9. Extra-Propositional Coordination

9.1 Overview

In Database Semantics, the coordination of propositions is coded in their verb proplets' nc and pc attributes. Consider the following set of proplets representing Julia sang. Then Sue slept. John read.:

9.1.1 Grammatical relations between concatenated propositions

1	2	3	4	5	6
noun: Julia	verb: sing	noun: Sue	verb: sleep	noun: John	verb: read
fnc: sing	arg: Julia	fnc: sleep	arg: Sue	fnc: read	arg: John
mdr:	mdr:	mdr:	mdr:	mdr:	mdr:
nc:	nc: > 11 sleep	nc:	nc: 12 read	nc:	nc:
pc:	pc:	pc:	pc: < 10 sing	pc:	pc: 11 sleep
prn: 10	prn: 10	prn: 11	prn: 11	prn: 12	prn: 12

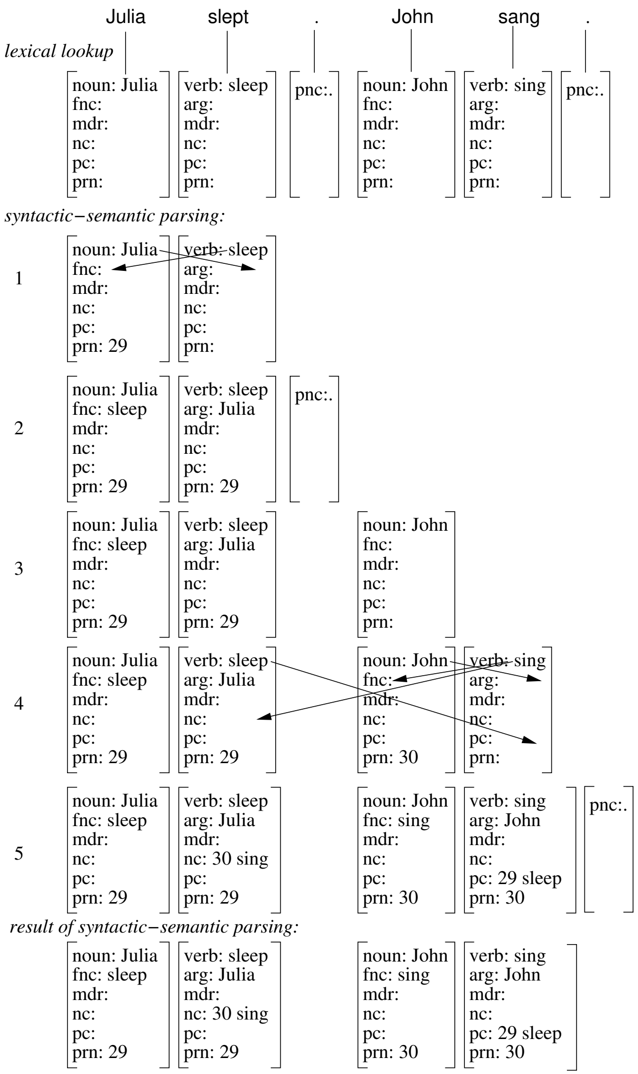
9.1.2 Combining intra- and extra-propositional coordinations

1	2	3	4	5	6	7	8	9
noun: Sue	verb: sleep	noun: John	verb: buy &	verb: cook	verb: eat	noun: pizza	noun: Julia	verb: sing
fnc: sleep	arg: Sue	fnc: buy &	arg: John pizza	arg:	arg:	fnc: buy &	fnc: sing	arg: Julia
mdr:	mdr:	mdr:	mdr:	mdr:	mdr:	mdr:	mdr:	mdr:
nc:	nc: 27 buy &	nc:	nc: cook	nc: eat	nc: 28 sing	nc:	nc:	nc:
pc:	pc:	pc:	pc: 26 sleep	pc: buy	pc: cook	pc:	pc:	pc: 27 eat
prn: 26	prn: 26	prn: 27	prn: 27	prn: 27	prn: 27	prn: 27	prn: 28	prn: 28

The relations of extra-propositional coordination are indicated by dashed lines, while those of the intra-propositional coordination are indicated by solid lines.

9.2 Interpretation and Production of Extra-Propositional Coordination

9.2.1 DERIVATION OF Julia slept. John sang.



9.2.2 PRODUCTION OF Julia slept. John sang.

	activated sequence	*realization*
1		
	V	
1.1	n	n
	V N	
1.2	fv n	n fv
	V N	
1.3	fv p n	n fv p
	V N	
2.1	fv p n n	n fv p n
	V N V N	
2.2	fv p n fv n	n fv p n fv
	V N V N	
2.3	fv p n fv p n	n fv p n fv p
	V N V N	

After the initial LA-think navigation from V to N, LA-speak produces the abstract n fv p surface in lines 1.1 – 1.3. Thereby the sentence-final punctuation mark is lexicalized using the sentence mood specified in the verb proplet. Then LA-think traverses the second VN proplet sequence, from which LA-speak produces the second abstract n fv p surface in lines 2.1 – 2.3. The suspension shows up in line 2.1 in a way similar to example 7.6.2. See Chapters 11. and 12. for the explicitly defined LA-hear, LA-think, and LA-speak grammars handling extra-propositional coordination.

9.3 Simple Coordinations as Sentential Arguments and Modifiers

9.3.1 Simple coordinations in sentential arguments 1

1. Noun coordination as the subject of a subject sentence:
   That the man, the woman, and the child slept surprised Mary.

$$
\begin{bmatrix}\text{n/v: that sleep}\\ \text{arg: man \&}\\ \text{fnc: 9 surprise}\\ \text{prn: 8}\end{bmatrix}
\begin{bmatrix}\text{noun: man \&}\\ \text{fnc: sleep}\\ \text{nc: woman}\\ \text{pc:}\\ \text{prn: 8}\end{bmatrix}
\begin{bmatrix}\text{noun: woman}\\ \text{fnc:}\\ \text{nc: child}\\ \text{pc: man}\\ \text{prn: 8}\end{bmatrix}
\begin{bmatrix}\text{noun: child}\\ \text{fnc:}\\ \text{nc:}\\ \text{pc: woman}\\ \text{prn: 8}\end{bmatrix}
$$

$$
\begin{bmatrix}\text{verb: surprise}\\ \text{arg: 8 sleep Mary}\\ \text{prn: 9}\end{bmatrix}
\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: surprise}\\ \text{prn: 9}\end{bmatrix}
$$

2. Verb coordination in a subject sentence:

   That the man bought, cooked, and ate the pizza surprised Mary.

$$
\begin{bmatrix}\text{noun: man}\\ \text{fnc: buy \&}\\ \text{prn: 10}\end{bmatrix}
\begin{bmatrix}\text{n/v: that buy \&}\\ \text{arg: man pizza}\\ \text{fnc: 11 surprise}\\ \text{nc: cook}\\ \text{pc:}\\ \text{prn: 10}\end{bmatrix}
\begin{bmatrix}\text{verb: cook}\\ \text{arg:}\\ \text{nc: eat}\\ \text{pc: buy}\\ \text{prn: 10}\end{bmatrix}
\begin{bmatrix}\text{verb: eat}\\ \text{arg:}\\ \text{nc:}\\ \text{pc: cook}\\ \text{prn: 10}\end{bmatrix}
\begin{bmatrix}\text{noun: pizza}\\ \text{fnc: buy \&}\\ \text{prn: 10}\end{bmatrix}
$$

$$
\begin{bmatrix}\text{verb: surprise}\\ \text{arg: 10 buy \& Mary}\\ \text{prn: 11}\end{bmatrix}
\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: surprise}\\ \text{prn: 11}\end{bmatrix}
$$

3. Noun coordination as the object of a subject sentence:

   That Bob ate an apple, a pear, and a peach, surprised Mary.

$$
\begin{bmatrix}\text{noun: Bob}\\ \text{fnc: eat}\\ \text{prn: 12}\end{bmatrix}
\begin{bmatrix}\text{n/v: that eat}\\ \text{arg: Bob apple \&}\\ \text{fnc: 13 surprise}\\ \text{prn: 12}\end{bmatrix}
\begin{bmatrix}\text{noun: apple \&}\\ \text{fnc: eat}\\ \text{nc: pear}\\ \text{pc:}\\ \text{prn: 12}\end{bmatrix}
\begin{bmatrix}\text{noun: pear}\\ \text{fnc:}\\ \text{nc: peach}\\ \text{pc: apple}\\ \text{prn: 12}\end{bmatrix}
\begin{bmatrix}\text{noun: peach}\\ \text{fnc:}\\ \text{nc:}\\ \text{pc: pear}\\ \text{prn: 12}\end{bmatrix}
$$

$$
\begin{bmatrix}\text{verb: surprise}\\ \text{arg: 12 eat Mary}\\ \text{prn: 13}\end{bmatrix}
\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: surprise}\\ \text{prn: 13}\end{bmatrix}
$$

9.3.2 Simple coordinations in sentential arguments 2

The crucial difference between the following three examples and those in 9.3.1 above is that the sentential and non-sentential arg values of the higher verb proplets (*surprise*, *see*) are in inverse order: in 9.3.1(1) they are [arg: 8 sleep Mary] (subject sentence), while in 9.3.2(1) they are [arg: Mary 15 sleep] (object sentence); in 9.3.1(2) they are [arg: 10 buy & Mary] (subject sentence), while in 9.3.2(2) they are [arg: Mary 17 buy &] (object sentence); and in 9.3.1(3) they are [arg: 12 buy Mary] (subject sentence), while in 9.3.2(3) they are [arg: Mary 19 buy] (object sentence).

1. Noun coordination as the subject of an object sentence:
   Mary saw that the man, the woman and the child slept.

noun: Mary	verb: see
fnc: see	arg: Mary 15 sleep
prn: 14	prn: 14

n/v: that sleep	noun: man &	noun: woman	noun: child
arg: man &	fnc: sleep	fnc:	fnc:
fnc: 14 see	nc: woman	nc: child	nc:
prn: 15	pc:	pc: man	pc: woman
	prn: 15	prn: 15	prn: 15

2. Verb coordination in an object sentence:

   Mary saw that the man bought, cooked, and ate the pizza.

$$
\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: see}\\ \text{prn: 16}\end{bmatrix}
\begin{bmatrix}\text{verb: see}\\ \text{arg: Mary 17 buy \&}\\ \text{prn: 16}\end{bmatrix}
$$

$$
\begin{bmatrix}\text{noun: man}\\ \text{fnc: buy \&}\\ \text{prn: 17}\end{bmatrix}
\begin{bmatrix}\text{n/v: that buy \&}\\ \text{arg: man pizza}\\ \text{fnc: 16 see}\\ \text{nc: cook}\\ \text{pc:}\\ \text{prn: 17}\end{bmatrix}
\begin{bmatrix}\text{verb: cook}\\ \text{arg:}\\ \text{nc: eat}\\ \text{pc: buy}\\ \text{prn: 17}\end{bmatrix}
\begin{bmatrix}\text{verb: eat}\\ \text{arg:}\\ \text{nc:}\\ \text{pc: cook}\\ \text{prn: 17}\end{bmatrix}
\begin{bmatrix}\text{noun: pizza}\\ \text{fnc: buy \&}\\ \text{prn: 17}\end{bmatrix}
$$

3. Noun coordination as the object of an object sentence::

   Mary saw that Bob bought an apple, a pear, and a peach.

$$
\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: see}\\ \text{prn: 18}\end{bmatrix}
\begin{bmatrix}\text{verb: see}\\ \text{arg: Mary 19 buy}\\ \text{prn: 18}\end{bmatrix}
$$

$$
\begin{bmatrix}\text{noun: Bob}\\ \text{fnc: buy}\\ \text{prn: 19}\end{bmatrix}
\begin{bmatrix}\text{n/v: that buy}\\ \text{arg: Bob apple \&}\\ \text{fnc: 18 see}\\ \text{prn: 19}\end{bmatrix}
\begin{bmatrix}\text{noun: apple \&}\\ \text{fnc: buy}\\ \text{nc: pear}\\ \text{pc:}\\ \text{prn: 19}\end{bmatrix}
\begin{bmatrix}\text{noun: pear}\\ \text{fnc:}\\ \text{nc: peach}\\ \text{pc: apple}\\ \text{prn: 19}\end{bmatrix}
\begin{bmatrix}\text{noun: peach}\\ \text{fnc:}\\ \text{nc:}\\ \text{pc: pear}\\ \text{prn: 19}\end{bmatrix}
$$

9.3.3 Simple coordinations in sentential modifiers 1

1. Noun coordination as the subject of an adnominal sentence with a subject gap:

   structurally excluded!

   A relative clause with a subject gap cannot have a subject coordination because the gap (represented in English by a relative pronoun) cannot be part of a noun coordination.

2. Verb coordination in an adnominal sentence with a subject gap:

   Mary saw the man who bought, cooked, and ate the pizza.

$$\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: see}\\ \text{prn: 20}\end{bmatrix} \begin{bmatrix}\text{verb: see}\\ \text{arg: Mary man}\\ \text{prn: 20}\end{bmatrix} \begin{bmatrix}\text{noun: man}\\ \text{fnc: see}\\ \text{mdr: 21 buy \&}\\ \text{prn: 20}\end{bmatrix}$$

$$\begin{bmatrix}\text{a/v: buy \&}\\ \text{arg: \# pizza}\\ \text{mdd: 20 man}\\ \text{nc: cook}\\ \text{pc:}\\ \text{prn: 21}\end{bmatrix} \begin{bmatrix}\text{verb: cook}\\ \text{arg:}\\ \text{nc: eat}\\ \text{pc: buy}\\ \text{prn: 21}\end{bmatrix} \begin{bmatrix}\text{verb: eat}\\ \text{arg:}\\ \text{nc:}\\ \text{pc: cook}\\ \text{prn: 21}\end{bmatrix} \begin{bmatrix}\text{noun: pizza}\\ \text{fnc: buy \&}\\ \text{prn: 21}\end{bmatrix}$$

3. Noun coordination as the object of an adnominal clause with a subject gap:
   Mary saw the man who bought an apple, a pear, and a peach.

$$\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: see}\\ \text{prn: 22}\end{bmatrix} \begin{bmatrix}\text{verb: see}\\ \text{arg: Mary man}\\ \text{prn: 22}\end{bmatrix} \begin{bmatrix}\text{noun: man}\\ \text{fnc: see}\\ \text{mdr: 23 buy}\\ \text{prn: 22}\end{bmatrix}$$

$$\begin{bmatrix}\text{a/v: buy}\\ \text{arg: \# apple \&}\\ \text{mdd: 22 man}\\ \text{prn: 23}\end{bmatrix} \begin{bmatrix}\text{noun: apple \&}\\ \text{fnc: buy}\\ \text{nc: pear}\\ \text{pc:}\\ \text{prn: 23}\end{bmatrix} \begin{bmatrix}\text{noun: pear}\\ \text{fnc:}\\ \text{nc: peach}\\ \text{pc: apple}\\ \text{prn: 23}\end{bmatrix} \begin{bmatrix}\text{noun: peach}\\ \text{fnc:}\\ \text{nc:}\\ \text{pc: pear}\\ \text{prn: 23}\end{bmatrix}$$

9.3.4 Simple coordinations in sentential modifiers 2

1. Noun coordination as the subject of an adnominal clause with an object gap:
   Mary saw the pizza which Bob, Jim, and Bill ate.

$$
\begin{bmatrix} \text{noun: Mary} \\ \text{fnc: see} \\ \text{prn: 24} \end{bmatrix}
\begin{bmatrix} \text{verb: see} \\ \text{arg: Mary pizza} \\ \text{prn: 24} \end{bmatrix}
\begin{bmatrix} \text{noun: pizza} \\ \text{fnc: see} \\ \text{mdr: 25 eat} \\ \text{prn: 24} \end{bmatrix}
$$

$$
\begin{bmatrix} \text{a/v: eat} \\ \text{arg: Bob \& \#} \\ \text{mdd: 24 pizza} \\ \text{prn: 25} \end{bmatrix}
\begin{bmatrix} \text{noun: Bob \&} \\ \text{fnc: eat} \\ \text{nc: Jim} \\ \text{pc:} \\ \text{prn: 25} \end{bmatrix}
\begin{bmatrix} \text{noun: Jim} \\ \text{fnc:} \\ \text{nc: Bill} \\ \text{pc: Bob} \\ \text{prn: 25} \end{bmatrix}
\begin{bmatrix} \text{noun: Bill} \\ \text{fnc:} \\ \text{nc:} \\ \text{pc: Jim} \\ \text{prn: 25} \end{bmatrix}
$$

2. Verb coordination in an adnominal clause with an object gap:
   Mary saw the pizza which the man bought, cooked, and ate.

$$\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: see}\\ \text{prn: 26}\end{bmatrix} \begin{bmatrix}\text{verb: see}\\ \text{arg: Mary pizza}\\ \text{prn: 26}\end{bmatrix} \begin{bmatrix}\text{noun: pizza}\\ \text{fnc: see}\\ \text{mdr: 27 buy \&}\\ \text{prn: 26}\end{bmatrix}$$

$$\begin{bmatrix}\text{noun: man}\\ \text{fnc: buy \&}\\ \text{prn: 27}\end{bmatrix} \begin{bmatrix}\text{a/v: buy \&}\\ \text{arg: man \#}\\ \text{mdd: 26 pizza}\\ \text{nc: cook}\\ \text{pc:}\\ \text{prn: 27}\end{bmatrix} \begin{bmatrix}\text{verb: cook}\\ \text{arg:}\\ \text{nc: eat}\\ \text{pc: buy}\\ \text{prn: 27}\end{bmatrix} \begin{bmatrix}\text{verb: eat}\\ \text{arg:}\\ \text{nc:}\\ \text{pc: cook}\\ \text{prn: 27}\end{bmatrix}$$

3. Noun coordination as the object of the adnominal clause with an object gap:
   structurally excluded!
   A relative clause with an object gap cannot have an object coordination because the gap (represented in English by a relative pronoun) cannot participate in a coordination.

9.3.5 Simple coordinations in sentential modifiers 3

1. Noun coordination as the subject of an adverbial sentence:
   Mary arrived after Bob, Jim, and Bill had eaten a pizza.

$$\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: arrive}\\ \text{prn: 28}\end{bmatrix}\begin{bmatrix}\text{verb: arrive}\\ \text{arg: Mary}\\ \text{mdr: 29 eat}\\ \text{prn: 28}\end{bmatrix}\begin{bmatrix}\text{a/v: after eat}\\ \text{arg: Bob \& pizza}\\ \text{mdd: 28 arrive}\\ \text{prn: 29}\end{bmatrix}$$

$$\begin{bmatrix}\text{noun: Bob \&}\\ \text{fnc: eat}\\ \text{nc: Jim}\\ \text{pc:}\\ \text{prn: 29}\end{bmatrix}\begin{bmatrix}\text{noun: Jim}\\ \text{fnc:}\\ \text{nc: Bill}\\ \text{pc: Bob}\\ \text{prn: 29}\end{bmatrix}\begin{bmatrix}\text{noun: Bill}\\ \text{fnc:}\\ \text{nc:}\\ \text{pc: Jim}\\ \text{prn: 29}\end{bmatrix}\begin{bmatrix}\text{noun: pizza}\\ \text{fnc: eat}\\ \text{prn: 29}\end{bmatrix}$$

2. Verb coordination in an adverbial sentence:

After Bob had bought, cooked, and eaten the pizza, Mary arrived.

$$\begin{bmatrix}\text{noun: Bob}\\ \text{fnc: buy \&}\\ \text{prn: 30}\end{bmatrix} \begin{bmatrix}\text{a/v: after buy \&}\\ \text{arg: Bob pizza}\\ \text{mdd: 31 arrive}\\ \text{nc: cook}\\ \text{pc:}\\ \text{prn: 30}\end{bmatrix} \begin{bmatrix}\text{verb: cook}\\ \text{arg:}\\ \text{nc: eat}\\ \text{pc: buy}\\ \text{prn: 30}\end{bmatrix} \begin{bmatrix}\text{verb: eat}\\ \text{arg:}\\ \text{nc:}\\ \text{pc: cook}\\ \text{prn: 30}\end{bmatrix} \begin{bmatrix}\text{noun: pizza}\\ \text{fnc: buy \&}\\ \text{prn: 30}\end{bmatrix}$$

$$\begin{bmatrix}\text{verb: arrive}\\ \text{arg: Mary}\\ \text{mdr: 30 buy}\\ \text{prn: 31}\end{bmatrix} \begin{bmatrix}\text{noun: Mary}\\ \text{fnc: arrive}\\ \text{prn: 31}\end{bmatrix}$$

3. Noun coordination as the object of an adverbial sentence:

Mary arrived after Bob had eaten an apple, a pear, and a peach.

$$\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: arrive}\\ \text{prn: 32}\end{bmatrix} \begin{bmatrix}\text{verb: arrive}\\ \text{arg: Mary}\\ \text{mdr: 33 eat}\\ \text{prn: 32}\end{bmatrix}$$

$$\begin{bmatrix}\text{noun: Bob}\\ \text{fnc: eat}\\ \text{prn: 33}\end{bmatrix} \begin{bmatrix}\text{a/v: after eat}\\ \text{arg: Bob apple \&}\\ \text{mdd: 32 arrive}\\ \text{prn: 33}\end{bmatrix} \begin{bmatrix}\text{noun: apple \&}\\ \text{fnc: eat}\\ \text{nc: pear}\\ \text{pc:}\\ \text{prn: 33}\end{bmatrix} \begin{bmatrix}\text{noun: pear}\\ \text{fnc:}\\ \text{nc: peach}\\ \text{pc: apple}\\ \text{prn: 33}\end{bmatrix} \begin{bmatrix}\text{noun: peach}\\ \text{fnc:}\\ \text{nc:}\\ \text{pc: pear}\\ \text{prn: 33}\end{bmatrix}$$

9.4 Complex Coordinations as Sentential Arguments and Modifiers

Corresponding to the grammatical analysis of simple subject, verb, and object coordinations in extra-propositional functor-argument structures, we turn now to complex verb-object, subject-object, and subject-verb coordinations (i.e. subject, verb, and object gapping, respectively). As before, their grammatical function is investigated in a (i) subject sentence, (ii) an object sentence, (iii) an adnominal sentence with subject gap, (iv) an adnominal sentence with object gap, and (v) an adverbial sentence.

9.4.1 Complex coordinations in sentential arguments 1

1. Verb-object coordination in a subject sentence:
   That Bob ate an apple, walked his dog, and read a paper, amused Mary.

$$
\begin{bmatrix}\text{noun: Bob}\\ \text{fnc: eat \&}\\ \text{prn: 29}\end{bmatrix}
\begin{bmatrix}\text{n/v: that eat \&}\\ \text{arg: Bob apple}\\ \text{fnc: 30 amuse}\\ \text{nc: walk}\\ \text{pc:}\\ \text{prn: 29}\end{bmatrix}
\begin{bmatrix}\text{noun: apple}\\ \text{fnc: eat}\\ \text{prn: 29}\end{bmatrix}
\begin{bmatrix}\text{verb: walk}\\ \text{arg: \# dog}\\ \text{nc: read}\\ \text{pc: eat}\\ \text{prn: 29}\end{bmatrix}
\begin{bmatrix}\text{noun: dog}\\ \text{fnc: walk}\\ \text{prn: 29}\end{bmatrix}
$$

$$
\begin{bmatrix}\text{verb: read}\\ \text{arg: \# paper}\\ \text{nc:}\\ \text{pc: walk}\\ \text{prn: 29}\end{bmatrix}
\begin{bmatrix}\text{noun: paper}\\ \text{fnc: read}\\ \text{prn: 29}\end{bmatrix}
\begin{bmatrix}\text{verb: amuse}\\ \text{arg: 29 eat \& Mary}\\ \text{prn: 30}\end{bmatrix}
\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: amuse}\\ \text{prn: 30}\end{bmatrix}
$$

2. Subject-object coordination in a subject sentence:
   That Bob ate an apple, Jim a pear, and Bill a peach, amused Mary.

$$\begin{bmatrix}\text{n/v: that eat}\\ \text{arg: Bob \& apple \&}\\ \text{fnc: 32 amuse}\\ \text{prn: 31}\end{bmatrix} \begin{bmatrix}\text{noun: Bob \&}\\ \text{fnc: eat}\\ \text{nc: Jim}\\ \text{pc:}\\ \text{prn: 31}\end{bmatrix} \begin{bmatrix}\text{noun: apple \&}\\ \text{fnc: eat}\\ \text{nc: pear}\\ \text{pc:}\\ \text{prn: 31}\end{bmatrix} \begin{bmatrix}\text{noun: Jim}\\ \text{fnc: \#}\\ \text{nc: Bill}\\ \text{pc: Bob}\\ \text{prn: 31}\end{bmatrix} \begin{bmatrix}\text{noun: pear}\\ \text{fnc: \#}\\ \text{nc: peach}\\ \text{pc: apple}\\ \text{prn: 31}\end{bmatrix}$$

$$\begin{bmatrix}\text{noun: Bill}\\ \text{fnc: \#}\\ \text{nc:}\\ \text{pc: Jim}\\ \text{prn: 31}\end{bmatrix} \begin{bmatrix}\text{noun: peach}\\ \text{fnc: \#}\\ \text{nc:}\\ \text{pc: pear}\\ \text{prn: 31}\end{bmatrix} \begin{bmatrix}\text{verb: amuse}\\ \text{arg: 31 eat \quad Mary}\\ \text{prn: 32}\end{bmatrix} \begin{bmatrix}\text{noun: Mary}\\ \text{fnc: amuse}\\ \text{prn: 32}\end{bmatrix}$$

3. Subject-verb coordination in a subject sentence:
   That Bob bought, Jim peeled, and Bill ate the peach, amused Mary.

$$\begin{bmatrix}\text{noun: Bob}\\ \text{fnc: buy \&}\\ \text{prn: 33}\end{bmatrix} \begin{bmatrix}\text{n/v: that buy \&}\\ \text{arg: Bob peach}\\ \text{fnc: 34 amuse}\\ \text{nc: peel}\\ \text{pc:}\\ \text{prn: 33}\end{bmatrix} \begin{bmatrix}\text{noun: Jim}\\ \text{fnc: peel}\\ \text{prn: 33}\end{bmatrix} \begin{bmatrix}\text{verb: peel}\\ \text{arg: Jim \#}\\ \text{nc: eat}\\ \text{pc: buy}\\ \text{prn: 33}\end{bmatrix} \begin{bmatrix}\text{noun: Bill}\\ \text{fnc: eat}\\ \text{prn: 33}\end{bmatrix} \begin{bmatrix}\text{verb: eat}\\ \text{arg: Bill \#}\\ \text{nc:}\\ \text{pc: peel}\\ \text{prn: 33}\end{bmatrix}$$

$$\begin{bmatrix}\text{noun: peach}\\ \text{fnc: buy}\\ \text{prn: 33}\end{bmatrix} \begin{bmatrix}\text{verb: amuse}\\ \text{arg: 33 buy \& \quad Mary}\\ \text{prn: 34}\end{bmatrix} \begin{bmatrix}\text{noun: Mary}\\ \text{fnc: amuse}\\ \text{prn: 34}\end{bmatrix}$$

9.4.2 Complex coordinations in sentential arguments 2

1. Verb-object coordination in an object sentence:
   Mary saw that Bob ate an apple, walked his dog, and read a paper.

$$
\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: see}\\ \text{prn: 34}\end{bmatrix}
\begin{bmatrix}\text{verb: see}\\ \text{arg: Mary 35 eat \&}\\ \text{prn: 34}\end{bmatrix}
\begin{bmatrix}\text{noun: Bob}\\ \text{fnc: eat \&}\\ \text{prn: 35}\end{bmatrix}
\begin{bmatrix}\text{n/v: that eat \&}\\ \text{arg: Bob apple}\\ \text{fnc: 34 see}\\ \text{nc: walk}\\ \text{pc:}\\ \text{prn: 35}\end{bmatrix}
\begin{bmatrix}\text{noun: apple}\\ \text{fnc: eat}\\ \text{prn: 35}\end{bmatrix}
$$

$$
\begin{bmatrix}\text{verb: walk}\\ \text{arg: \# dog}\\ \text{nc: read}\\ \text{pc: eat}\\ \text{prn: 35}\end{bmatrix}
\begin{bmatrix}\text{noun: dog}\\ \text{fnc: walk}\\ \text{prn: 35}\end{bmatrix}
\begin{bmatrix}\text{verb: read}\\ \text{arg: \# paper}\\ \text{nc:}\\ \text{pc: walk}\\ \text{prn: 35}\end{bmatrix}
\begin{bmatrix}\text{noun: paper}\\ \text{fnc: read}\\ \text{prn: 35}\end{bmatrix}
$$

2. Subject-object coordination (verb gapping, cf. 8.5) in an object sentence:
   Mary saw that Bob ate an apple, Jim a pear, and Bill a peach.

$$
\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: see}\\ \text{prn: 36}\end{bmatrix}
\begin{bmatrix}\text{verb: see}\\ \text{arg: Mary 37 eat}\\ \text{prn: 36}\end{bmatrix}
\begin{bmatrix}\text{noun: Bob \&}\\ \text{fnc: eat}\\ \text{nc: Jim}\\ \text{pc:}\\ \text{prn: 37}\end{bmatrix}
\begin{bmatrix}\text{n/v: that eat}\\ \text{arg: Bob \& apple \&}\\ \text{fnc: 36 see}\\ \text{prn: 37}\end{bmatrix}
\begin{bmatrix}\text{noun: apple \&}\\ \text{fnc: eat}\\ \text{nc: pear}\\ \text{pc:}\\ \text{prn: 37}\end{bmatrix}
$$

$$
\begin{bmatrix}\text{noun: Jim}\\ \text{fnc: \#}\\ \text{nc: Bill}\\ \text{pc: Bob}\\ \text{prn: 37}\end{bmatrix}
\begin{bmatrix}\text{noun: pear}\\ \text{fnc: \#}\\ \text{nc: peach}\\ \text{pc: apple}\\ \text{prn: 37}\end{bmatrix}
\begin{bmatrix}\text{noun: Bill}\\ \text{fnc: \#}\\ \text{nc:}\\ \text{pc: Jim}\\ \text{prn: 37}\end{bmatrix}
\begin{bmatrix}\text{noun: peach}\\ \text{fnc: \#}\\ \text{nc:}\\ \text{pc: pear}\\ \text{prn: 37}\end{bmatrix}
$$

3. Subject-verb coordination (object gapping, cf. 8.6) in an object sentence:
Mary saw that Bob bought, Jim peeled, and Bill ate the peach .

$$\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: see}\\ \text{prn: 38}\end{bmatrix} \begin{bmatrix}\text{verb: see}\\ \text{arg: Mary 39 buy \&}\\ \text{prn: 38}\end{bmatrix} \begin{bmatrix}\text{noun: Bob}\\ \text{fnc: buy \&}\\ \text{prn: 39}\end{bmatrix} \begin{bmatrix}\text{n/v: that buy \&}\\ \text{arg: Bob peach}\\ \text{fnc: 38 see}\\ \text{nc: peel}\\ \text{pc:}\\ \text{prn: 39}\end{bmatrix} \begin{bmatrix}\text{noun: Jim}\\ \text{fnc: peel}\\ \text{prn: 39}\end{bmatrix} \begin{bmatrix}\text{verb: peel}\\ \text{arg: Jim \#}\\ \text{nc: eat}\\ \text{pc: buy}\\ \text{prn: 39}\end{bmatrix}$$

$$\begin{bmatrix}\text{noun: Bill}\\ \text{fnc: eat}\\ \text{prn: 39}\end{bmatrix} \begin{bmatrix}\text{verb: eat}\\ \text{arg: Bill \#}\\ \text{nc:}\\ \text{pc: peel}\\ \text{prn: 39}\end{bmatrix} \begin{bmatrix}\text{noun: peach}\\ \text{fnc: buy}\\ \text{prn: 39}\end{bmatrix}$$

9.4.3 Complex coordination in sentential modifiers 1

The following relative clause example(s) containing complex coordinations are analogous to those in 9.3.3, which contain simple coordinations. However, in relative clauses with complex coordinations two constructions are structurally excluded, in contrast to simple coordinations, which exclude only one.

1. Verb-object coordination (subject gapping) in an adnom. sent. with subject gap:
   The man who ate an apple, walked his dog, and read a paper loves Mary.

$$
\begin{bmatrix}\text{noun: man}\\ \text{fnc: love}\\ \text{mdr: 41 eat \&}\\ \text{prn: 40}\end{bmatrix}
\begin{bmatrix}\text{a/v: eat \&}\\ \text{arg: \# apple}\\ \text{mdd: 40 man}\\ \text{nc: walk}\\ \text{pc:}\\ \text{prn: 41}\end{bmatrix}
\begin{bmatrix}\text{noun: apple}\\ \text{fnc: eat}\\ \text{prn: 41}\end{bmatrix}
\begin{bmatrix}\text{verb: walk}\\ \text{arg: \# dog}\\ \text{nc: read}\\ \text{pc: eat}\\ \text{prn: 41}\end{bmatrix}
\begin{bmatrix}\text{noun: dog}\\ \text{verb: walk}\\ \text{prn: 41}\end{bmatrix}
\begin{bmatrix}\text{verb: read}\\ \text{arg: \# paper}\\ \text{nc:}\\ \text{pc: walk}\\ \text{prn: 41}\end{bmatrix}
$$

$$
\begin{bmatrix}\text{noun: paper}\\ \text{verb: read}\\ \text{prn: 41}\end{bmatrix}
\begin{bmatrix}\text{verb: love}\\ \text{arg: man Mary}\\ \text{prn: 40}\end{bmatrix}
\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: love}\\ \text{prn: 40}\end{bmatrix}
$$

2. Subject-object coordination (verb gapping) in an adnom. sent. with subject gap: *structurally excluded!*

   A subject-object coordination as the subject of a relative clause with the head serving as the subject is excluded, because the subject position is taken by the gap (represented in English by a relative pronoun) – which cannot participate in a coordination.

3. Subject-verb coordination (object gapping) in a adnominal sent. with subject gap:
   structurally excluded!

   This construction is excluded for the same reason as the one above.

9.4.4 Complex coordination in sentential modifiers 2

The following relative clause example(s) containing complex coordinations are analogous to those in 9.3.4, which contain simple coordinations. However, as in the subject-gap relative clauses 9.4.3 with complex coordinations, two constructions are excluded, in contrast to simple coordinations, which exclude only one.

1. Verb-object coordination (subject gapping) in a adnominal sent. with object gap:
   structurally excluded!

   A verb-object coordination as the object of a relative clause with the head serving as the object is excluded, because the object position is taken by the gap (represented in English by a relative pronoun) – which cannot participate in a coordination.

2. Subject-object coordination (verb gapping) in an adnominal sentence with object gap:
   structurally excluded!

   This construction is excluded for the same reason as the one above.

3. Subject-verb coordination (object gapping) in an adnominal sent. with object gap:

Mary saw the peach which Bob bought, Jim peeled, and Bill ate.

$$
\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: see}\\ \text{prn: 42}\end{bmatrix}
\begin{bmatrix}\text{verb: see}\\ \text{arg: Mary peach}\\ \text{prn: 42}\end{bmatrix}
\begin{bmatrix}\text{noun: peach}\\ \text{fnc: see}\\ \text{mdr: 43 buy \&}\\ \text{prn: 42}\end{bmatrix}
\begin{bmatrix}\text{a/v: buy \&}\\ \text{arg: Bob \#}\\ \text{mdd: 42 peach}\\ \text{nc: peel}\\ \text{pc:}\\ \text{prn: 43}\end{bmatrix}
\begin{bmatrix}\text{noun: Bob}\\ \text{fnc: buy}\\ \text{prn: 43}\end{bmatrix}
$$

$$
\begin{bmatrix}\text{verb: peel}\\ \text{arg: Jim \#}\\ \text{pc: buy}\\ \text{nc: eat}\\ \text{prn: 43}\end{bmatrix}
\begin{bmatrix}\text{noun: Jim}\\ \text{fnc: peel}\\ \text{prn: 43}\end{bmatrix}
\begin{bmatrix}\text{verb: eat}\\ \text{arg: Bill \#}\\ \text{nc:}\\ \text{pc: peel}\\ \text{prn: 43}\end{bmatrix}
\begin{bmatrix}\text{noun: Bill}\\ \text{fnc: eat}\\ \text{prn: 43}\end{bmatrix}
$$

9.4.5 Complex coordinations in sentential modifiers 3

1. Verb-object coordination (subject gapping, cf. 8.4) in an adverbial sentence:
   Mary arrived after Bob had eaten an apple, walked his dog, and read a paper.

$$
\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: arrive}\\ \text{prn: 44}\end{bmatrix}
\begin{bmatrix}\text{verb: arrive}\\ \text{arg: Mary}\\ \text{mdr: 45 eat \&}\\ \text{prn: 44}\end{bmatrix}
\begin{bmatrix}\text{a/v: after eat \&}\\ \text{arg: Bob apple}\\ \text{mdd: 44 arrive}\\ \text{nc: walk}\\ \text{pc:}\\ \text{prn: 45}\end{bmatrix}
\begin{bmatrix}\text{noun: Bob}\\ \text{fnc: eat}\\ \text{prn: 45}\end{bmatrix}
\begin{bmatrix}\text{noun: apple}\\ \text{fnc: eat}\\ \text{prn: 45}\end{bmatrix}
$$

$$
\begin{bmatrix}\text{verb: walk}\\ \text{arg: \# dog}\\ \text{nc: read}\\ \text{pc: eat}\\ \text{prn: 45}\end{bmatrix}
\begin{bmatrix}\text{noun: dog}\\ \text{fnc: walk}\\ \text{prn: 45}\end{bmatrix}
\begin{bmatrix}\text{verb: read}\\ \text{arg: \# paper}\\ \text{nc:}\\ \text{pc: walk}\\ \text{prn: 45}\end{bmatrix}
\begin{bmatrix}\text{noun: paper}\\ \text{fnc: read}\\ \text{prn: 45}\end{bmatrix}
$$

2. Subject-object coordination (verb gapping, cf. 8.5) in an adverbial sentence:

After Bob had eaten an apple, Jim a pear, and Bill a peach, Mary arrived.

$$\begin{bmatrix}\text{a/v: after eat}\\ \text{arg: Bob \& apple \&}\\ \text{mdd: 47 arrive}\\ \text{prn: 46}\end{bmatrix} \begin{bmatrix}\text{noun: Bob \&}\\ \text{fnc: eat}\\ \text{nc: Jim}\\ \text{pc:}\\ \text{prn: 46}\end{bmatrix} \begin{bmatrix}\text{noun: apple \&}\\ \text{fnc: eat}\\ \text{nc: pear}\\ \text{pc:}\\ \text{prn: 46}\end{bmatrix} \begin{bmatrix}\text{noun: Jim}\\ \text{fnc: \#}\\ \text{nc: Bill}\\ \text{pc: Bob}\\ \text{prn: 46}\end{bmatrix} \begin{bmatrix}\text{noun: pear}\\ \text{fnc: \#}\\ \text{nc: peach}\\ \text{pc: apple}\\ \text{prn: 46}\end{bmatrix}$$

$$\begin{bmatrix}\text{noun: Bill}\\ \text{fnc: \#}\\ \text{nc:}\\ \text{pc: Jim}\\ \text{prn: 46}\end{bmatrix} \begin{bmatrix}\text{noun: peach}\\ \text{fnc: \#}\\ \text{nc:}\\ \text{pc: pear}\\ \text{prn: 46}\end{bmatrix} \begin{bmatrix}\text{noun: Mary}\\ \text{fnc: arrive}\\ \text{prn: 47}\end{bmatrix} \begin{bmatrix}\text{verb: arrive}\\ \text{arg: Mary}\\ \text{mdr: 46 eat}\\ \text{prn: 47}\end{bmatrix}$$

3. Subject-verb coordination (object gapping, cf. 8.6) in an adverbial sentence:
   Mary arrived after Bob had bought, Jim had peeled, and Bill had eaten the peach.

$$\begin{bmatrix}\text{noun: Mary}\\ \text{fnc: arrive}\\ \text{prn: 48}\end{bmatrix} \begin{bmatrix}\text{verb: arrive}\\ \text{arg: Mary}\\ \text{mdr: 49 buy \&}\\ \text{prn: 48}\end{bmatrix} \begin{bmatrix}\text{noun: Bob}\\ \text{fnc: buy \&}\\ \text{prn: 49}\end{bmatrix} \begin{bmatrix}\text{a/v: after buy \&}\\ \text{arg: Bob peach}\\ \text{mdd: 48 arrive}\\ \text{nc: peel}\\ \text{pc:}\\ \text{prn: 49}\end{bmatrix}$$

$$\begin{bmatrix}\text{noun: Jim}\\ \text{fnc: peel}\\ \text{prn: 49}\end{bmatrix} \begin{bmatrix}\text{verb: peel}\\ \text{arg: Jim \#}\\ \text{nc: eat}\\ \text{pc: buy}\\ \text{prn: 49}\end{bmatrix} \begin{bmatrix}\text{noun: Bill}\\ \text{fnc: eat}\\ \text{prn: 49}\end{bmatrix} \begin{bmatrix}\text{verb: eat}\\ \text{arg: Bill \#}\\ \text{nc:}\\ \text{pc: peel}\\ \text{prn: 49}\end{bmatrix} \begin{bmatrix}\text{noun: peach}\\ \text{fnc: buy}\\ \text{prn: 49}\end{bmatrix}$$

9.5 Turn-Taking in Questions and Answers

While in a text, the sequence of propositions is produced by the same agent, in a dialog the propositions, or even just parts of propositions, in the sequence are produced by different agents.

This difference is formally characterized by the STAR of the propositions (cf. 2.6.2).

9.5.1 Comparing coordination in a text and a dialog

1. *Coordination of two propositions in a text*
   Julia ate an apple.$^{\mathrm{STAR}}$ Susanne ate a pear.$^{\mathrm{(STAR)}}$
2. *Coordination of two propositions in a dialog*
   Julia ate an apple.$^{\mathrm{STAR}}$ Susanne ate a pear.$^{\mathrm{STA'R'}}$
3. *Coordination of a question and an answer in a dialog*
   Who is singing? $^{\mathrm{STAR}}$ Julia.$^{\mathrm{STA'R'}}$

9.5.2 Illustrating kinds of coordination as sets of proplets

1. Julia is singing.$^{\mathrm{STAR}}$ Susanne is dreaming.$^{\mathrm{(STAR)}}$

$$\begin{bmatrix}\text{noun: Julia}\\ \text{fnc: sing}\\ \text{nc:}\\ \text{pc:}\\ \text{STAR:}\\ \text{prn: 4}\end{bmatrix} \begin{bmatrix}\text{verb: sing}\\ \text{arg: Julia}\\ \text{nc: 5 dream}\\ \text{pc:}\\ \text{STAR: s t John Bill}\\ \text{prn: 4}\end{bmatrix} \begin{bmatrix}\text{noun: Susanne}\\ \text{fnc: dream}\\ \text{nc:}\\ \text{pc:}\\ \text{STAR:}\\ \text{prn: 5}\end{bmatrix} \begin{bmatrix}\text{verb: dream}\\ \text{arg: Susanne}\\ \text{nc:}\\ \text{pc: 4 sing}\\ \text{STAR:}\\ \text{prn: 5}\end{bmatrix}$$

2. Julia is singing.$^{\mathrm{STAR}}$ Susanne is dreaming.$^{\mathrm{STA'R'}}$

$$\begin{bmatrix}\text{noun: Julia}\\ \text{fnc: sing}\\ \text{nc:}\\ \text{pc:}\\ \text{STAR:}\\ \text{prn: 4}\end{bmatrix} \begin{bmatrix}\text{verb: sing}\\ \text{arg: Julia}\\ \text{nc: 5 dream}\\ \text{pc:}\\ \text{STAR: s t John Bill}\\ \text{prn: 4}\end{bmatrix} \begin{bmatrix}\text{noun: Susanne}\\ \text{fnc: dream}\\ \text{nc:}\\ \text{pc:}\\ \text{STAR:}\\ \text{prn: 5}\end{bmatrix} \begin{bmatrix}\text{verb: dream}\\ \text{arg: Susanne}\\ \text{nc:}\\ \text{pc: 4 sing}\\ \text{STAR: s t Bill John}\\ \text{prn: 5}\end{bmatrix}$$

3. Who is singing? $^{\mathrm{STAR}}$ Julia.$^{\mathrm{STA'R'}}$

$$\begin{bmatrix}\text{noun: q\_1}\\ \text{fnc: sing}\\ \text{nc: Julia}\\ \text{pc:}\\ \text{STAR:}\\ \text{prn: n}\end{bmatrix} \begin{bmatrix}\text{verb: sing}\\ \text{arg: q\_1}\\ \text{nc:}\\ \text{pc:}\\ \text{STAR: s t John Bill}\\ \text{prn: n}\end{bmatrix} \begin{bmatrix}\text{noun: Julia}\\ \text{fnc: sing}\\ \text{nc:}\\ \text{pc: q\_1}\\ \text{STAR: s t Bill John}\\ \text{prn: n}\end{bmatrix}$$

The interpretation and production of a question-answer pair may be experienced by an agent in the following constellations: (i) as the hearer of the question and the speaker of the answer, (ii) as the speaker of the question and the hearer of the answer, and (iii) as the hearer of the question and the answer (i.e. as an observer). These differences appear only in the STAR and the prn values, without affecting the grammatical analysis of the expressions used.

9.5.3 Derivation of a Wh-interrogative in the hearer-mode

lexical lookup

Who	is	singing
noun: q_1	verb: v_1	verb: sing
fnc:	arg:	arg:
mdr:	mdr:	mdr:
prn: n	prn:	prn:

syntactic−semantic parsing

1

noun: q_1	verb: v_1
fnc:	arg:
mdr:	mdr:
prn: n	prn:

2

noun: q_1	verb: v_1	verb: sing
fnc: v_1	arg: q_1	arg:
mdr:	mdr:	mdr:
prn: n	prn: n	prn:

result of syntactic−semantic parsing

noun: q_1	verb: sing
fnc: sing	arg: q_1
mdr:	mdr:
prn: n	prn: n

The hearer's pragmatic use of this expression for querying consists in applying the verb proplet to the token line of *sing* (cf. Section 5.1):

9.5.4 Finding the answer

$$\begin{array}{llllll}
 & & & & \begin{bmatrix}\text{verb:}\textit{sing}\\ \text{arg: q_1}\\ \text{prn: n}\end{bmatrix} & \textit{search pattern}\\
 & & & & \quad\textit{matching?} & \\
\begin{bmatrix}\text{verb: }\textit{sing}\end{bmatrix} & \begin{bmatrix}\text{verb: sing}\\ \text{arg: Bill}\\ \text{prn: 10}\end{bmatrix} & \begin{bmatrix}\text{verb: sing}\\ \text{arg: Susanne}\\ \text{prn: 12}\end{bmatrix} & \begin{bmatrix}\text{verb: sing}\\ \text{arg: Mary}\\ \text{prn: 15}\end{bmatrix} & \begin{bmatrix}\text{verb: sing}\\ \text{arg: Julia}\\ \text{prn: 19}\end{bmatrix} & \textit{token line}
\end{array}$$

Given the present progressive tense of the question, the search pattern is matched with the last (and thus most recent) item in the token line of *sing*, thereby binding the variable q_1 to Julia and the variable *n* to 19. Thus the proplet underlying the answer to the question may be derived by navigating from *sing* to *Julia*, using the latter to produce the answer:

9.5.5 Derivation of the answer

$$\begin{bmatrix}\text{verb: sing}\\ \text{arg: Julia}\\ \text{prn: 19}\end{bmatrix} \quad \begin{bmatrix}\text{noun: Julia}\\ \text{fnc: sing}\\ \text{prn: 19}\end{bmatrix}$$

The interrogatives used in Wh-questions and yes/no-questions (cf. Section 5.1) may be arbitrarily complex, based on sentential arguments and modifiers. ‘Long distance dependencies’ are particularly interesting constructions in English:

9.6 Complex Propositions as Thought Structures

9.6.1 Simple extra-propositional coordinat. of simple propositions

1. Extra-propositional forward navigation:
   Peter left the house. Then Peter crossed the street.

noun: Peter	verb: leave	noun: house	noun: Peter	verb: cross	noun: street
fnc: leave	arg: Peter house	fnc: leave	fnc: cross	arg: Peter street	fnc: cross
nc:	nc: > 2 cross	nc:	nc:	nc:	nc:
pc:	pc:	pc:	pc:	pc: < 1 leave	pc:
prn: 1	prn: 1	prn: 1	prn: 2	prn: 2	prn: 2

2. Extra-propositional backward navigation:
   Peter crossed the street. Before that Peter left the house.

noun: Peter	verb: cross	noun: street	noun: Peter	verb: leave	noun: house
fnc: cross	arg: Peter street	fnc: cross	fnc: leave	arg: Peter house	fnc: leave
nc:	nc: < 1 leave	nc:	nc:	nc: > 2 cross	nc:
pc:	pc:	pc:	pc:	pc:	pc:
prn: 2	prn: 2	prn: 2	prn: 1	prn: 1	prn: 1

The surfaces differ (i) in the order of the two sentences and (ii) in the realization of the coordinating conjunction, i.e. then (forward navigation) vs. before that (backward navigation). The distinction between forward and backward navigation arises also intra-propositionally, as shown by the alternative between active and passive (cf. Section 6.5).

9.6.2 Different extra-propositional functor-argument structures

1. Adnominal sentence with subject gap:
   Peter, who had left the house, crossed the street.

$$\begin{bmatrix}\text{noun: Peter}\\ \text{fnc: cross}\\ \text{mdr: 2 leave}\\ \text{prn: 1}\end{bmatrix} \begin{bmatrix}\text{a/v: leave}\\ \text{arg: \# house}\\ \text{mdd: 1 Peter}\\ \text{prn: 2}\end{bmatrix} \begin{bmatrix}\text{noun: house}\\ \text{fnc: leave}\\ \text{prn: 2}\end{bmatrix} \begin{bmatrix}\text{verb: cross}\\ \text{arg: Peter street}\\ \text{prn: 1}\end{bmatrix} \begin{bmatrix}\text{noun: street}\\ \text{fnc: cross}\\ \text{prn: 1}\end{bmatrix}$$

2. Adverbial sentence:
   After Peter had left the house, he crossed the street.

$$\begin{bmatrix}\text{noun: Peter}\\ \text{fnc: leave}\\ \text{prn: 1}\end{bmatrix} \begin{bmatrix}\text{a/v: leave}\\ \text{arg: Peter house}\\ \text{mdd: > 2 cross}\\ \text{prn: 1}\end{bmatrix} \begin{bmatrix}\text{noun: house}\\ \text{fnc: leave}\\ \text{prn: 1}\end{bmatrix} \begin{bmatrix}\text{noun: Peter}\\ \text{fnc: cross}\\ \text{prn: 2}\end{bmatrix} \begin{bmatrix}\text{verb: cross}\\ \text{arg: Peter street}\\ \text{mdr: < 1 leave}\\ \text{prn: 2}\end{bmatrix} \begin{bmatrix}\text{noun: street}\\ \text{fnc: cross}\\ \text{prn: 2}\end{bmatrix}$$

These two representations are different from those in 9.6.1, and different from each other.

More specifically, as extra-propositional functor-argument structures, both examples in 9.6.2 background the content of proposition 2 (hypotaxis) – in contradistinction to the examples of extra-propositional coordination in 9.6.1 (parataxis). The two examples in 9.6.2 differ from each other, furthermore, in that they represent alternative perspectives on the content: the adnominal (or relative) clause attaches the background content to the noun *Peter* while the adverbial clause attaches it to the verb *cross*.

Alternative (ii) has the disadvantage that it requires a transformation of a complex proposition (language level) into a simple coordination of simple propositions (context level) during language interpretation, and a transformation of a simple coordination of simple propositions (context level) into a complex proposition (language level) during language production. Moreover, the contents represented by simple coordinations of simple propositions and by the related special representations as complex propositions are not really the same, making the required transformations awkward and unnatural. The apparent advantage of this costly procedure, however, would be that inferencing at the context level would not have to deal with complex propositions.

Alternative (i) has the advantage that the language and the context level use the same coding, thus making any transformations unnecessary. Furthermore, the inferencing in LA-grammar (cf. Section 5.3) is sufficiently powerful to derive all the required conclusions from the simple as well as from the special representations. For example, both special representations in 9.6.2 support inferring the answer yes to the question Did Peter leave the house – just as both simple representations in 9.6.1.

Our choice of alternative (i) implies that the perspectives represented by extra-propositional functor-argument structure (cf. Chapter 7.), complex intra-propositional coordination (cf. Sections 8.4 –8.6) and their combination (cf. Section 9.4) are essentially thought structures. They are perspectives which arise already at the level of context and are merely reflected in language – just as the secondary coding underlying indirect (e.g. metaphoric) uses of language described in Sections 5.4 and 5.5.