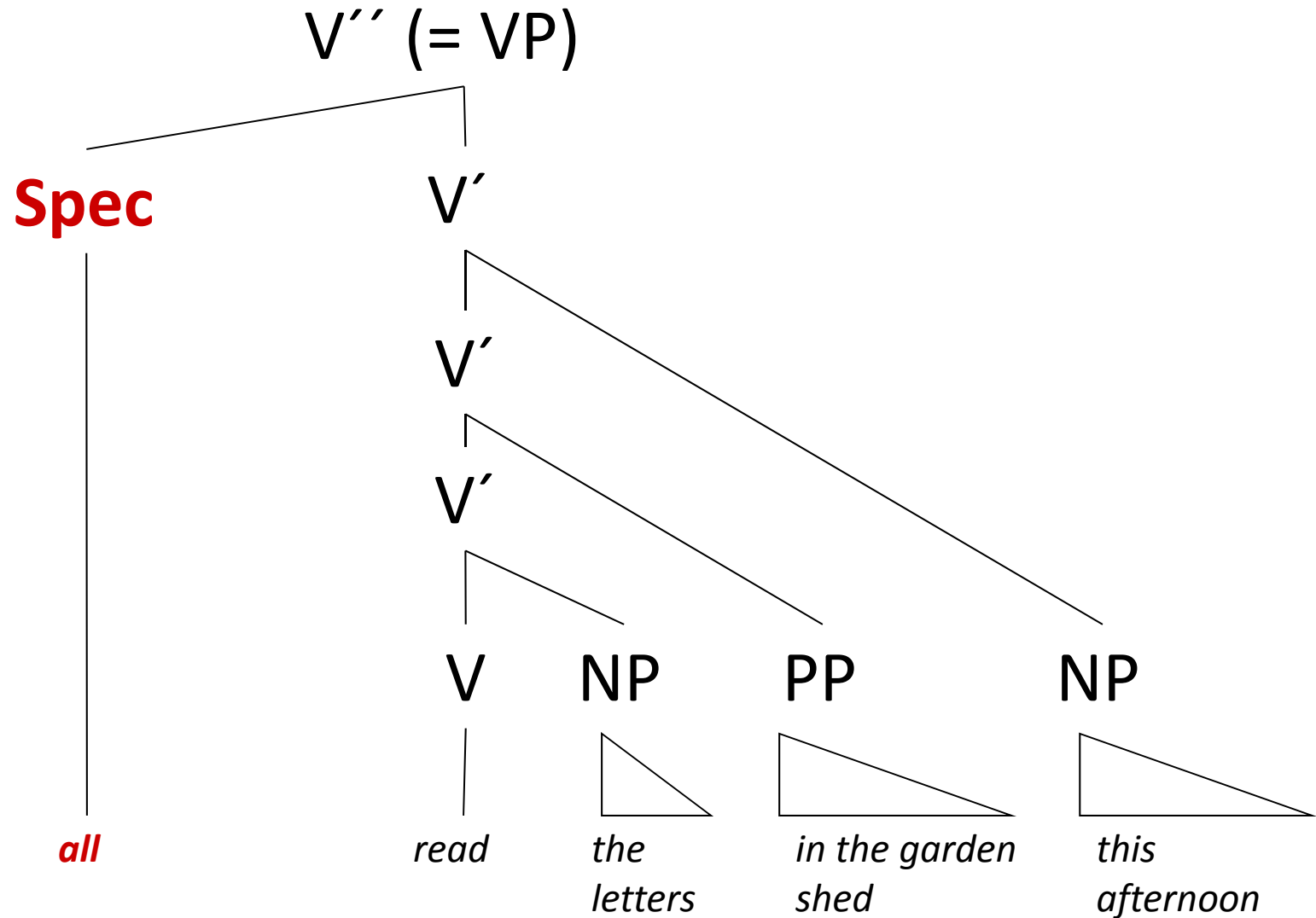


# A new constituent: **Specifier**

- The detectives have all read the letters in the garden shed after lunch.
- The police have all done so too.
- The police have all done so after lunch.
- The police have all done so in the garden shed after lunch



# The new VP structure: 'projections'



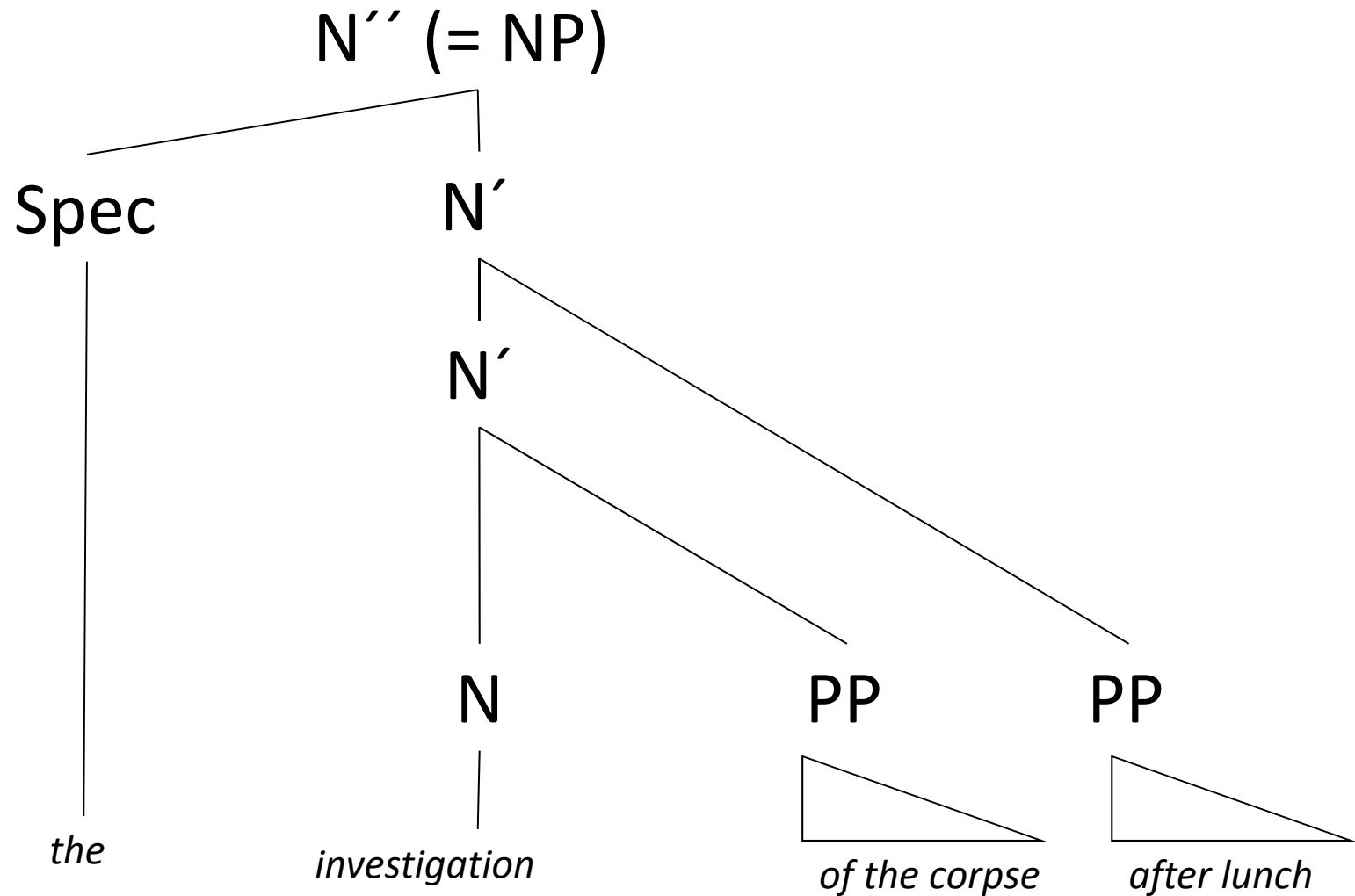
# Nominal Phrases

- the investigation of the corpse after lunch
- the investigation of the corpse after lunch was less horrible than the one after dinner
- they investigated the corpse vs.  
the investigation of the corpse

# Nominal Phrases

- NP  $\rightarrow$  Det N (PP)\*      ???????

# The new NP structure: 'projections'



# Adjective Phrases

- Jeeves is envious
- Jeeves is envious of Poirot
- Jeeves is rather envious of Poirot
  
- He is true to his principles
- Er ist seinen Grundsätzen treu.

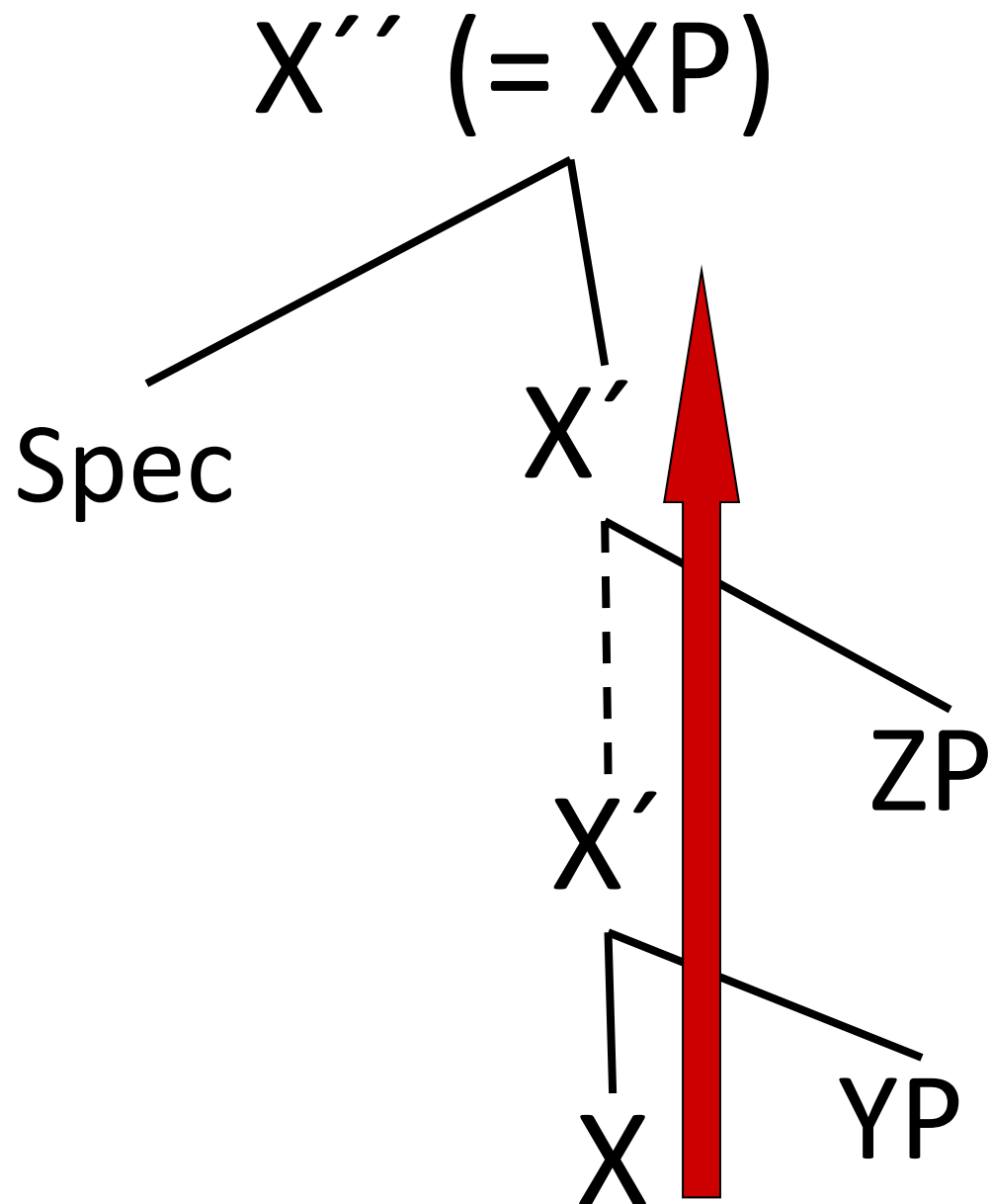
# Prepositional Phrases

- across the bridge
- right across the bridge
- Prepositions: *by* car, *mit* dem Auto
- Postpositions: kuruma-*de*

# The X-bar schema

Noam Chomsky

‘projections’



# X-bar Theory

- $X'' \rightarrow \text{Spec}; X'$
- $X' \rightarrow X'; \text{ZP}$
- $X' \rightarrow X; \text{YP}$



# The rise of 'X-bar' syntax

- Arguments against 'flat' structures
- Basic reoccurring patterns in the *different types of phrases* that we find in a language
- Basic reoccurring patterns in the structures found *across languages*

# ‘Language Acquisition’

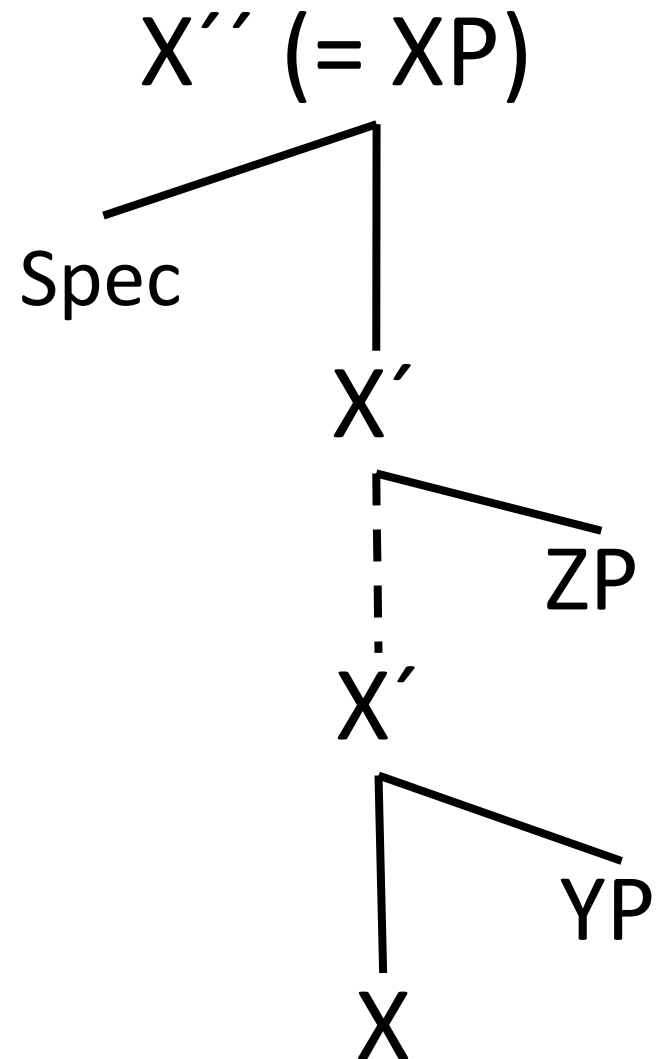
- One further argument:  
Fewer options for the child to  
discriminate amongst.....?

–“Mummy must go now.”

*how many trees?*

# The X-bar schema

Noam Chomsky



# The X-bar schema

Noam Chomsky

- $X'' \rightarrow \text{Spec}; X'$
- $X' \rightarrow X'; ZP$
- $X' \rightarrow X; YP$

# X-bar Theory

- $X'' \rightarrow \text{Spec}; X'$
- $X' \rightarrow X'; ZP$
- $X' \rightarrow X; YP$

- “If we can treat phrase structure universally in terms of this general projection schema, then we may further assume that the child learning a language **need not construct this schema as part of its grammar**. The principles of X-bar theory will be part of [**Universal Grammar**], they are **innate**.” (Haegeman, 1991:96)

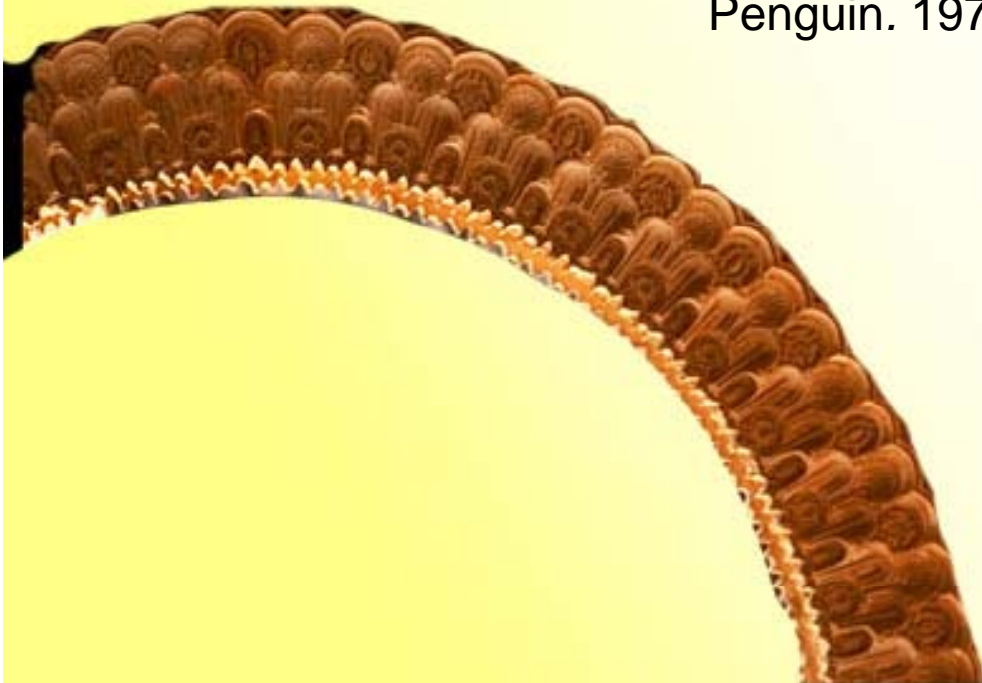
# What do all these trees do?

- help construct structure...
- guide interpretation...
- guide functional interpretation...



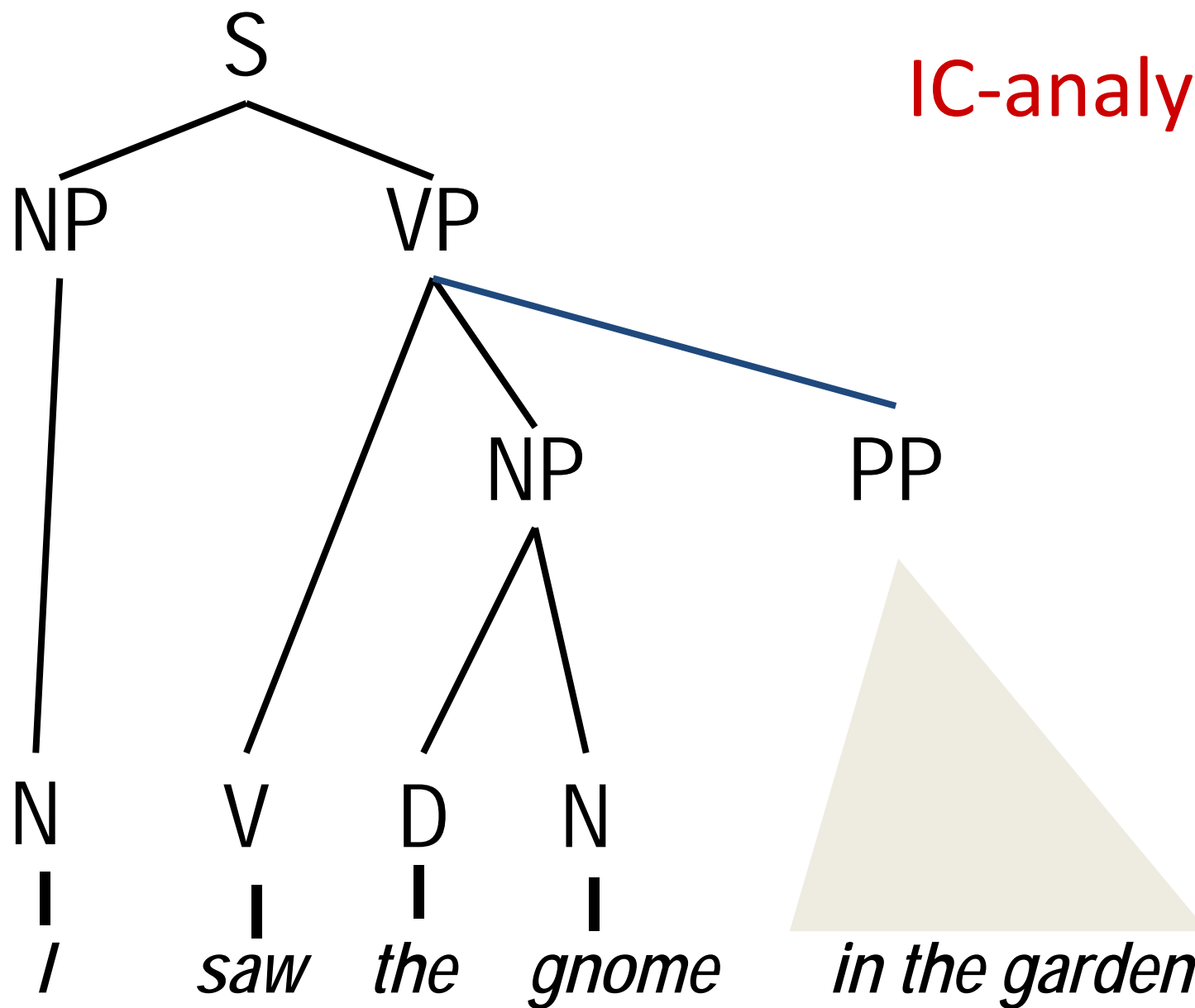
Structure is  
“any assemblage of  
materials which is intended  
to sustain loads.”

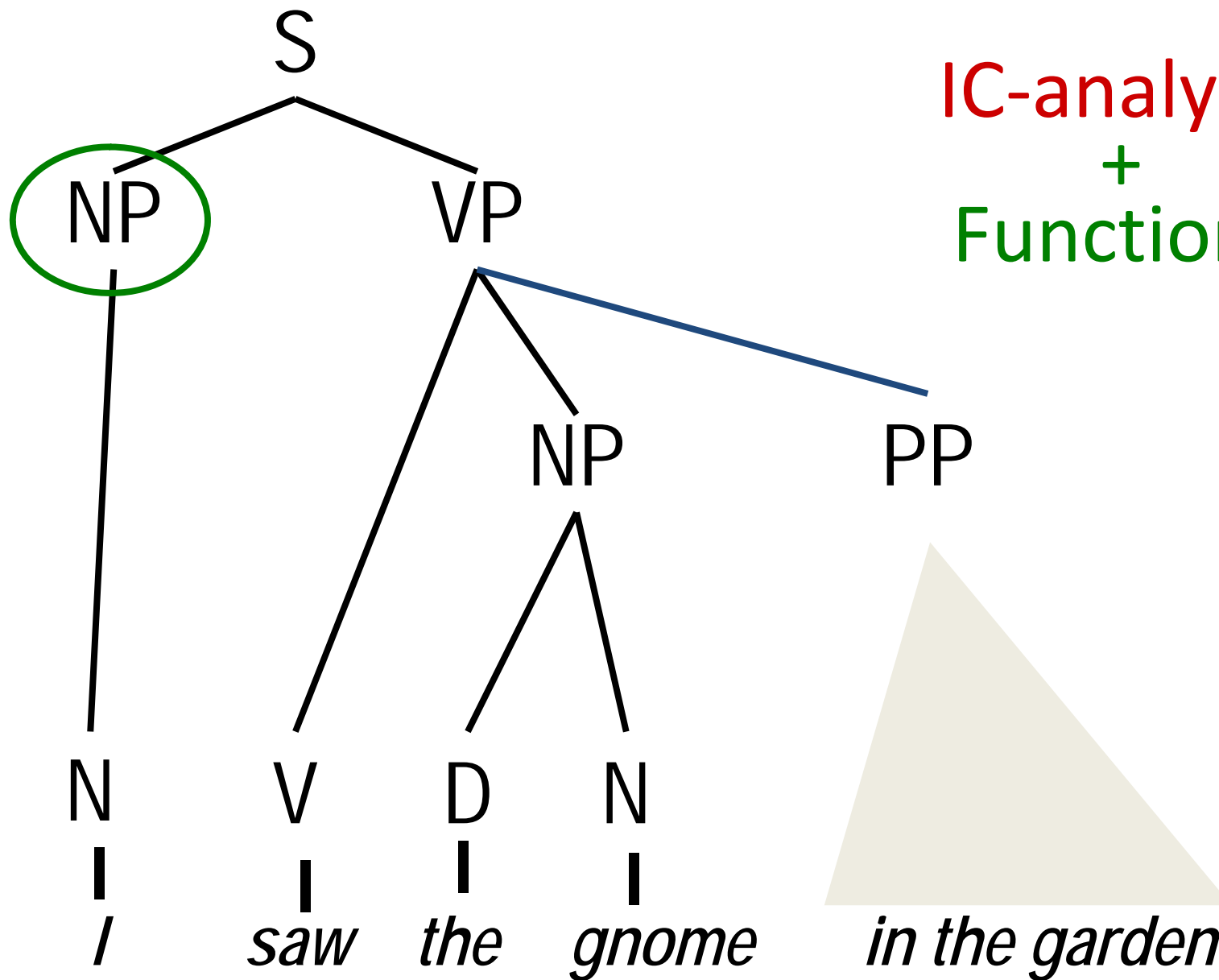
J. E. Gordan, *Structures: or why things don't fall down.*  
Penguin. 1978. p17.





## IC-analysis

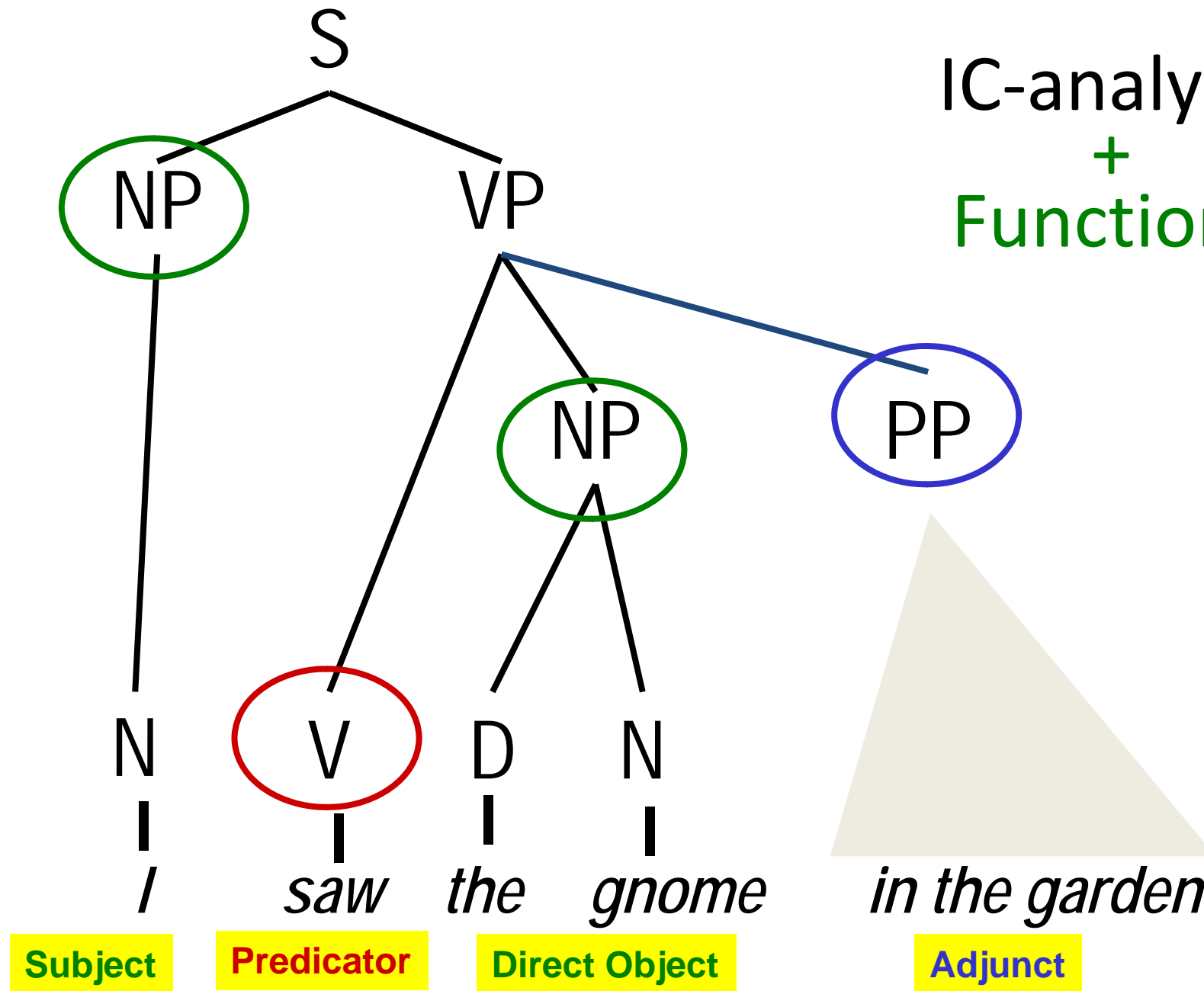


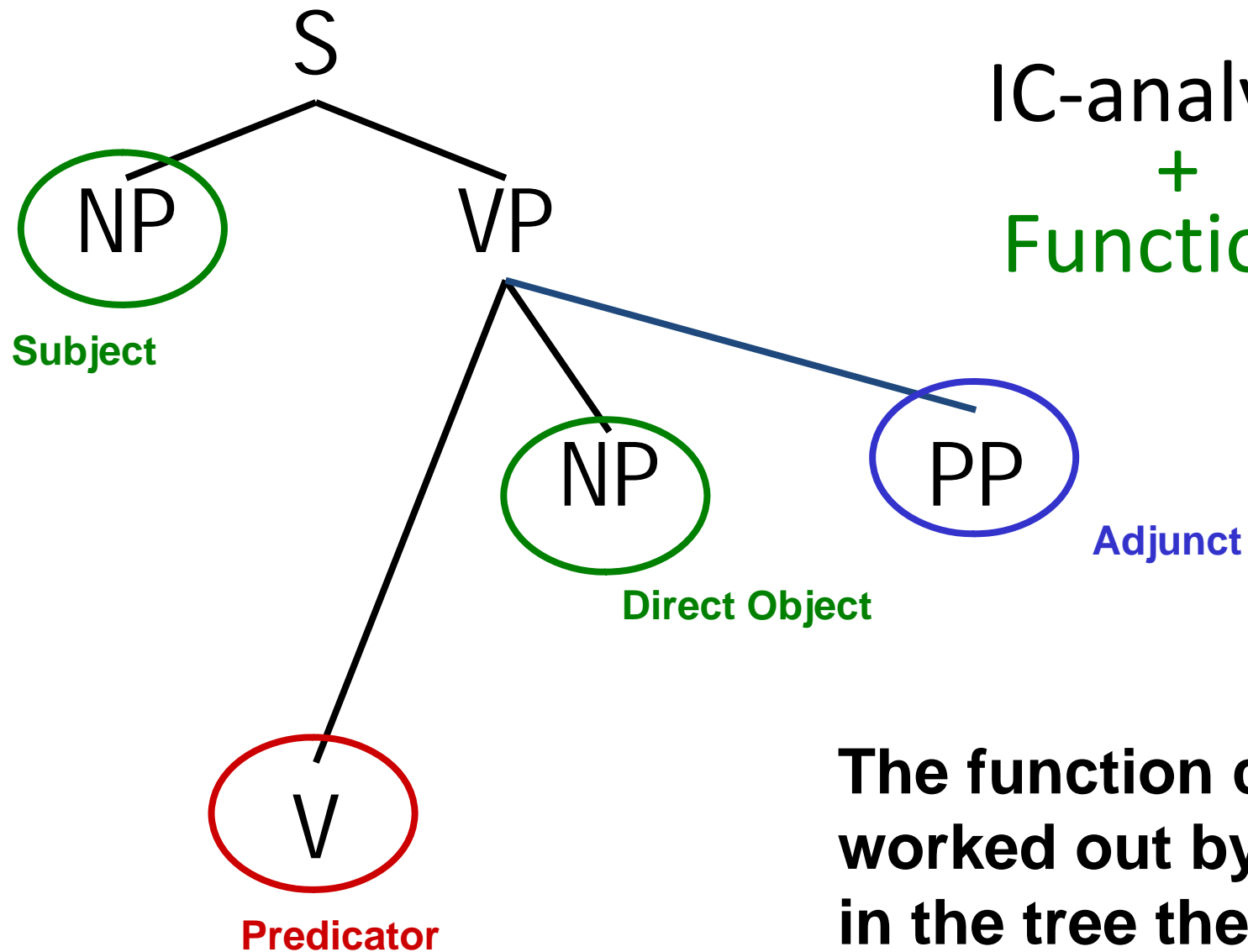


IC-analysis  
+  
Functions

Subject

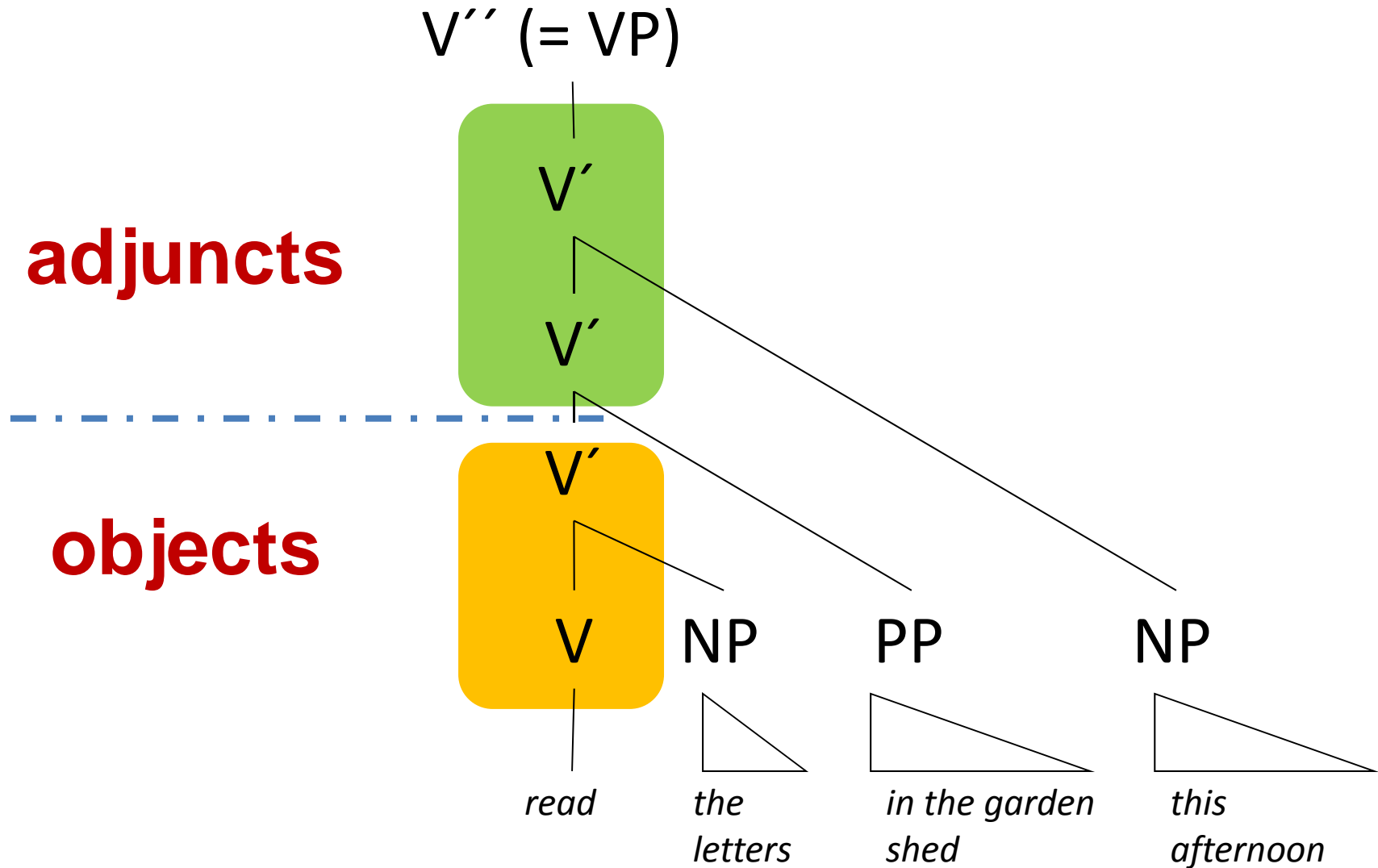
# IC-analysis + Functions



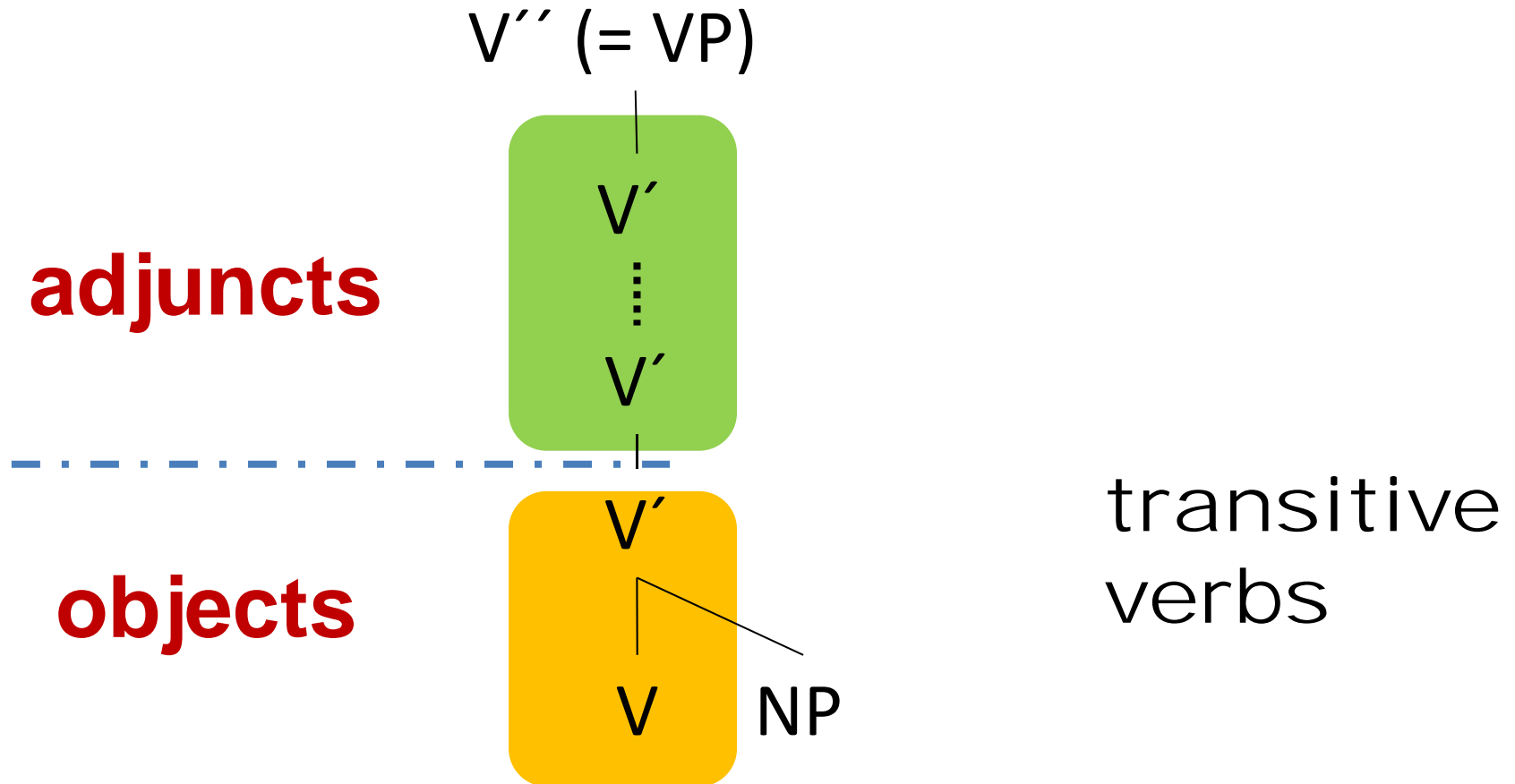


The function can be worked out by where in the tree the constituent is 'hanging'

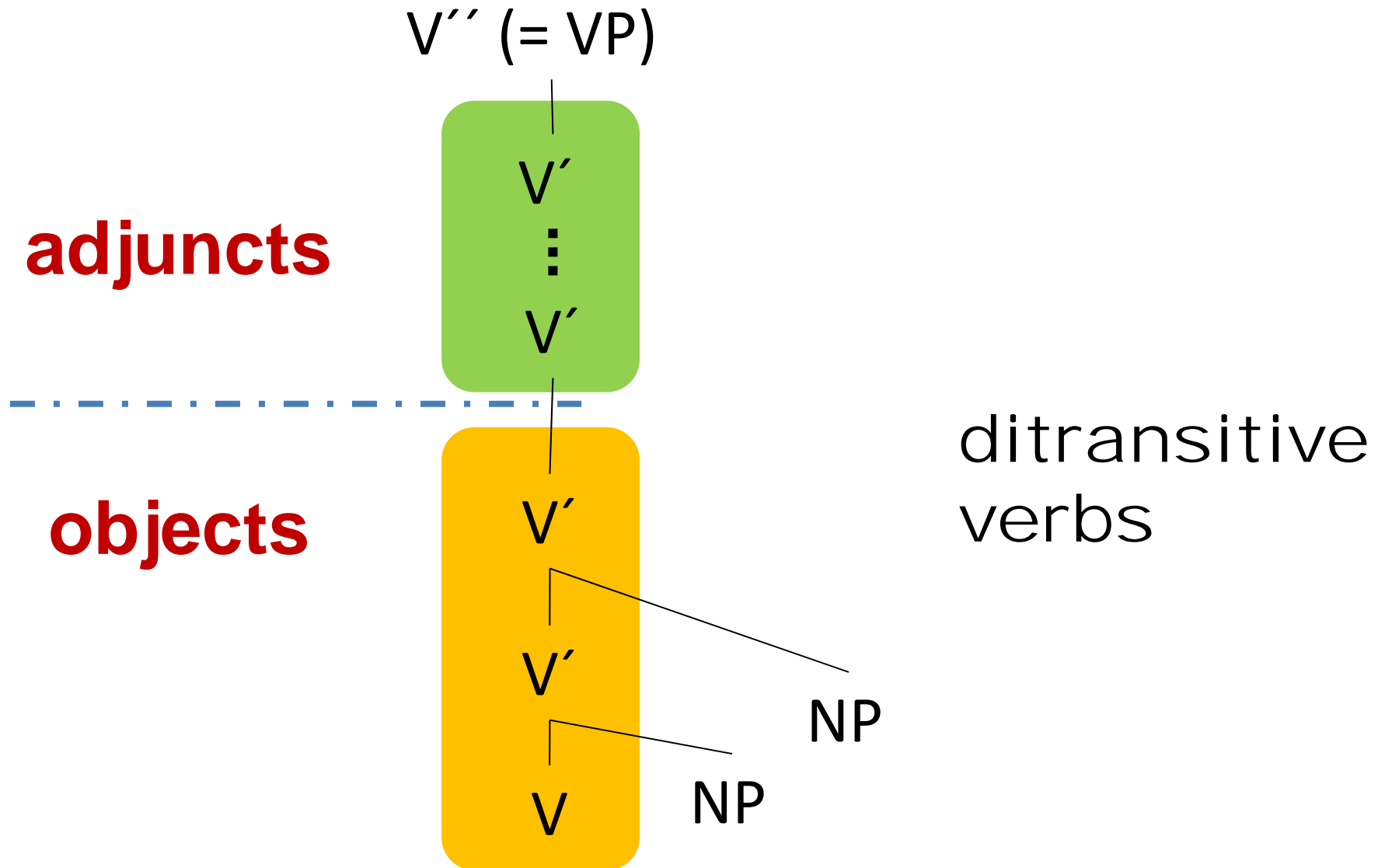
# X-bar and functions



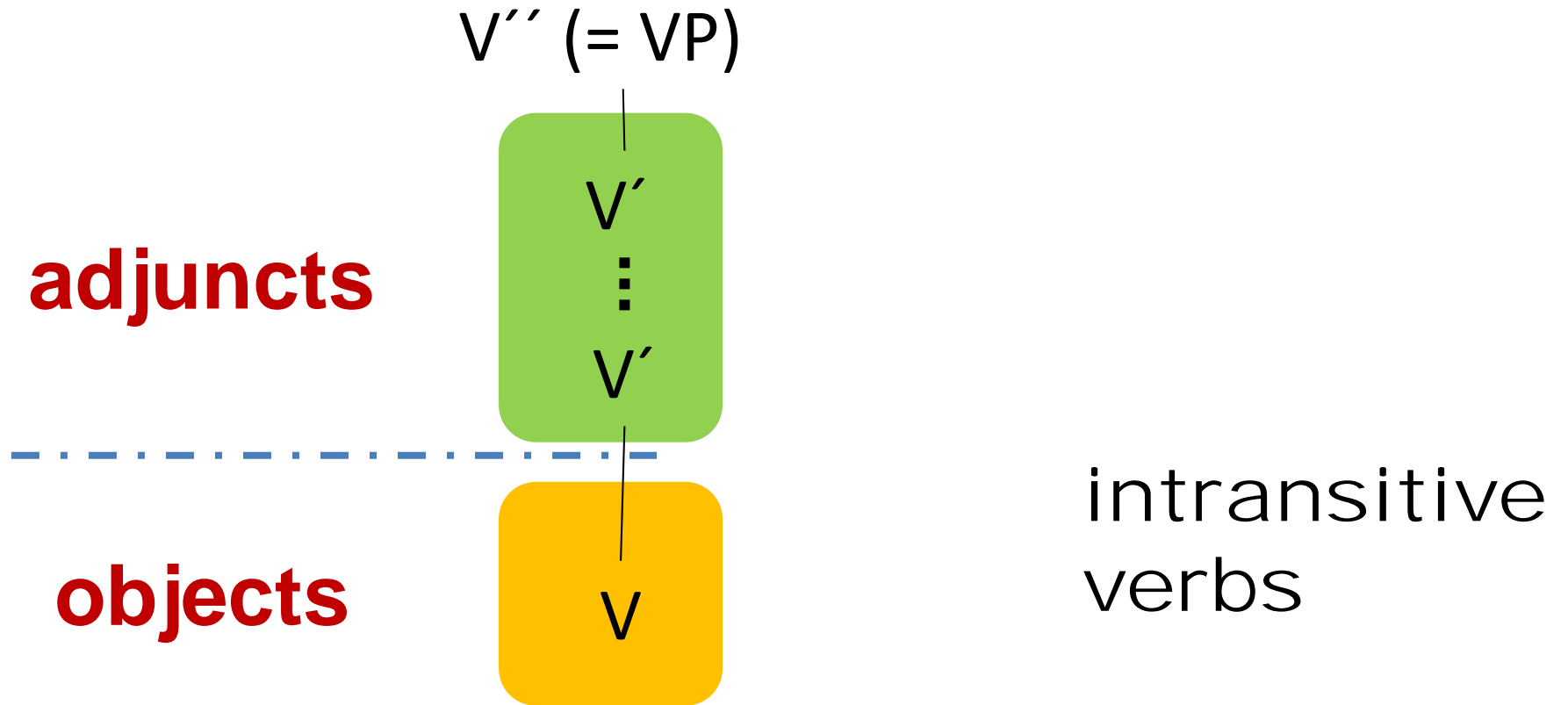
# X-bar and functions



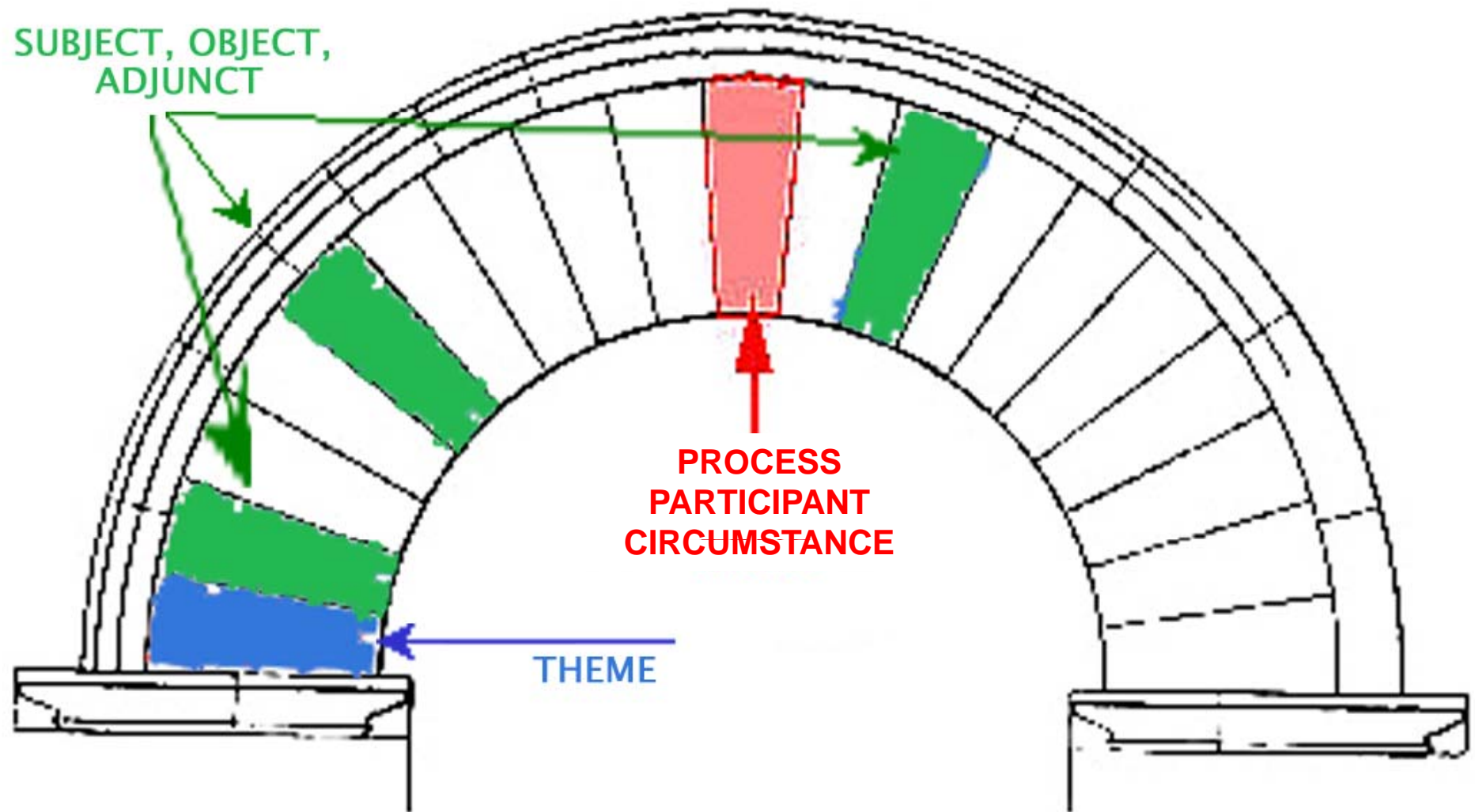
# X-bar and functions



# X-bar and functions

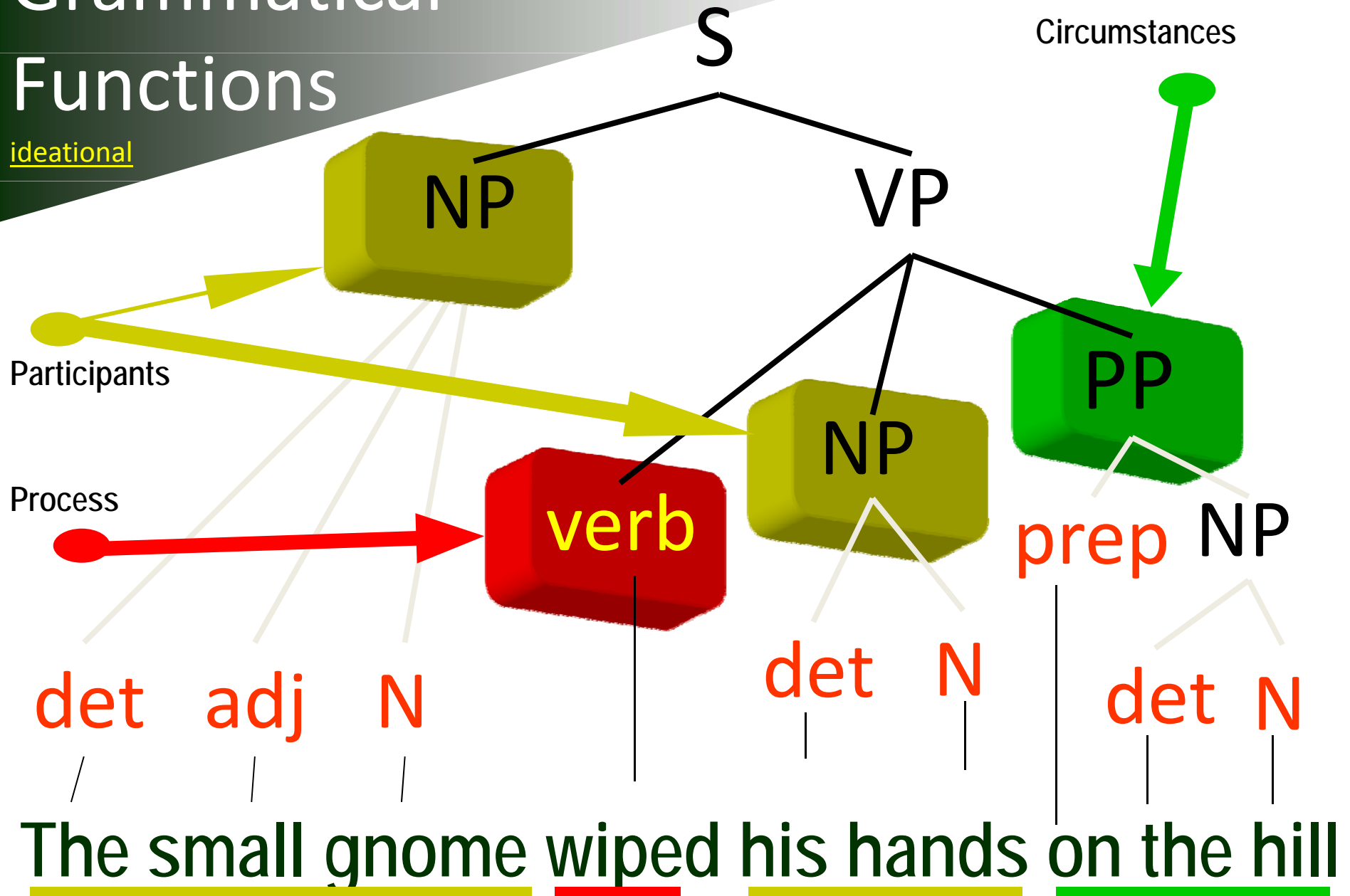






# Grammatical Functions

ideational



# Grammatical Functions

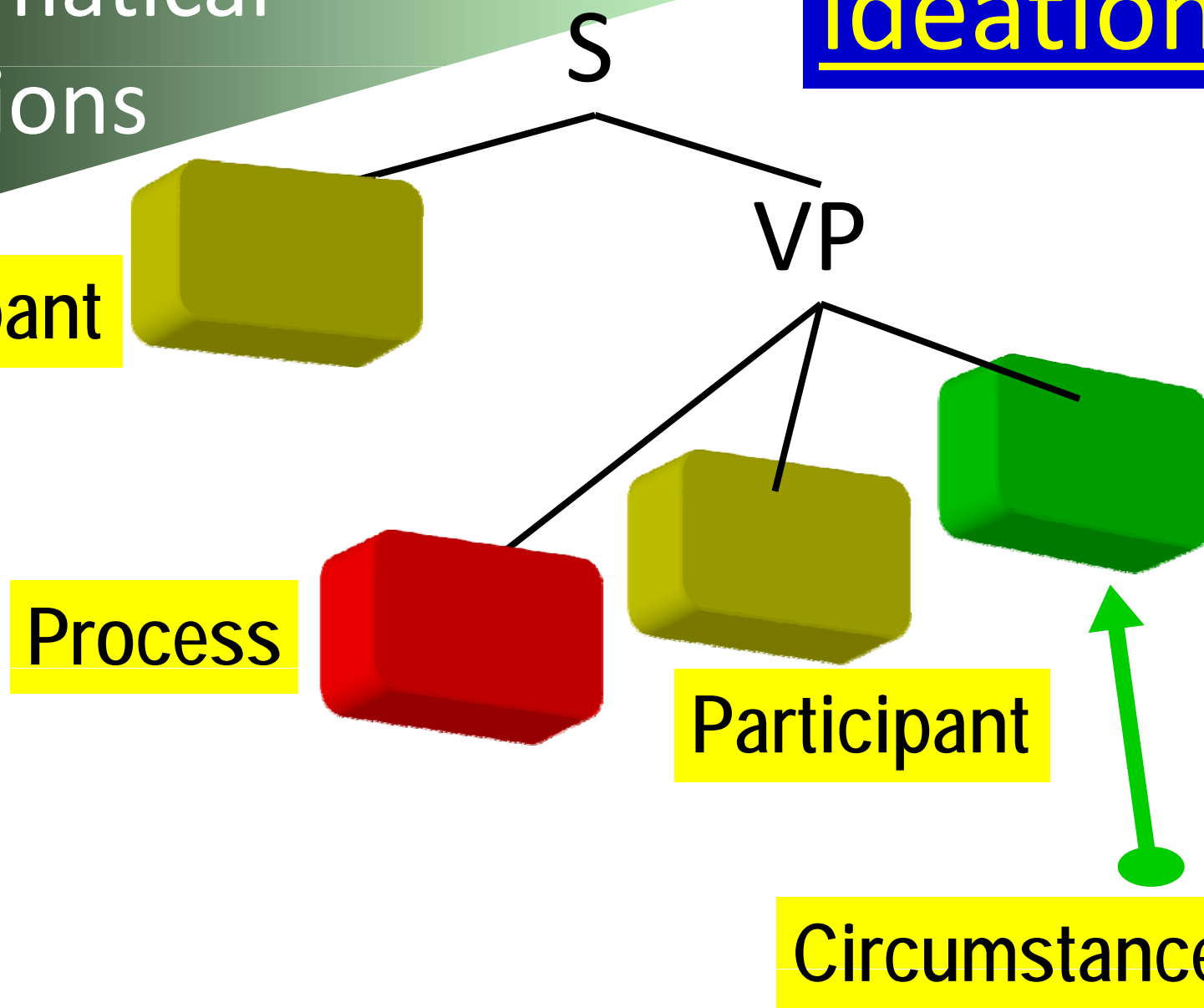
ideational

Participant

Process

Participant

Circumstances



# Grammatical Functions

*interpersonal*

*Subject*

NP

*Finite*

verb

NP

PP

prep

NP

det

adj

N

det

N

det

N

The small gnome wiped his hands on the hill

# Grammatical Functions

interpersonal

*Subject*

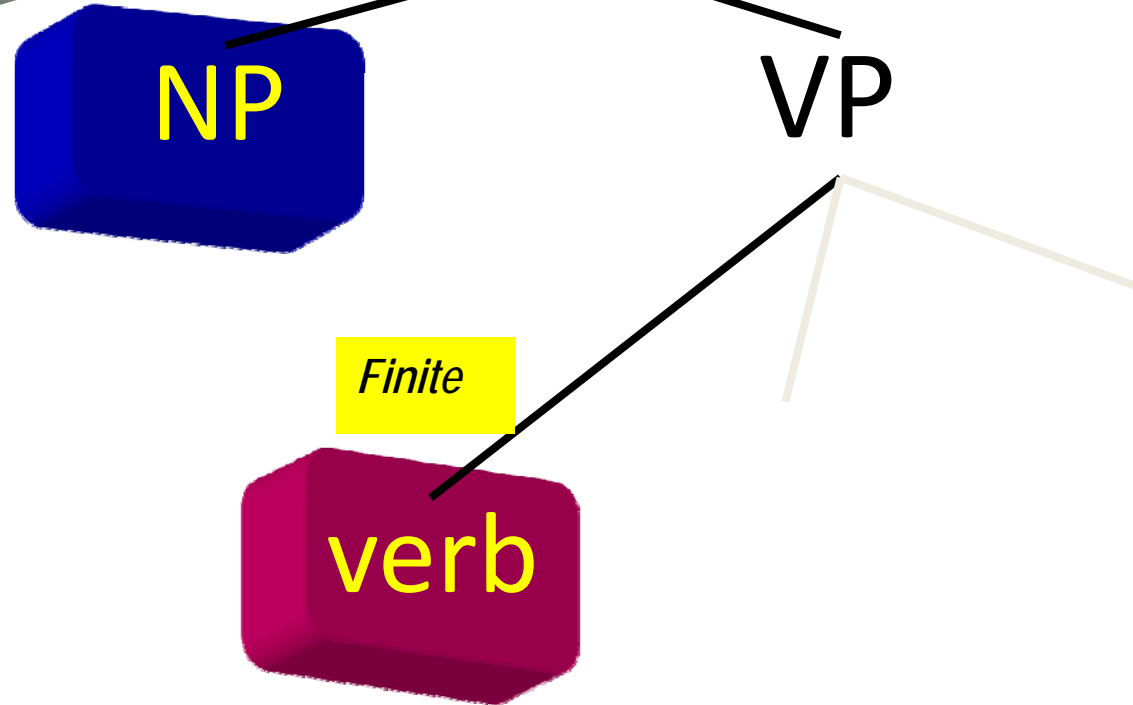
**NP**

**S**

**VP**

*Finite*

**verb**



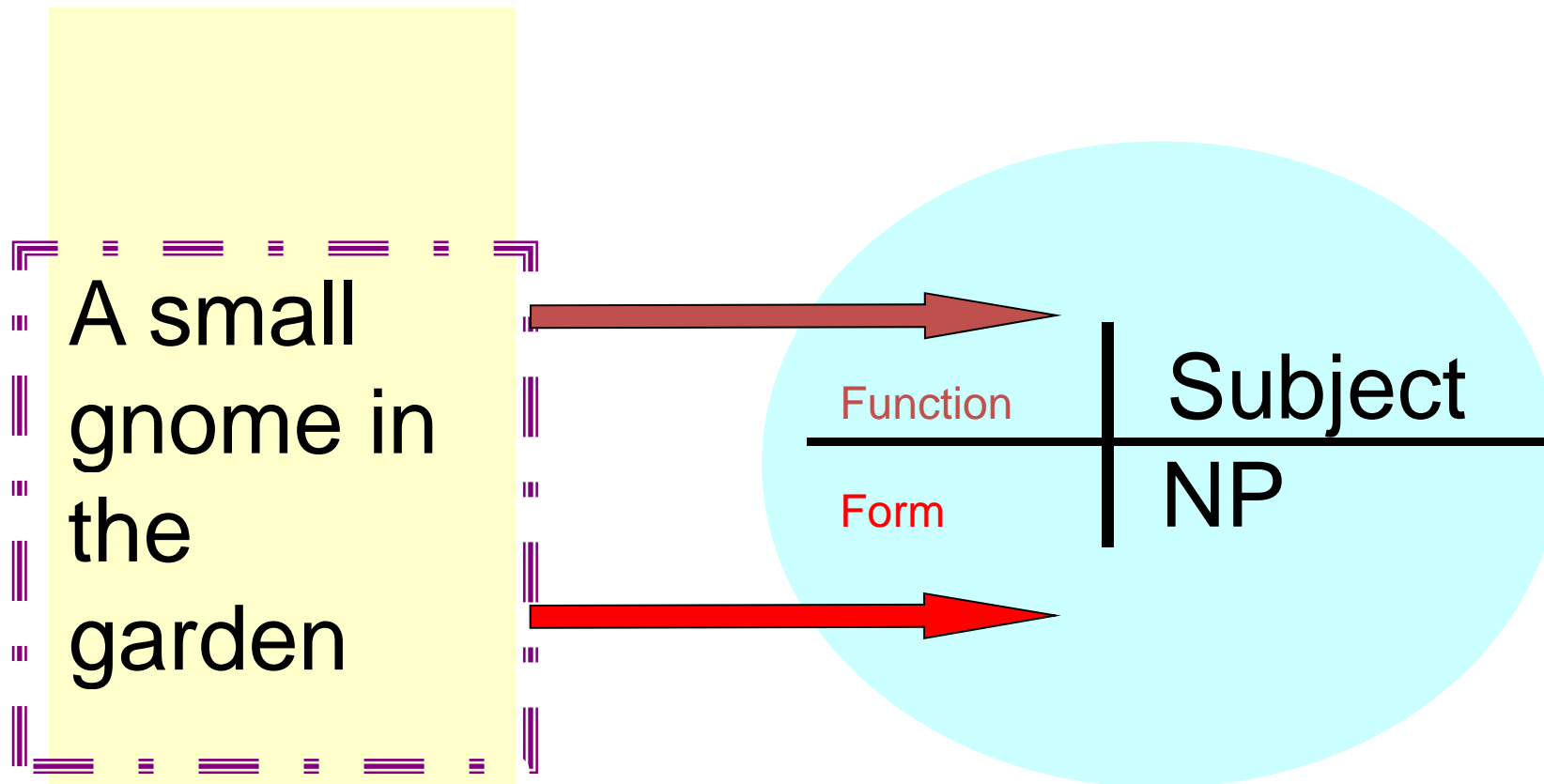
# Structure: carrying loads

- With structure, sentences can combine many sort of meanings and express them **all at once**

Structure is

“any assemblage of materials  
which is intended to sustain  
loads.”

J. E. Gordan, *Structures: or why things don't fall down*. Penguin. 1978. p17.



**Always distinguish  
cleanly between  
FUNCTION and FORM**

A small  
gnome in  
the  
garden

wiped  
his hands



Function

Form

Predicator  
verbal group



A small  
gnome in  
the  
garden

wiped  
his hands

Function

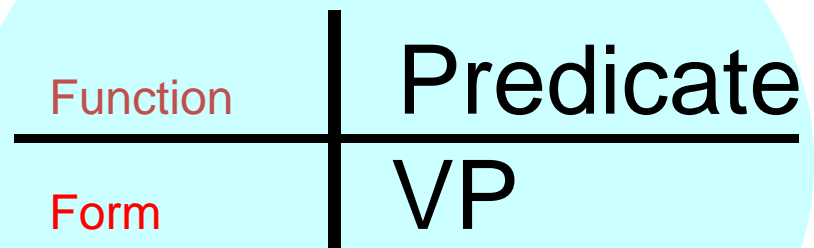
Form

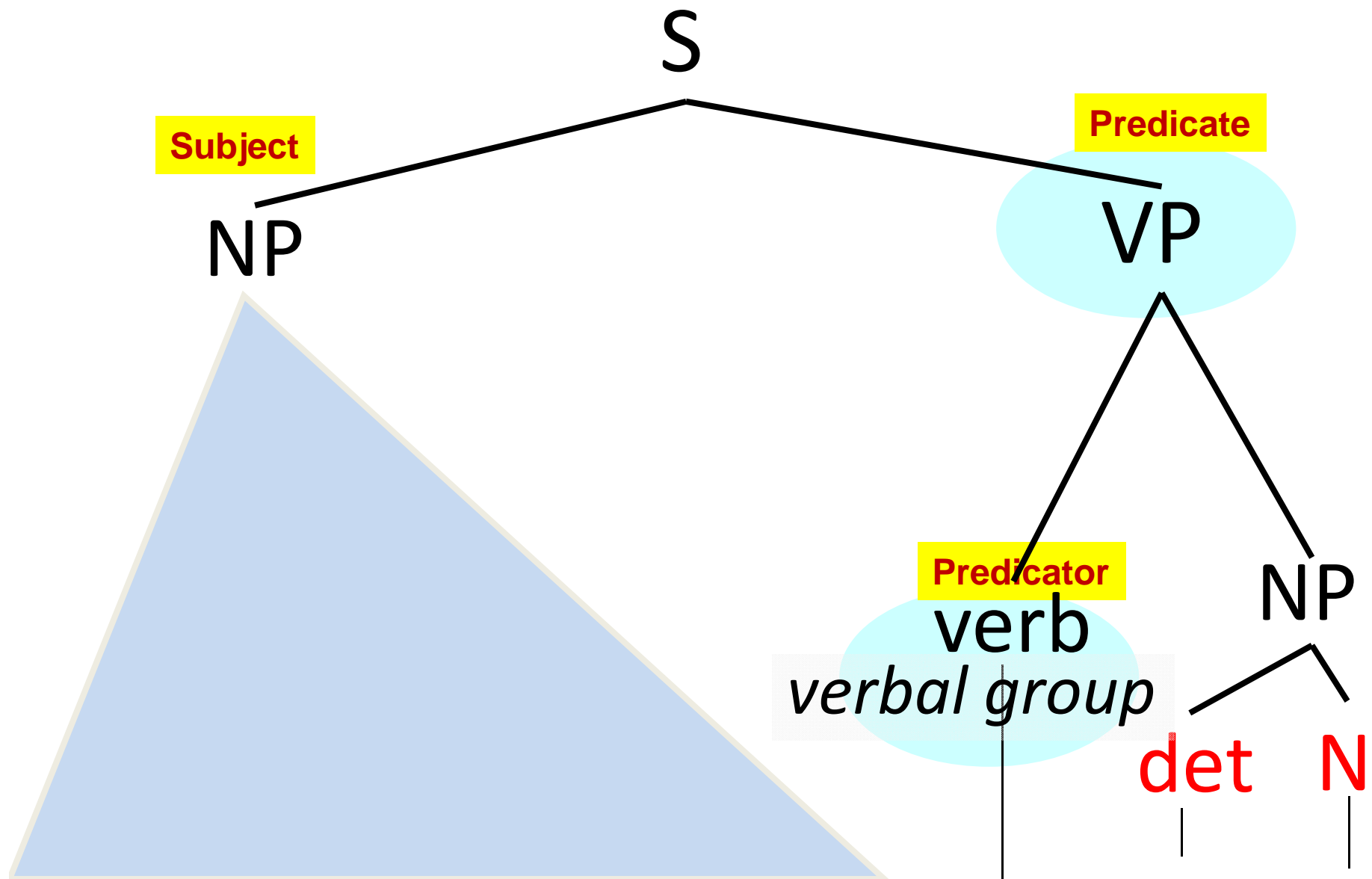
Object

NP

A small  
gnome in  
the  
garden

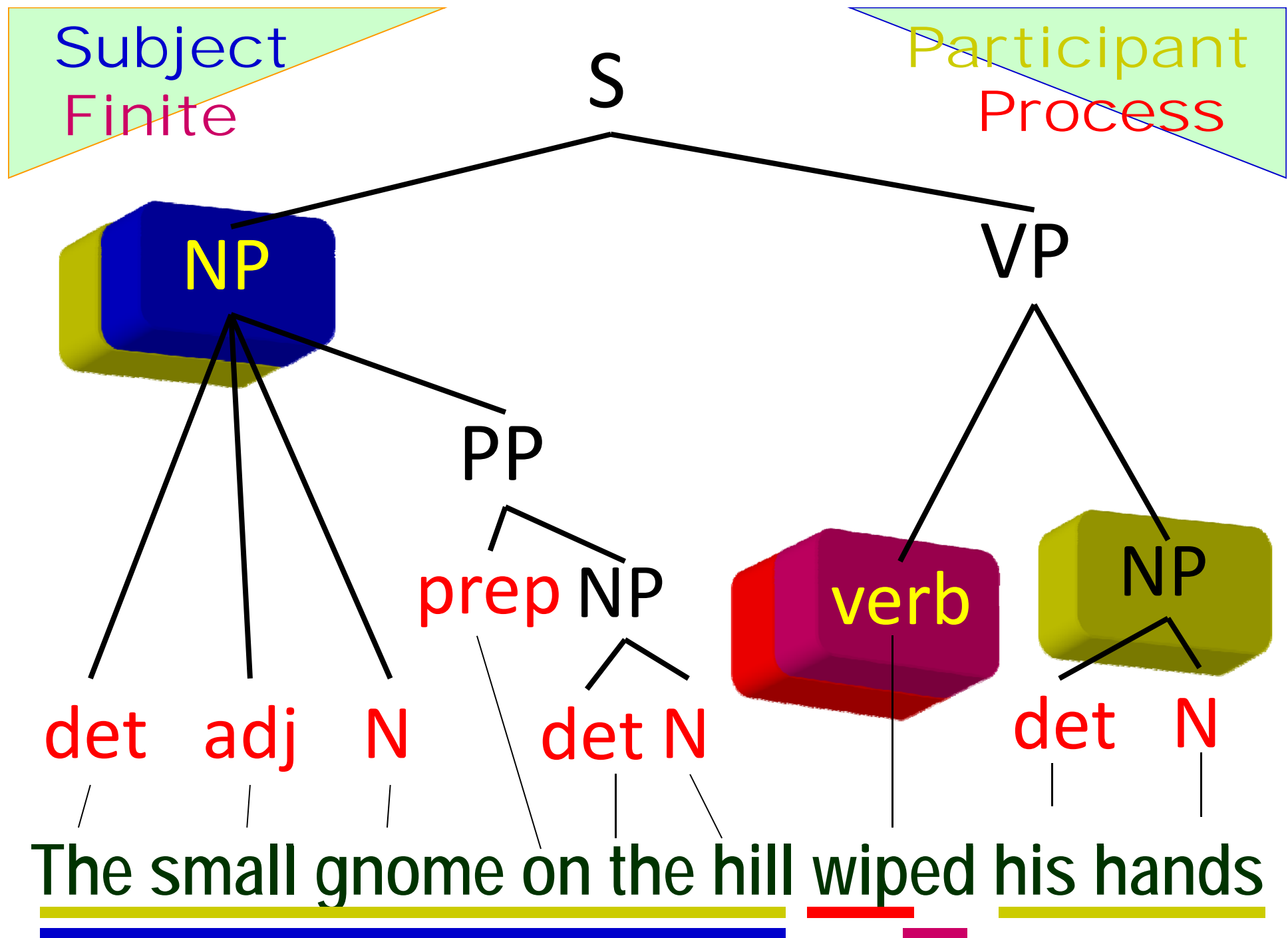
wiped  
his hands



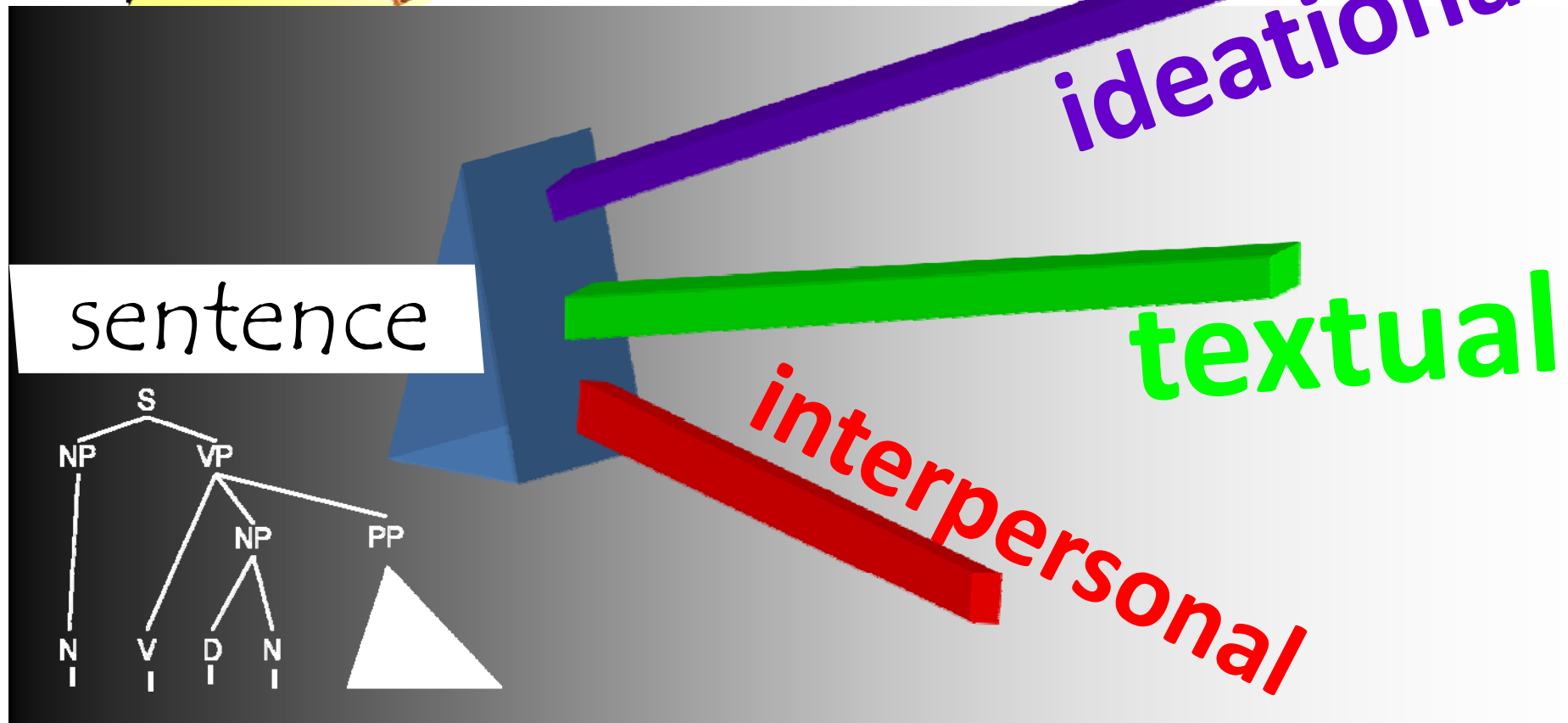


The small gnome on the hill wiped his hands

**Finite** will have been going to have wiped



# Metafunctions



# Summary & Recap

- Constituency is created by syntactic structure
- Syntactic structure determines linguistic behaviour (tests, probes)
- Syntactic structure guides interpretation
- Syntactic structure provides a scaffold for organising the different meanings that we want to make with sentences ...
- ... many types of meanings possible simultaneously!