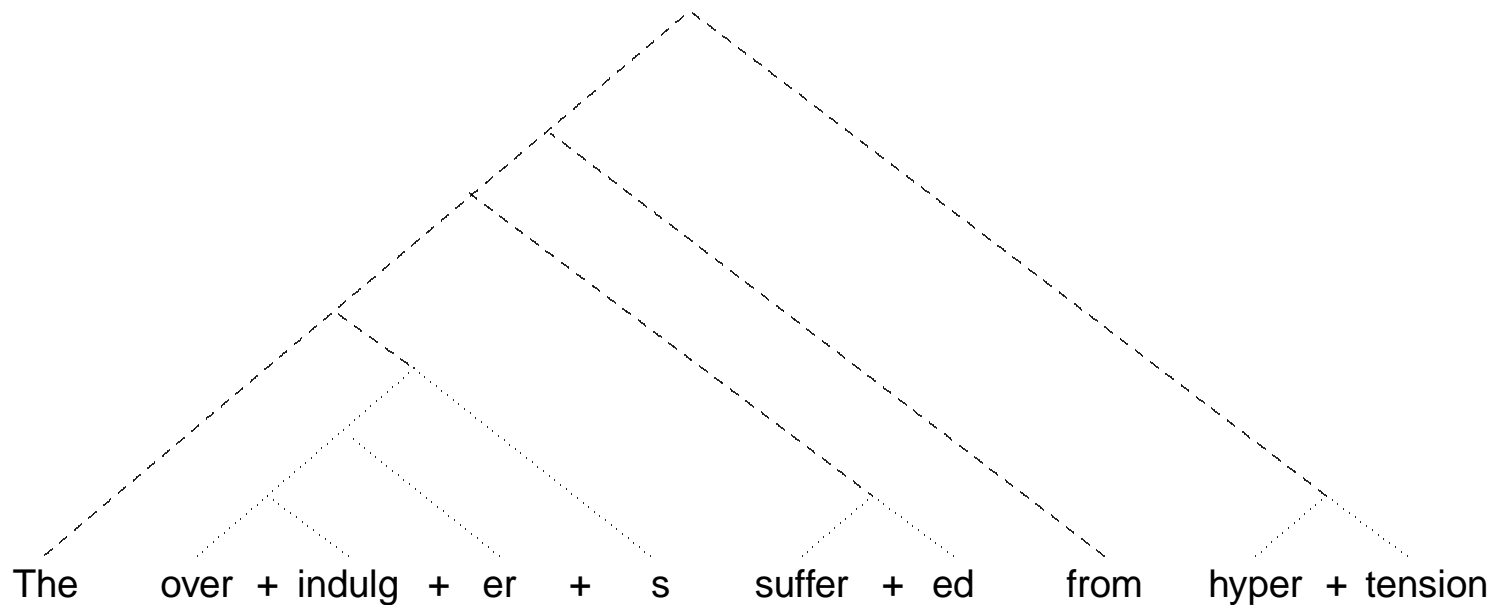


16. Basic concepts of syntax

16.1 Delimitation of morphology and syntax

16.1.1 Correlation of LA-morphology and LA-syntax



The tree structures of LA-morphology and LA-syntax both satisfy the SLIM-theoretic principles of surface compositionality (S) and time-linear composition (L). However, their respective time-linear compositions occur in different phases.

16.1.2 Treatment of idioms in morphology or syntax?

A syntactic treatment is generally motivated in idioms which (i) retain their compositional meaning as an option, (ii) are subject to normal variations of word order, and (iii) exhibit internal inflectional variation. Otherwise idioms should be handled in the lexicon (e.g. *over-the-counter*).

16.1.3 Correlation of morphology and syntax in different types of language

Some natural languages compose meaning₁ mainly in the syntax (e.g. Chinese) and others mainly in morphology (e.g. Eskimo in which long chains of morphemes are concatenated into a single word form such as [a:wlis-ut-iss?ar-si-niarpu-na] *I am looking for something suitable for a fish-line*). This alternative exists also within a given natural language. For example, in English the complex concept denoted by the word form *overindulgers* may roughly be expressed analytically as *people who eat and drink too much*.

16.1.4 Combination principles of syntax

1. *Valency*
2. *Agreement*
3. *Word order*

16.2 Valency

16.2.1 The notions valency carrier and valency filler

go back to the French linguist L. TESNIÈRE 1959, who borrowed them from chemistry. The valency positions of a carrier must be filled, or canceled, by compatible fillers in order for an expression to be syntactically and semantically complete.

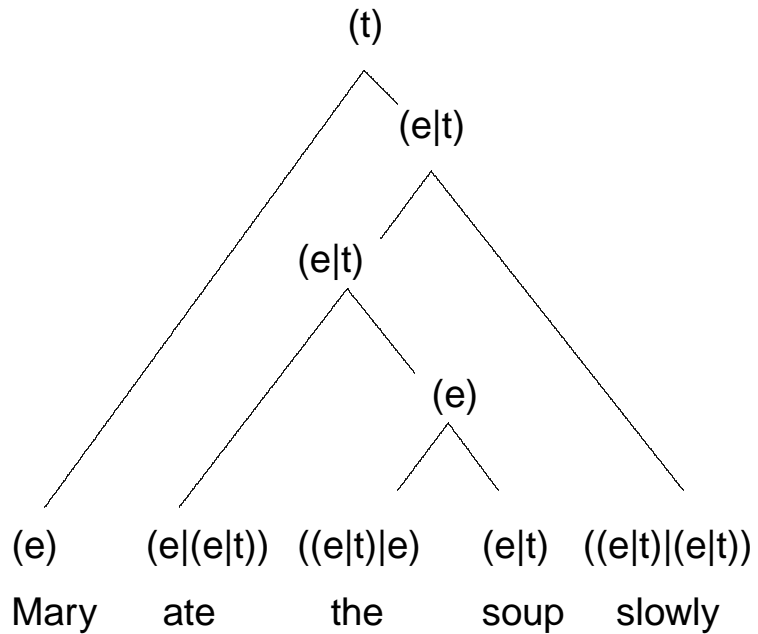
16.2.2 Coding the structure of valency carriers in LA-grammar

Composite syntactic categories are defined as lists of category segments. For example, the English verb form *ate* is analyzed as follows.

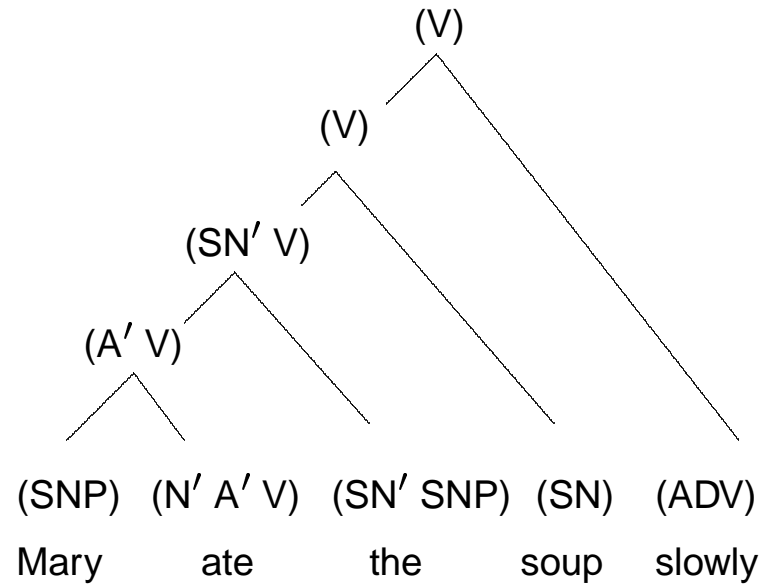
[ate (N' A' V) eat]

16.2.3 Carriers, fillers, and modifiers in CG and LAG

C-grammar analysis

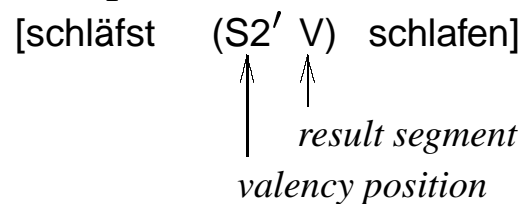


LA-grammar analysis

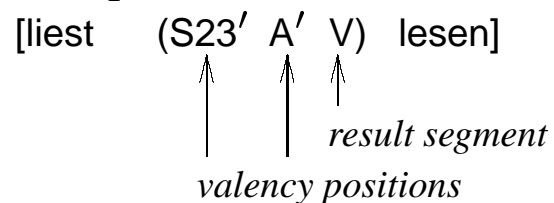


16.2.4 Examples of different valency carriers in German

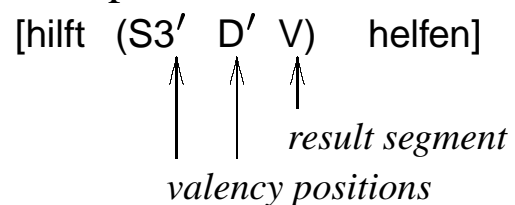
- the one-place verb form **schläfst** (*sleep*):



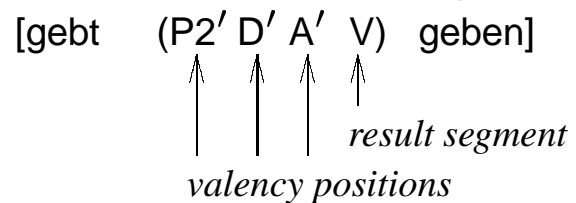
- the two-place verb form **liest** (*read*):



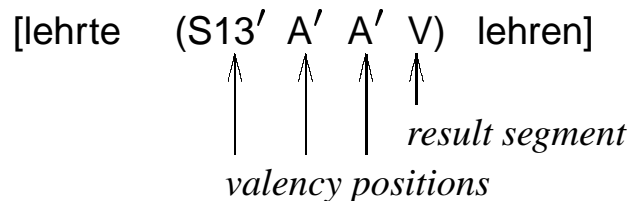
- the two-place verb form **hilft** (*help*):



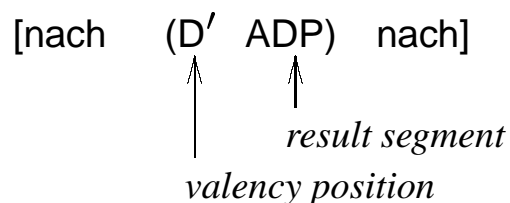
- The three-place verb form **gibt** (*give*):



- The three-place verb form *lehrte* (*taught*):



- The one-place preposition *nach* (*after*):



16.2.5 Category structure of valency fillers and modifiers

[Bücher (P-D) buch]

(*books*)

[ihm (D) er]

(*him*)

[gestern (ADV) gestern]

(*yesterday*)

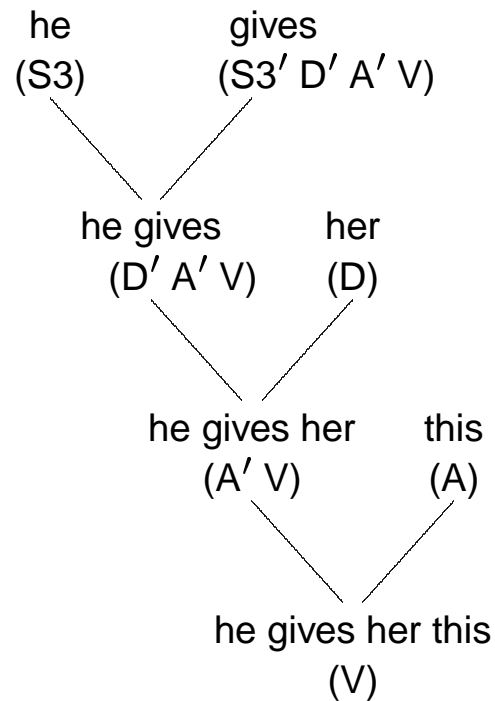
Valency carriers may also function as valency fillers using their result segment, e.g V, as the filler segment. In this case, the segments representing valency positions are attached at the beginning of the category resulting from the composition.

16.3 Agreement

16.3.1 Agreement violation in English

*Every girls need a mother.

16.3.2 Identity-based agreement in a simple LA-syntactic analysis



16.3.3 An LA-grammar for 6.3.2 (*LA-plaster*)

$$LX =_{def} \{ [\text{he (S3) *}], [\text{her (D) *}], [\text{this (A) *}], [\text{gives (S3' D' A' V) *}] \}$$

$$ST_S =_{def} \{ [(S3) \{MAIN+FV\}] \}$$

$$MAIN+FV: (S3) (S3' D' A' V) \Rightarrow (D' A' V) \{FV+MAIN1\}$$

$$FV+MAIN1: (D' A' V) (D) \Rightarrow (A' V) \{FV+MAIN2\}$$

$$FV+MAIN2: (A' V) (A) \Rightarrow (V) \{ \}$$

$$ST_F =_{def} \{ [(V) rp_{FV+MAIN2}] \}$$

16.3.4 Example of an error in identity-based agreement

$$\begin{array}{l} | \\ (S1) \end{array} + \begin{array}{l} \text{gives} \\ (S3' D' A' V) \end{array} \Rightarrow \text{Error: ungrammatical continuation}$$

16.4 Free word order in German (*LA-D1*)

16.4.1 Word order variations in a declarative main clause of German

Der Mann gab der Frau den Strauß.
(the man gave the woman the bouquet.)

Der Mann gab den Strauß der Frau.
(the man gave the bouquet the woman.)

Der Frau gab der Mann den Strauß.
(the woman gave the man the bouquet.)

Der Frau gab den Strauß der Mann.
(the woman gave the bouquet the man.)

Den Strauß gab der Mann der Frau.
(the bouquet gave the man the woman.)

Den Strauß gab der Frau der Mann.
(the bouquet gave the woman the man.)

16.4.2 Word order violation in German

*Der Mann der Frau gab einen Strauß.
(the man the woman gave the bouquet.)

16.4.3 Free canceling of valency positions in a carrier of German

Der Mann + gab \Rightarrow Der Mann gab
 (S3) (S3' D' A' V) (D' A' V)

Der Frau + gab \Rightarrow Der Frau gab
 (D) (S3' D' A' V) (S3' A' V)

Den Strauß + gab \Rightarrow Den Strauß gab
 (A) (S3' D' A' V) (S3' D' V)

16.4.4 German LA-grammar with partial free word order

$LX =_{def} \{ [er (S3) *], [ihr (D) *], [das (A) *], [gab (S3' D' A' V) *] \}$

Variable definition: $np \in \{D, A\}$, with np' correspondingly D' or A'

$x, y = .??.??$ (i.e. an arbitrary sequence up to length 4)

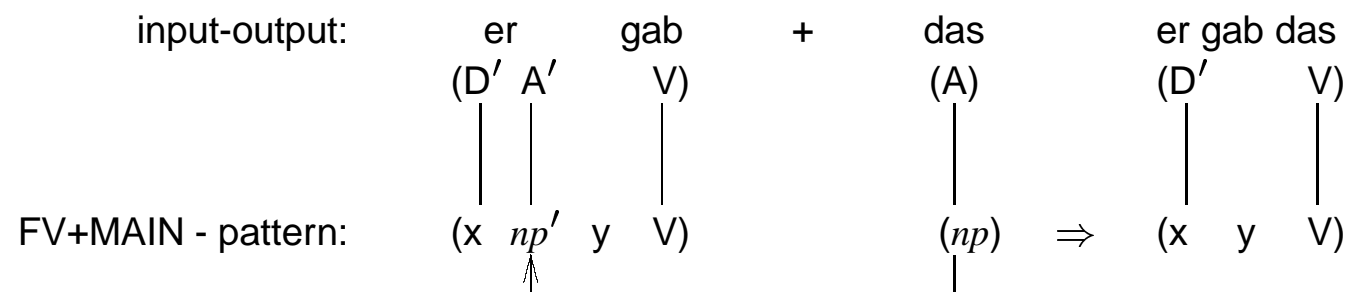
$ST_S =_{def} \{ [(S3) \{MAIN+FV\}] \}$

MAIN+FV: $(S3) (S3' D' A' V) \Rightarrow (D A V) \{FV+MAIN\}$

FV+MAIN: $(x np' y V) (np) \Rightarrow (x y V) \{FV+MAIN\}$

$ST_F =_{def} \{ [(V) rp_{FV+MAIN}] \}$

16.4.5 FV+MAIN matching a next word accusative



16.4.8 German LA-grammar with free word order (*LA-DI*)

$$LX =_{def} \{ [er (S3) *], [ihr (D) *], [das (A) *], [gab (S3' D' A' V) *] \}$$

Variable definition: $np \in \{S3, D, A\}$, with np' correspondingly $S3'$, D' or A'
 $x, y = .?.?.?.?$ (i.e. an arbitrary sequence up to length 4)

$$ST_S =_{def} \{ [(np) \{MAIN+FV\}] \}$$

$$MAIN+FV: (np) (x np' y V) \Rightarrow (x y V) \{FV+MAIN\}$$

$$FV+MAIN: (x np' y V) (np) \Rightarrow (x y V) \{FV+MAIN\}$$

$$ST_F =_{def} \{ [(V) rp_{FV+MAIN}] \}$$

16.4.9 Word order variants of *LA-DI*

er gab ihr das
er gab das ihr

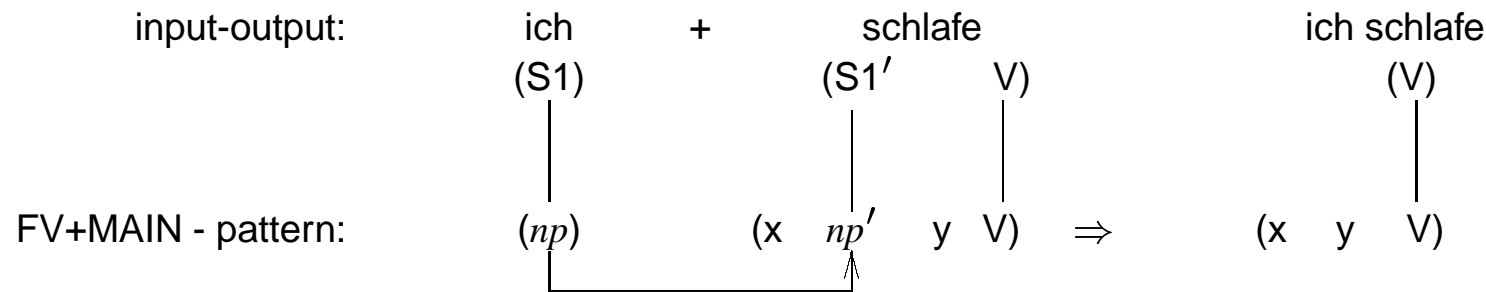
das gab er ihr
das gab ihr er

ihr gab er das
ihr gab das er

16.4.10 Extending the lexicon of *LA-D1*

[ich (S1) *], [du (S2) *], [wir (P1) *], [schlafe (S1' V) *], [schläfst (S2' V) *], [schläft (S3' V) *], [schlafen (P1' V) *], [lese (S1' A' V) *], [liest (S2' A' V) *], [las (S3' A' V) *], [helfe (S1' D' V) *], [hilfst (S2' D' V) *], [half (S3' D' V) *], [lehre (S1' A' A' V) *], [lehrst (S2' A' A' V) *], [lehrt (S3' A' A' V) *], [gebe (S1' D' A' V) *], [gibst (S2' D' A' V) *].

16.4.11 Identity-based subject-verb agreement in German



16.5 Fixed word order in English (*LA-E1*)

16.5.1 Fixed canceling of valency positions in a carrier of English

Peter + gave \Rightarrow
 (SNP) (N' D' A' V)

Peter gave
 (D' A' V)

Peter gave + Mary \Rightarrow
 (D' A' V) (SNP)

Peter gave Mary
 (A' V)

Peter gave Mary + books \Rightarrow
 (A' V) (PN)

Peter gave Mary books
 (V)

16.5.2 English LA-grammar with fixed word order (LA-E1)

$LX =_{def} \{ [\text{Peter (SNP) *}], [\text{Mary (SNP) *}], [\text{books (PN) *}],$
 $[\text{gave (N' D' A' V) *}] \}$

Variable definition: $np \in \{\text{SNP, PN}\}$, $np' \in \{\text{N', D', A'}\}$,
 $x = .?.?.?.?$ (i.e. an arbitrary sequence up to length 4)

$ST_S =_{def} \{ [(x) \{\text{NOM+FV}\}] \}$

$\text{NOM+FV: } (np) (np' x V) \Rightarrow (y V) \{\text{FV+MAIN}\}$

$\text{FV+MAIN: } (np' x V) (np) \Rightarrow (y V) \{\text{FV+MAIN}\}$

$ST_F =_{def} \{ [(V) rp_{\text{FV+MAIN}}] \}$

16.5.3 Derivation in *LA-EI* (definition-based agreement)

