Generative Grammar

Holger Diessel
holger.diessel@uni-jena.de

Grammar and lexicon

There is a long tradition in linguistics to separate grammar and lexicon.

- Linguistic structuralism
- Generative grammar

In generative grammar, the distinction between grammar and lexicon is embedded in a comprehensive theory of language.

Competence and Performance

Competence and performance

-> What is the distinction between competence and performance?

> Competence is “the speaker-hearer’s knowledge of his language”, while Performance is “the actual use of language in concrete situations”. [Chomsky 1965: 4]

> A grammar of a language is a model of the linguistic competence of the fluent native speaker of the language. [Radford 1988: 3]

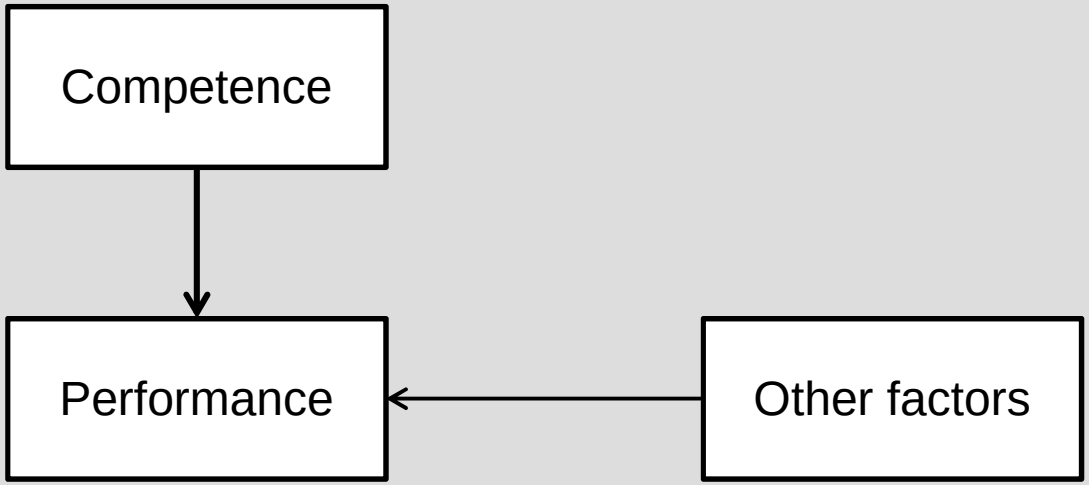
Radford: Chomsky distinguishes two types of competence:

- Grammatical competence
- Pragmatic competence

Competence and performance

-> Why is the distinction between competence and performance so important?

Very often, performance is an imperfect reflection of competence. [page 3]



“Performance errors”: “tiredness, boredom, drunkenness, drugs, external distractions, and so forth” [Radford 1988: 3]

Competence and performance

Grammatical theory is concerned with competence.

> What we are interested in is the abstract grammatical competence underlying the physical realization of that competence.
> [Radford 1988: 9]

-> I performance of any interest to linguistic theory?

Performance is studied in sociolinguistics, psycholinguistics, pragmatics.

Competence and performance

In order to study competence one has to assume something like the "ideal speaker-hearer" (p.9):

> Linguistic theory is concerned primarily with an ideal speaker-listener, in a completely homogeneous speech community, who knows a language perfectly and is unaffected by such grammatically irrelevant conditions as memory limitations, distractions, shifts of attention and interest, and errors in applying his knowledge of the language to actual performance.
>
> [Chomsky, Aspects, 1965: 3]

Langue and parole

Saussure (1916) proposed a distinction between two aspects of language that is often compared to Chomsky's distinction between competence and performance: langue vs. parole

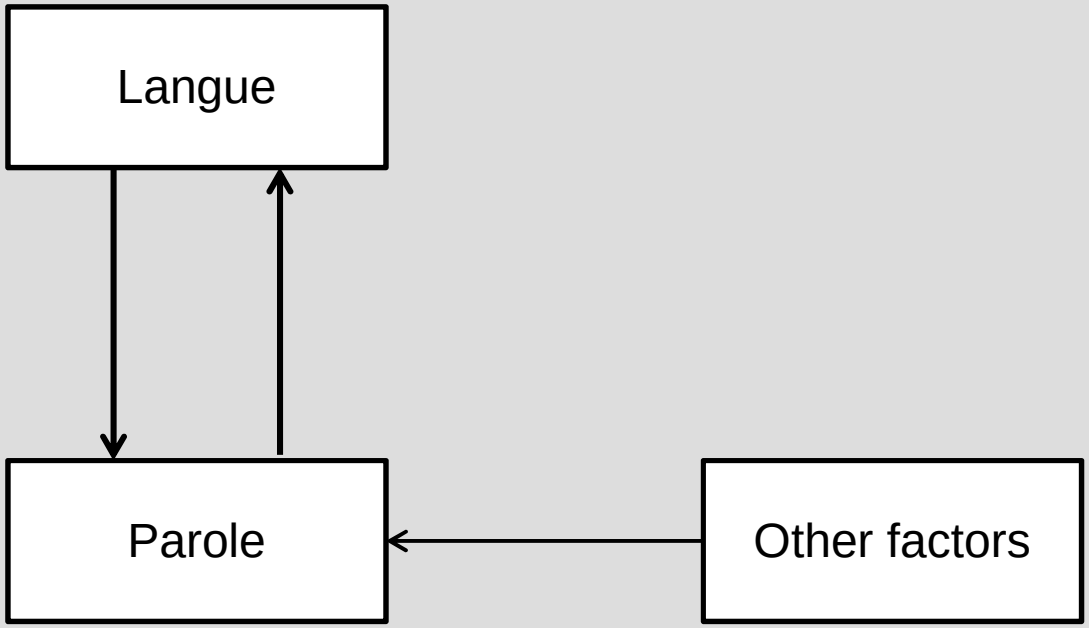
> The study of language thus comprises two parts. The essential part takes for its object the language itself [i.e. langue], which is social in its essence and independent of the individual. This is a purely psychological study. The subsidiary part takes as its object of study the individual part of language, which means speech [parole], including phonation. This is a psycho-physical study.
>
> [Saussure 1916: 19]

Langue and parole

A language is necessary in order that speech should be intelligible and produce all its effects. But speech also is necessary in order that a language may be established. Historically, speech always takes precedence. How would we ever come to associate an idea with a verbal sound pattern, if we did not first of all grasp this association in an act of speech? Furthermore, it is by listening to others that we learn our native language. A language accumulates in our brain only as the result of countless experiences. Finally, it is speech which causes a language to evolve. The impressions received from listening to others modify our own linguistic habits. Thus there is an interdependence between the language itself and speech. The former is at the same time the instrument and the product of the latter.

[Saussure 1916: 19]

Langue and parole



Modules

Modules

Chomsky divides grammar into compartments or modules:

- Phonology
- Morphology
- Syntax
- Semantics

Each compartment/module has its own rules.

Modules

Phonological rules, e.g. aspiration in English

(1) top
(2) stop
(3) retell
(4) bit

/p t k/ → [p^h t^h k^h] / #__, __v́
[p, t, k] elsewhere

Modules

Morphological rules, e.g. plural in English

(1) cat-s
(2) dog-s
(3) bush-es

N (sg)	→	N (pl)
/s/	→	[s] after voiceless
	→	[z] after voiced
	→	[əz] after sibilants

Modules

Syntactic rules, e.g. phrase structure rules:

(1) The car
(2) Birds
(3) A blue bike

NP → (DET) (ADJ) N

(1) At school
(2) In the garden
(3) On the old tanle

PP → P (DET) N

Modules

Semantic rules, e.g. causative verbs:

Intransitive verbs:

(1) The ball was rolling.
(2) The door opened.
(3) The snake died.

Transitive verbs:

(1) The man rolled the ball.
(2) The man opened the door.
(3) The man killed the snake.

x roll y	→	x cause [y to roll]
x open y	→	x cause [y to open]
x kill y	→	x cause [y to die]

Modules

The different modules of grammar are ‘autonomous’:

> I think we are forced to conclude that grammar is autonomous and independent of meaning.
>
> [Chomsky, Syntactic Structures, 1957: 17]

(1) Colorless green ideas sleep furiously.
(2) Furiously sleep ideas green colorless.

Syntactic creativity

Syntactic creativity

The most striking aspect of linguistic competence is what we may call the ‘creativity’ of language, that is, the speaker’s ability to produce new sentences that are immediately understood by other speakers although they bear no physical resemblance to sentences which are familiar.

[Chomsky, Topics, 1966]

The normal use of language is innovative in the sense that much of what we say in the course of normal language use is entirely new, not a repetition of anything that we have heard before.

[Chomsky, Language and Mind, 1972: 12]

Language makes infinite use of finite means.

[Humboldt 1936]

Syntactic creativity

In generative grammar, grammatical rules are as general and unconstrained as mathematical equations:

$4 = 2 + 2$	$NP \rightarrow DET\ N$

Grammar is about exceptionless laws rather than statistical tendencies.

Methodology

Methodology

-> What kind of methodology do generative linguists use to study grammar?

If grammar has the status of exceptionless laws rather than statistical tendencies it does not make sense to study statistical tendencies in the use of grammatical rules.

> First, it is obvious that the set of grammatical sentences cannot be identified with any particular corpus of utterances by the linguist in his field work. [Chomsky, Syntactic Structures, 1957: 15]

> … probabilistic models give no particular insight into some of the basic problems of syntactic structure.
> [Chomsky, Syntactic Structures, 1957: 17]

Methodology

Grammaticality judgments: well-formed vs. ill-formed

(1) This is my friend. well-formed [grammatical]
(2) *This is friend my. ill-formed [ungrammatical]

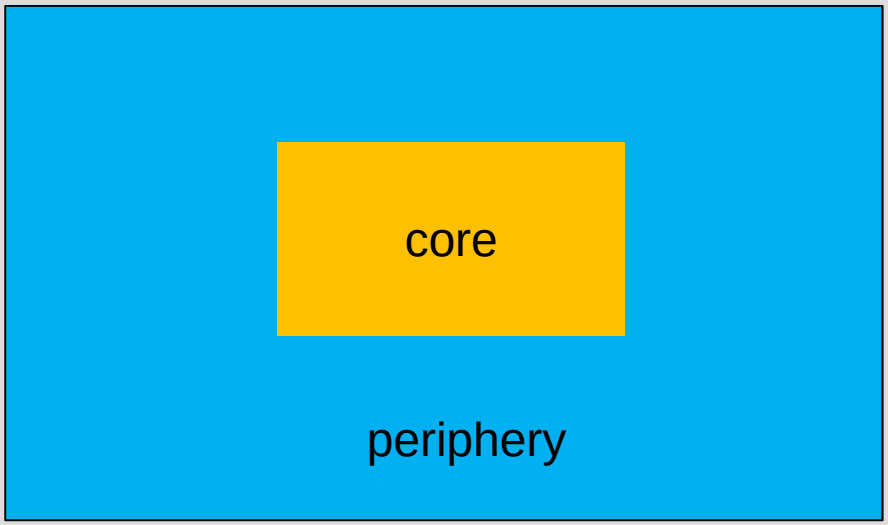
Well-formedness vs. acceptability:

(1) My uncle knows I am a lousy cook.
(2) My goldfish knows I am a lousy cook.
(3) *Uncle my knows I am a lousy cook.

Linguistic innateness

Linguistic innateness

The innateness hypothesis: Grammar is genetically specified.



Linguistic innateness

Evidence for the innateness hypothesis:

- Only humans have language
- Language impairments
- Activation patterns [neurolinguistics]
- The argument from the poverty of the stimulus

The innateness hypothesis is important to understand:

- Why Chomsky denies the importance of corpus-based research of statistical tendencies for the analysis of grammar.
- Why Chomsky assumes that morphosyntactic structures are autonomous, i.e. independent of meaning.
- Why Chomsky assumes that grammatical categories are classical categories with clear-cut boundaries.

Linguistic primitives

Exercises

Grammatical categories:

- Word classes or parts-of-speech — noun, verb, article
- Phrases or constituents — NP, PP, VP
- Grammatical relations — Subject, Verb, Object

Exercises

Grammatical categories:

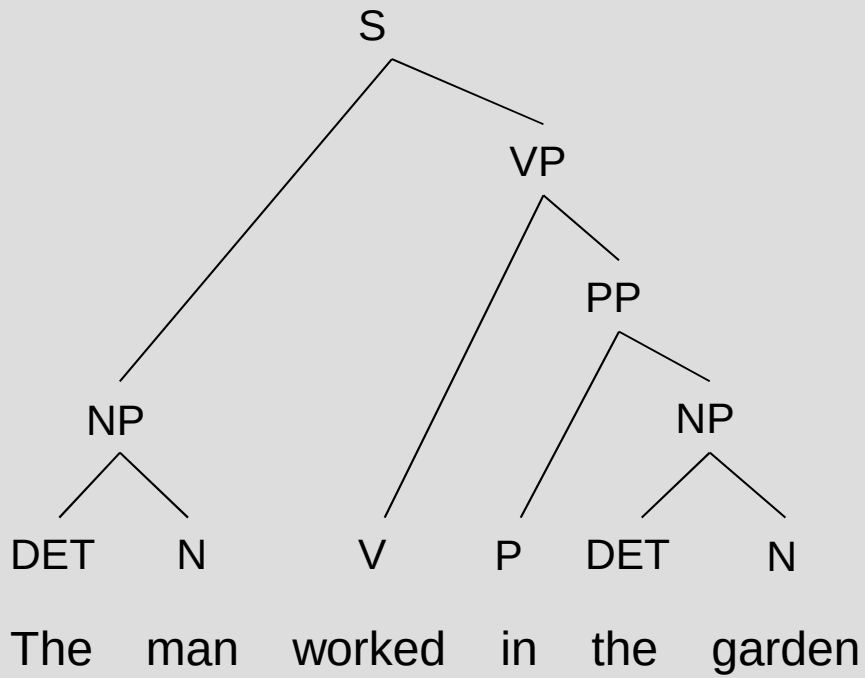
- Word classes or parts-of-speech
- Phrases or constituents
- Grammatical relations

noun, verb, article
NP, PP, VP
Subject, Verb, Object

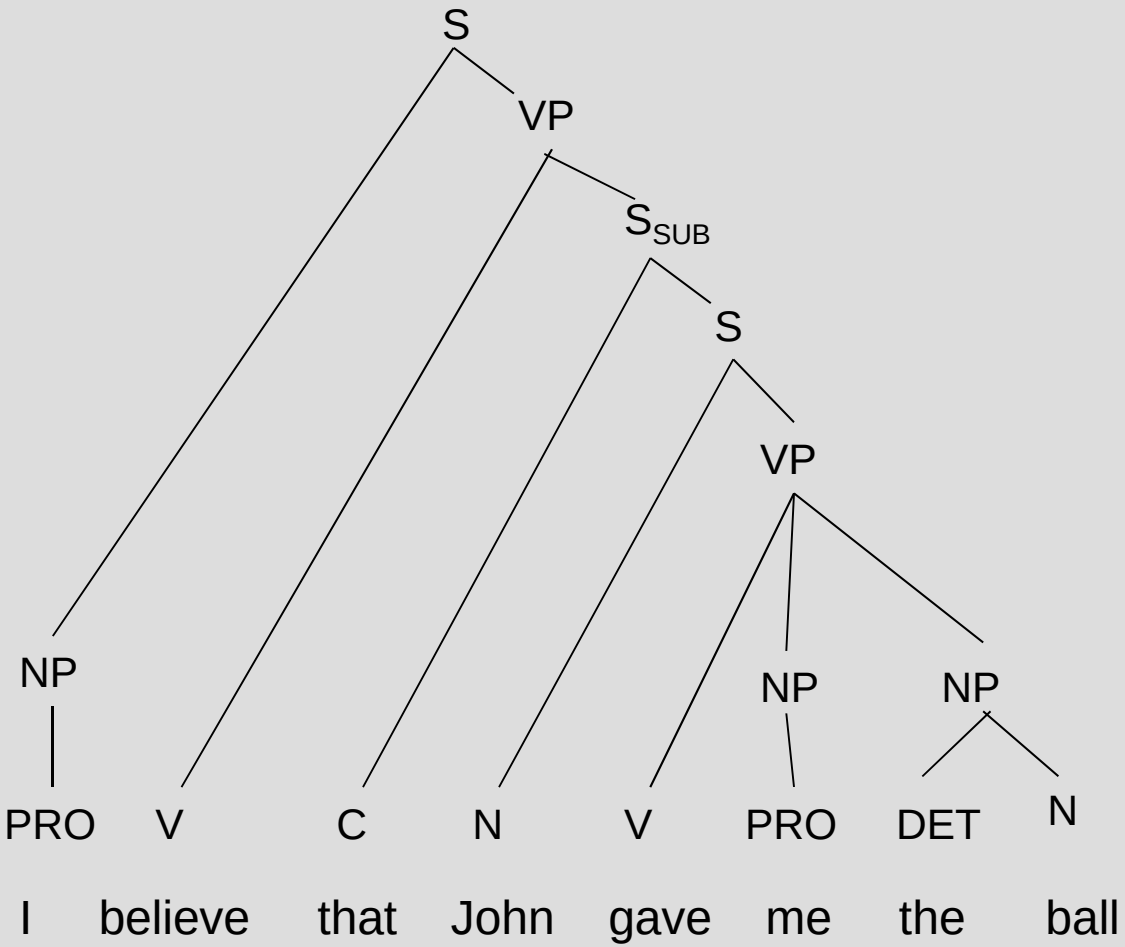
ATOMIC PRIMITIVES

Syntactic structure is composed of atomic primitives.

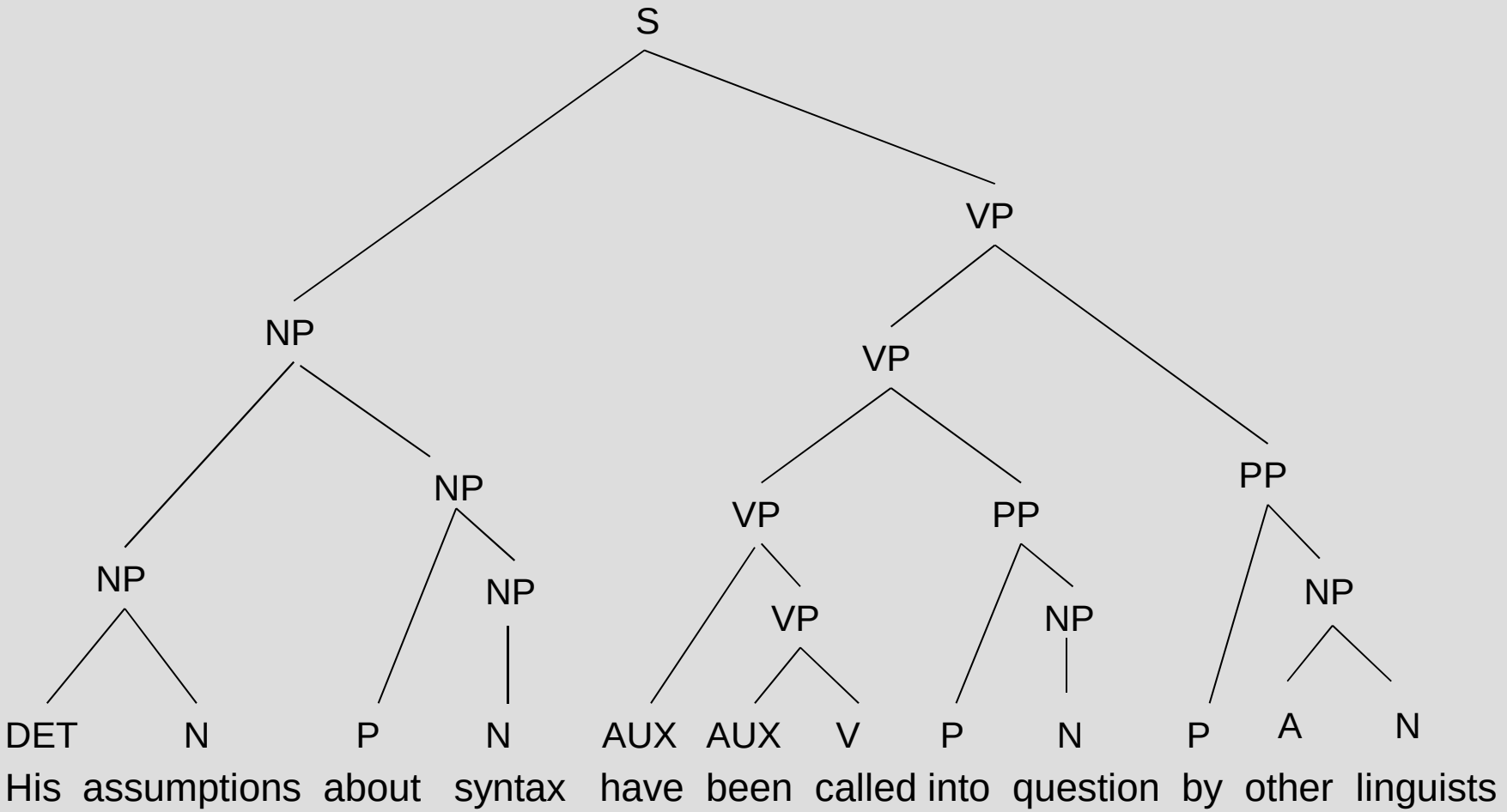
Exercises

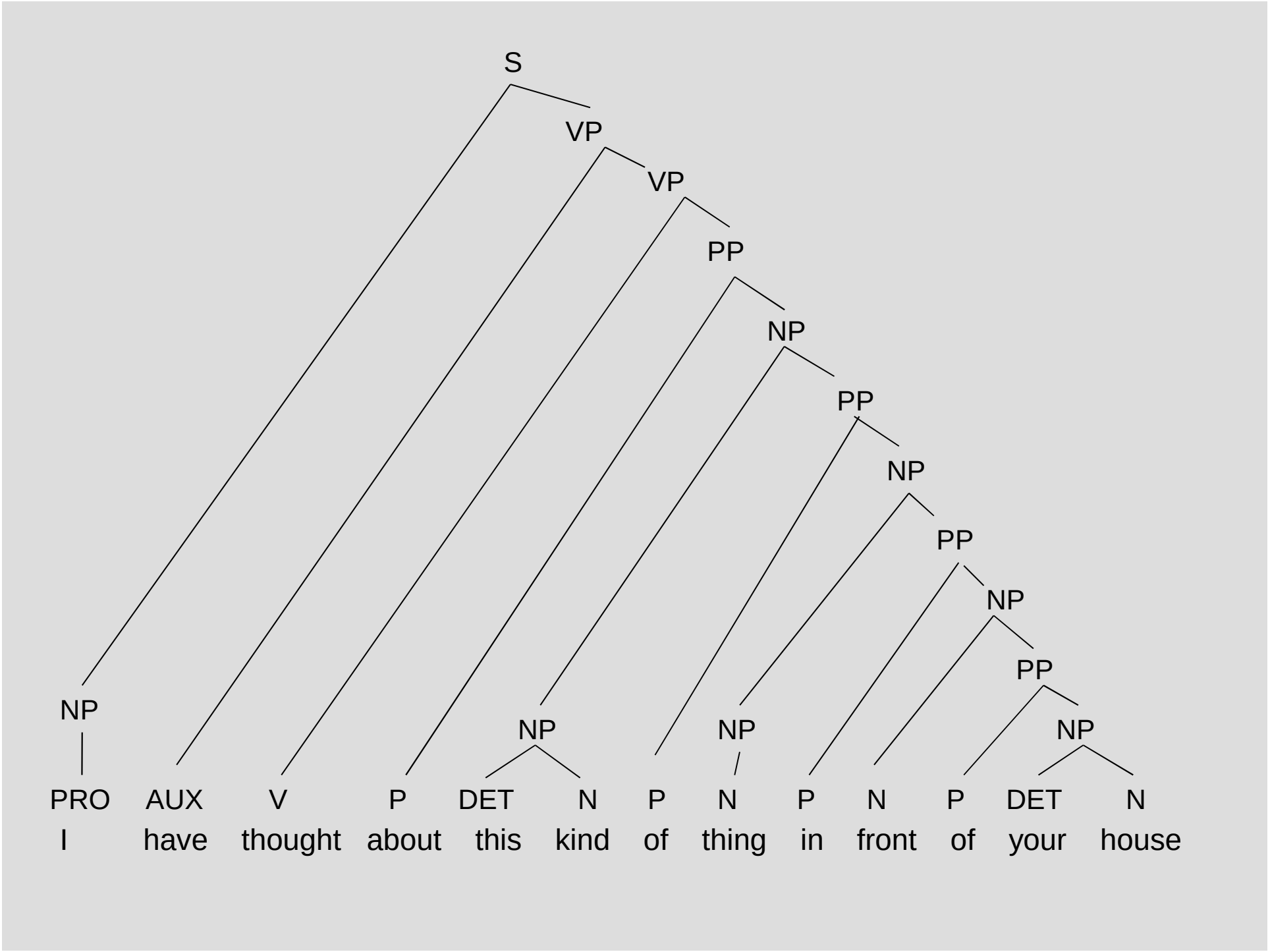


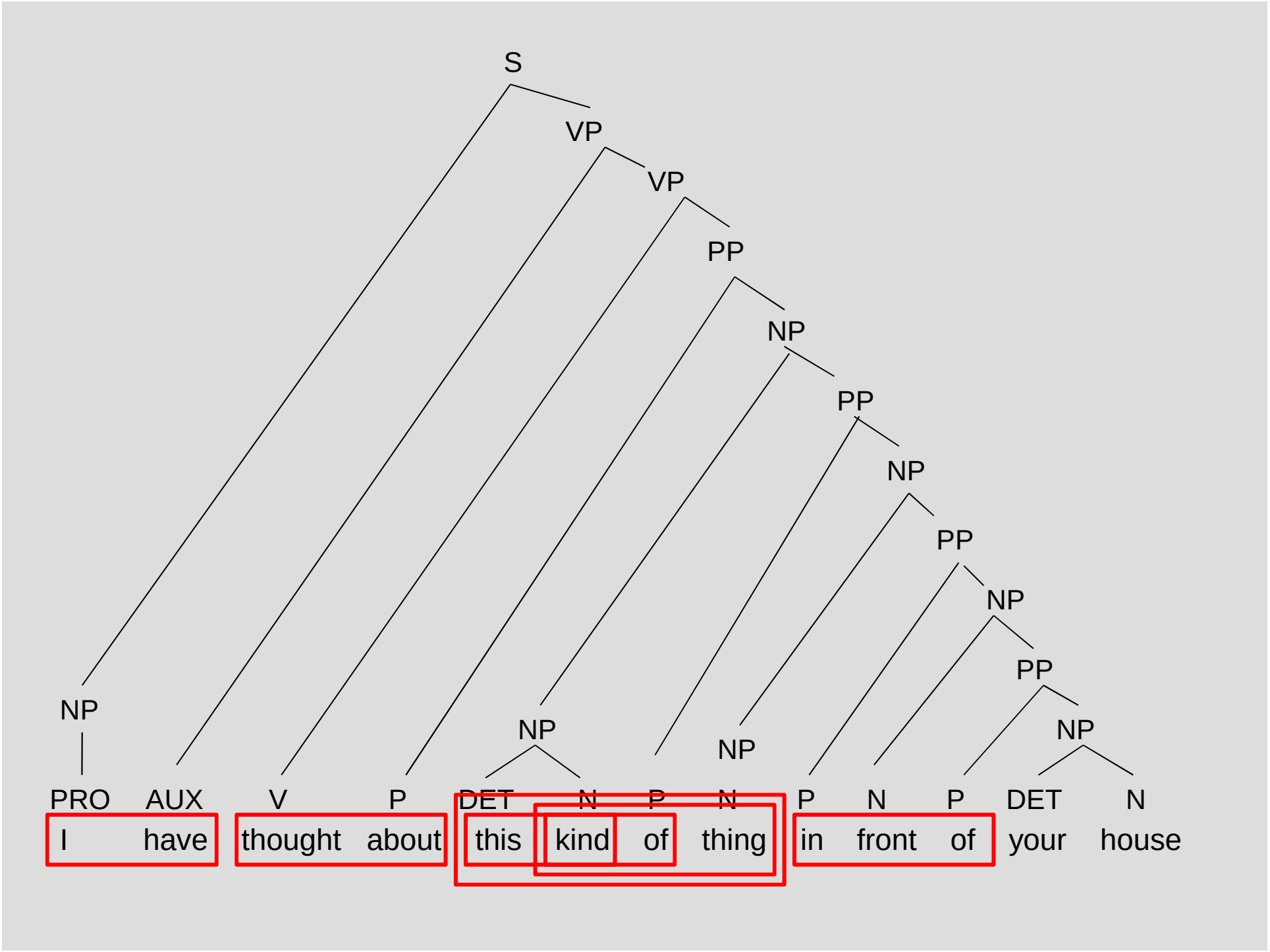
Exercises


S
VP
S_SUB
S
VP
NP
NP
NP
PRO
V
C
N
V
PRO
DET
N
I
believe
that
John
gave
me
the
ball

Exercises


S
VP
NP
VP
NP
NP
VP
PP
PP
NP
NP
VP
NP
DET
N
P
N
AUX
AUX
V
P
N
P
A
N
His
assumptions
about
syntax
have
been
called
into
question
by
other
linguists


S
VP
VP
PP
NP
PP
NP
PP
NP
PP
NP
NP
NP
NP
PRO
AUX
V
P
DET
N
P
N
P
N
P
DET
N
I
have
thought
about
this
kind
of
thing
in
front
of
your
house


S
VP
VP
PP
NP
PP
NP
PP
NP
PP
NP
NP
NP
NP
PRO
AUX
V
P
DET
N
P
N
P
N
P
DET
N
I
have
thought
about
this
kind
of
thing
in
front
of
your
house