7

Elliptical Constructions, Multiple Frontings, and Surface-Based Syntax

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Kathol (1995, 1997, 2000, 2001) developed a theory of German clause types that is based on the Topological Fields model known from descriptive linguistics (Drach, 1937, Reis, 1980, Höhle, 1986, Askedal, 1986). He suggests relating the clause type of sentences to serialization patterns of overtly realized material. Kathol (1997) refutes CP/IP analyses of German clause structure on the basis of learnability arguments and argues for a non-abstract syntax, i.e. a syntax where surface order plays a crucial role and the reference to abstract syntactic objects such as functional heads is avoided in favor of observationally accessible properties (p. 89).

In this paper, I show that an entirely surface-based conception of syntax is not tenable and that Kathol's proposal faces problems with certain elliptical constructions.

In the first section, I very briefly repeat his key assumptions. In Section 7.2, I will discuss problematic aspects of the proposal like verbless clauses, and declarative sentences that do not fit the pattern suggested by Kathol. I then suggest an analysis that does not rely on the surface order of constituents for the classification of clause types, but on the relations expressed by immediate dominance schemata.

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7.1 Constructional Constraints and Topological Fields

The examples in (1) show various linearization patterns that are attested in German clauses:

(1) a. daß Lisa eine Blume gepflanzt hat
that Lisa a flower planted has
'that Lisa planted a flower.'

b. was Lisa gepflanzt hat
what Lisa planted has

c. Hat Lisa eine Blume gepflanzt?
has Lisa a flower planted
'Did Lisa plant a flower?'

d. Eine Blume hat Lisa gepflanzt.
a flower has Lisa planted
'Lisa planted a flower.'

(1a) is an example for sentences that are introduced by a complementizer and (1b) is an example for embedded interrogative sentences. Both sentences are verb-final. (1c–d) are verb-initial sentences: (1c) is a yes/no question and (1d) is a declarative sentence. Declarative sentences usually differ from yes/no questions in that one constituent fills the position before the finite verb.

7.1.1 Topological Fields, Linearization Rules, and Uniqueness Constraints

Kathol (2001, p. 50) gives the following devision into topological fields for the sentences in (2):

	Vorfeld 'initial field' 1	linke Satzklammer 'left bracket' 2	Mittelfeld 'middle field' 3	rechte Satzklammer 'right bracket' 4
Vfinal		daß	Lisa eine Blume	gepflanzt hat
		was	Lisa	gepflanzt hat
V1		hat	Lisa eine Blume	gepflanzt
V2	eine Blume	hat	Lisa	gepflanzt

This is the classical terminology with additional labels 1–4 to refer to the respective positions.

He then formulates the following linearization constraints:

(2) Topological Linear Precedence Constraint
$1 < 2 < 3 < 4$

(3) Topological Uniqueness Conditions
a. $1 < 1$
b. $2 < 2$

The first constraint ensures that all elements that are assigned to the field 1 are serialized before 2 and so on. The second is a trick from the GPSG literature (Gazdar, Klein, Pullum, and Sag, 1985, p. 55) to rule out multiple occurrences of elements assigned to the fields 1 or 2. Since constraint (3a) requires that all elements with the field 1 have to precede the other elements assigned to field 1 this constraint is necessarily violated if there is more than one element assigned to 1.

7.1.2 A Hierarchy of Clause Types

Kathol follows Reape (1996, 1992, 1994), who introduced linearization domains into the HPSG framework. Daughters which are combined by the usual dominance schemata may be non-adjacent. The daughters are inserted into a domain list named DOM. The elements of this list may be permuted in any order provided no LP constraint is violated. The order of the elements corresponds to the surface order. This makes it possible to assign both sentences in (4) the dominance structure in (5).

(4) a. der Mann das Buch liest
b. Liest der Mann das Buch?

(5) [$_{\mathrm{V}}$ der Mann [$_{\mathrm{V}}$ das Buch liest]]

The sentences differ only in the order of the elements in their linearization domain. In the analysis of (4a) the verb is serialized finally and in the analysis of (4b) it is serialized initially.

Kathol (2001) defines clause types with reference to elements in the constituent order domains. He assumes that all clauses are subtypes of the following three types:

(6) a. *V1-clause* → $\begin{bmatrix} \mathrm{S}[\mathit{fin}] & \\ \textsc{dom} & \left\langle \begin{bmatrix} \mathit{2} \\ \mathrm{V}[\mathit{fin}] \end{bmatrix}, \ldots \right\rangle \end{bmatrix}$

b. *V2-clause* → $\begin{bmatrix} \mathrm{S}[\mathit{fin}] & \\ \textsc{dom} & \left\langle [\ \mathit{1}\ ], \begin{bmatrix} \mathit{2} \\ \mathrm{V}[\mathit{fin}] \end{bmatrix}, \ldots \right\rangle \end{bmatrix}$

c. *subord-clause* → $\begin{bmatrix} \text{S}[\textit{fin}] & \\ \text{DOM} & \left\langle \ldots, \begin{bmatrix} \textit{2} \\ \text{HEAD} \neg \text{V}[\textit{fin}] \end{bmatrix}, \ldots \right\rangle \end{bmatrix}$

These types impose restrictions on possible orderings of elements in constituent order domains or stipulate that finite verbs may not appear in the field 2 in subordinated clauses. The first type states that a verb first clause has a finite verb as the first element in its domain list and the second states that there is an element in 1 (the *Vorfeld*) before the finite verb in 2.

Kathol cross-classifies the types in (6) with the types *declarative*, *wh-interrogative*, and *polar*. He provides the hierarchy shown in Figure 1.

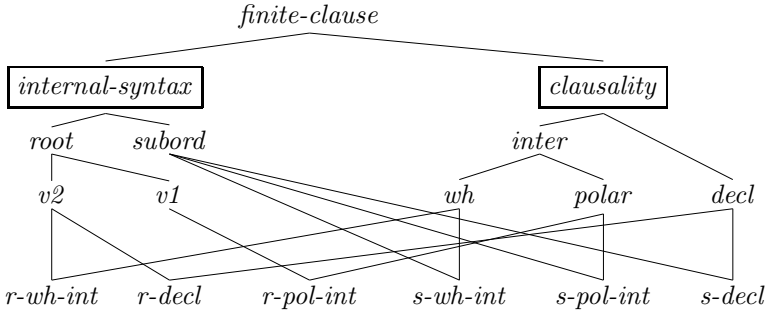

FIGURE 1 Clausal Types

Such a linearization-based approach to clause type determination would be very attractive if there were a one-by-one mapping from the surface order of constituents to clause types, but as I will show in Section 7.2, this is not the case.

7.1.3 Competition of Complementizer and Finite Verb

Kathol follows ideas by Thiersch (1978) and den Besten (1983) and assumes that the complementizer and the finite verb compete for the position in the left sentence bracket. If no complementizer is present, the verb may move into the left sentence bracket. If the left sentence bracket is occupied, it has to stay in the right sentence bracket.

Kathol enters verbs into the lexicon with a specification of the potential topological fields they may appear in. He specifies finite verbs for the fields 2 or 4. Complementizers are always located in the left sentence bracket: They are specified for 2. If a linearization domain contains a complementizer, the Topological Uniqueness Condition b

ensures that no other element can be serialized in 2, hence the field 4 is the only option for the finite verb.

7.2 Problematic Aspects of this Approach

In the following section I want to discuss four problematic aspects of this proposal.

7.2.1 Verbless Clauses

There are main clauses in German that consist of a predicate and a clause that depends on this predicate, but no verb (see also Paul, 1919, p. 41 for more examples).

(7) a. Doch egal, was noch passiert, der Norddeutsche
but never.mind what still happens the North.German
Rundfunk steht schon jetzt als Gewinner
broadcasting.company stands already now as winner
fest.[1]
PART

'But never mind what happens, it is already certain that the Norddeutscher Rundfunk (North German broadcasting company) will be the winner.'

b. Interessant, zu erwähnen, daß ihre Seele völlig in
interesting to mention that her soul completely in
Ordnung war.[2]
order was

'It is interesting to point out that she was completely sane.'

c. Ein Treppenwitz der Musikgeschichte, daß die
a stair.joke of.the music.history that the
Kollegen von Rammstein vor fünf Jahren noch im
colleagues of Rammstein before five years still in.the
Vorprogramm von Sandow spielten.[3]
before.program of Sandow played

'It is an irony of musical history that the colleagues from (the band) Rammstein were still playing as the support group of Sandow a few years ago.'

In the sentences in (7) the copula *sein* ('be') has been omitted. The sentences in (7) correspond to the sentences in (8).

[1] Spiegel, 12/1999, p. 258

[2] Michail Bulgakow, *Der Meister und Margarita*. München: Deutscher Taschenbuch Verlag. 1997, p. 422

[3] Flüstern & Schweigen, taz, 12.07.1999, p. 14

(8) a. Doch was noch passiert, ist egal, ...
but what still happens is never.mind

b. Zu erwähnen, daß ihre Seele völlig in Ordnung war,
to mention that her soul completely in order was
ist interessant.
is interesting

c. Daß die Kollegen von Rammstein vor fünf Jahren
that the colleagues of Rammstein before five years
noch im Vorprogramm von Sandow spielten, ist ein
still in.the before.program of Sandow played is a
Treppenwitz der Musikgeschichte.
stair.joke of.the music.history

The copula as used with adjectives does not contribute semantically, it merely provides agreement information and the verbal features that may be needed by other predicates that embed the copula construction (Paul, 1919, p. 41). As the examples in (7) show, the copula may be omitted. The result are clauses without a finite verb.

The examples in (7) are declarative sentences, i.e. they should have the pattern in (6b). (9) is an example for a question. The sentence corresponds to a verb first sentence with the copula in initial position, i.e. it should correspond to the pattern in (6a).

(9) Niemand da?[4]
nobody there
'Is anybody there?'

In order to save the clause type determination one could stipulate a phonologically empty verb.[5] However, Kathol (1995, Chapter 5.4.1) explicitly rules out the option of domain elements with empty phonology values. In Kathol, 2001, p. 38, he argues against empty elements so that for him the necessity to stipulate an empty element seems to be an unwanted consequence of his proposal. In any case, empty elements are highly abstract entities which have no place in his conception of non-abstract syntax.

7.2.2 Topic Drop

While the cases of copula ellipsis can be found in novels, news papers, magazines, and everyday speech, a construction, which is called *Vorfeldellipse* or Topic Drop or Pronoun Zap is more restricted to a certain

[4] Paul (1919, p. 13)

[5] See Bender, 2000 and Sag, Wasow, and Bender, 2003, p. 464 for the suggestion of an empty verbal copula for African American Vernacular English.

register/style. Huang (1984), Fries (1988), and Hoffmann (1997) discuss this construction in some detail. Topic drop is also problematic for Kathol's approach: Sentences with Topic Drop look like polar questions at the surface. If an obligatory complement is dropped, the sentence is distinguishable from questions since the complement is missing in the *Mittelfeld* (10a). If optional complements or adjuncts are dropped, the form of the sentence is absolutely identical to the form of yes/no questions (10b).

(10) a. Hab' ich auch gekannt.
have I also known
'I also knew him/her/it.'

b. Hab' ich auch gegessen.
have I also eaten
'I also eat him/her/it.' or (with different intonation) 'Did I also eat?'

Such topic drop utterances and polar questions differ only in intonation and not in the sequence of elements.

In order to save the clause type determination one could assume a phonologically empty element in the *Vorfeld*. As was discussed in Section 7.2.1, Kathol explicitly rejects empty elements.

Alternatively one could stipulate just one more type that constrains the domain list to contain a slashed verb, as was suggested by a reviewer of HPSG 2002. While this is technically possible, the commonalities of sentences with a filled *Vorfeld* and those that are the result of Topic Drop would not be captured.

7.2.3 Sentential Complements

Kathol (2000, p. 152) assumes that in (11) the V2 clauses in brackets are complement clauses:

(11) a. Otto glaubt [die Erde sei flach].
Otto believes the earth is flat
'Otto believes that the earth is flat.'

b. die Überzeugung / der Glaube / ... [die Russen würden
the conviction the belief the Russians would
nicht in Polen eingreifen][6]
not in Poland intervene
'the conviction/belief/... that the Russians would not intervene in Poland.'

[6] Reis, 1985, p. 287.

On page 153 he formulates a Head-V2-Complement Schema that combines a head that takes a finite unmarked clause as complement with that complement. The schema restricts the clause type of the complement to be *root-decl*, i.e., a sentence with the verb in second position. Kathol's clausal types are subtypes of the type *sign*. They refer to the domain values of a sign which are represented at the outermost level of a feature structure and therefore the clause types could not be subtypes of *synsem* or other types inside of the feature structures contained under SYNSEM and hence the clause type of complements cannot be selected by governing heads. Therefore Kathol is forced to encode this combinatorial property in the immediate dominance schemata. In order to avoid spurious ambiguities Kathol has to restrict the general head argument schema so that it does not apply when the Head-V2-Complement Schema applies.

A grammar that uses sufficient subcategorization information and one head argument schema instead of stipulating several special schemata is more general than what is suggested by Kathol and should therefore be regarded the better alternative.

7.2.4 Multiple Constituents in the *Vorfeld*

As far as learnability and non-abstractness are concerned the following data pose a problem for Kathol:[7]

(12) a. [Nichts] [mit derartigen Entstehungstheorien] hat es
nothing with those.kinds.of creation.theories has it
natürlich zu tun, wenn . . . [8]
of.course to do when

'Of course it has nothing to do with that kind of creation theory when . . . '

b. [Trocken] [durch die Stadt] kommt man am
dry through the town comes one at.the
Wochenende auch mit der BVG.[9]
weekend also with the BVG

'The BVG (Berlin public transport system) will also get you about town on the weekend without getting wet.'

[7] (12b–c) are quoted from Müller, 2002b.

[8] K. Fleischmann, *Verbstellung und Relieftheorie*, München, 1973, p. 72. quoted from (van de Velde, 1978, p. 135).

[9] taz berlin, 10.07.1998, p. 22

c. [Alle Träume] [gleichzeitig] lassen sich nur selten
all dreams simultaneously let self only rarely
verwirklichen.[10]
realize
'All dreams can seldom be realized at once.'

These examples seem to violate the V2 constraint. In a purely surface-based model without any abstract entities, there is no way to explain sentences like (12). One could stipulate constructions that combine the elements before the finite verb so that they form a constituent and the V2 constraint is saved. However, the data discussed in Müller, 2003 shows that various combinations of material in the *Vorfeld* are possible. For instance, we have a depictive secondary predicate and a directional PP argument in (12b) and an argument and an adverbial in (12c). This means that the stipulation of several constructions would be necessary in order to provide the correct meaning for the combination of material infornt of the finite verb.

If one uses one abstract entity, an empty verbal head as suggested by Müller (2002b), a stipulation of several constructions would be unnecessary. The empty verbal head is related to a verb in the remaining clause by a non-local dependency, which constraints the elements that can appear together in the Vorfeld and makes possible a compositional assignment of meaning to the sentence. Müller (2002b) uses a linearization-based model of the Reape/Kathol style to account for verb-initial and verb-final sentences. In such a model the use of an empty head is a stipulation. If one returns to a verb movement analysis as suggested for instance by Kiss and Wesche, 1991, Kiss, 1995 the empty head that is used for verb movement in general can also be used for the multiple fronting cases in (12). The details of the multiple fronting analysis for (12) together with a verb movement analysis can be found in Müller, 2005a,b.

7.3 An Alternative Proposal

In the discussion above, I already hinted at possible solutions to the problems. For copula less sentences I will assume an empty copula, for sentential complements of nominal heads, I assume the standard selectional mechanisms and a normal combination of head and argument via the head-argument-schema. Since the information that is relevant as far as clause types are concerned is represented under SYNSEM, it can be selected and no additional ID schemata are necessary. For the lineariza-

[10] Brochure from Berliner Sparkasse, 1/1999

tion of the finite verb, I assume a verb movement analysis (Meurers, 2000, p. 207; Müller, 2005a, 2007) and the empty head that is used in this analysis can also account for the multiple frontings as explained by Müller (2002b, 2005b). What is still missing is an explanation of the distribution of complementizer and verb, the analysis of topic drop, and the clause type determination. These issues are dealt with in the following subsections.

7.3.1 Complementizer and Finite Verb

To account for the distribution of complementizer and finite verb, I suggest returning to the old analysis where verbs have a binary feature INV that marks whether the verb is serialized head-finally (INV−) or head-initially (INV+) (Uszkoreit, 1987, Pollard, 1996). Following Pollard (1996, p. 292), I assume INV to be a head feature. The complementizer selects for a sentence with the verb in final position, i.e., for a maximal projection of an INV− verb:

(13) daß [der Mann den Roman schreibt].
that the man the novel writes

See Kiss, 1995, S. 55–57 for an argumentation for the head status of complementizers in German.

7.3.2 Topic Drop

The sentences from Huang (1984) in (14) show that both subjects and objects can be dropped.

(14) a. [Ihn] hab' ich schon gekannt.
him have I yet known
'I knew him.'

b. [Ich] hab' ihn schon gekannt.
I have him yet known

The material in brackets may be omitted.

(15) shows that adjuncts can also be omitted:

(15) Die (die Pinguine) kommen so nah ran, daß man sie hätte streicheln können. Zum Fotografieren zu nah – und zu schnell, unmöglich da scharf zu stellen.

[Da/Hier] Kann man ewig rumkucken.[11]
there/here can one eternally around.look

'The penguins come so close that one could stroke them. One can look around eternally.'

[11] In an Email report from the south pole.

The generalization is that things that can be fronted can also be dropped in the *Vorfeldellipse*.[12] This is captured by the following schema:

topic-drop-structure →

$$\left[\begin{array}{ll} \text{HEAD-DTR} & \left[\begin{array}{ll} \text{SYNSEM} & \left[\begin{array}{ll} \text{LOCAL} & \left[\begin{array}{ll} \text{CAT} & \left[\begin{array}{ll} \text{HEAD} & \left[\begin{array}{ll} \text{VFORM} & \textit{fin} \\ \text{INV} & + \\ & \textit{verb} \end{array}\right] \\ \text{SUBCAT} & \langle\rangle \end{array}\right] \end{array}\right] \\ \text{NONLOC} & \left[\begin{array}{ll} \text{INHER} \mid \text{SLASH} & \left\{\boxed{1}\right\} \\ \text{TO-BIND} \mid \text{SLASH} & \left\{\boxed{1}\right\} \end{array}\right] \end{array}\right] \end{array}\right] \\ \text{NON-HEAD-DTRS} & \langle\rangle \end{array}\right]$$

This schema projects a projection of a finite verb in initial position with an element in SLASH and binds off this element in SLASH: Pollard and Sag's nonlocal feature principle ensures that the INHERITED|SLASH value of the resulting projection is the empty set. The semantic/discourse effects of this rule are ignored for the moment.[13]

The schema is similar to the head-filler-schema that was suggested by other authors for German verb second sentences (Pollard, 1996, p. 293; Müller, 1999, p. 97). The only difference is that there is no non-head-daughter since the *Vorfeld* is not filled. The commonalities of the two schemata are captured in the hierarchical organization of dominance schemata without the reference to surface linearization.

Alternatively one could follow Huang (1984) and use an empty operator that occupies the *Vorfeld*. In such an approach, it has to be ensured that this empty element does not occur in other positions.

7.3.3 Clause Types

So far, we can distinguish between verb final and verb initial clauses by making reference to the value of INV. Since verb first and verb second sentences are both INV+, we need a further feature to be able to distinguish these clause types. I suggest naming this feature V2. Normal verbal projections have the V2 value − and projections that are the

[12] This is a simplification: More oblique arguments drop less easily. Space limitations prevent me from going into a detailed discussion, but see the cited references.

[13] This was criticized by an anonymous reviewer of FG, but it is fully legitimate, since it is clear where the additional constraints would be located in a fully specified grammar: The constraints would be attached to the schema above.

result of the head-filler-schema or the topic-drop-schema are V2+.

Since the V2 feature is located inside of the SYNSEM value of a sign, nouns like those in (11b) can select for verb second sentences.

7.4 Empty Elements and Grammars

In this section, I want to discuss the relation of grammars with empty elements to those without empty elements. This will enable us to compare my solution with an empty copula to a solution without empty elements.

Consider for example the following German sentences:

(16) a. Er hat nur die interessanten Bücher gelesen.
he has only the interesting books read
'He only read the interesting books.'

b. Er hat nur die interessanten gelesen.
he has only the interesting read
'He only read the interesting ones.'

As (16b) shows, nouns may be omitted. This could be captured by the following simplified phrase structure grammar for NPs.[14]

(17)

np → det, n'	det → die
n' → adj, n'	adj → interessanten
n' → n	n → Bücher
	n → ϵ

As is known from the literature on formal properties of phrase structure grammars (Bar-Hillel, Perles, and Shamir, 1961, p. 153, Lemma 4.1), such grammars can be transformed into grammars without epsilons:[15] We eliminate all epsilon productions and add new rules for all rules where elements on the right hand side could be rewritten as the empty string. For our example this yields:

[14] The grammar predicts that all bare determiners can function as full NPs, which is not empirically correct:

(i) a. Ich helfe den Männern.
I help the men

b. * Ich helfe den.
I help the

c. Ich helfe denen.
I help those

[15] See also Wunderlich, 1987 for a discussion of NPs without nominal heads in particular.

(18)
np → det, n'	det → die
np → det	adj → interessanten
n' → adj, n'	n → Bücher
n' → adj	
n' → n	

The example shows that the transformation of a grammar into an epsilon free grammar may increase the number of rules (instead of n → ϵ, we now have np → det and n' → adj). However, the fact that nouns may be omitted that is directly encoded in the rule n → ϵ is hidden in two rules in (18). So from a linguistic point of view the grammar does not express what we want to say as linguists.

To demonstrate more clearly what the consequences of trace elemination are, I want to discuss a transformation of the grammar that was suggested in this paper: a grammar that uses a trace for extraction and trace for verb movement. Kathol (2000, p. 92) argues against head movement approaches for the verb position, claiming that traceless accounts are not possible. However, this is not correct as the following transformation of (19) into (20) shows:

(19) $\overline{\text{v}}$ → np, v
v → ϵ

(20) $\overline{\text{v}}$ → np, v
$\overline{\text{v}}$ → np

Instead of using a verb trace as in (20) one can fold it into the rule. If we assume binary branching structures for head-argument combination, head-adjunct combination and head-cluster combination[16], such a trace elemination results in three new schemata in which no head daughter is present since it was removed due to the elemination of the verbal trace.

Eliminating extraction traces from a phrase structure grammar works parallel to the elemination of verb traces in (20). For the grammar in (21) we get (22):

(21) $\overline{\text{v}}$ → np, v
np → ϵ

(22) $\overline{\text{v}}$ → np, v
$\overline{\text{v}}$ → v

In our HPSG grammar we get three new schemata since arguments, adjuncts, and parts of the predicate complex can be extracted. In the

[16] See Müller, 2002a and Müller, 2005a for details.

extraction case, the non-head-daughter is removed from the rule. The sentences in (23) are examples in the analysis of which these six rules will be needed:

(23) a. Er$_i$ liest$_j$ t$_i$ ihn t$_j$.
he reads him
'He reads it.'

b. Oft$_i$ liest$_j$ er ihn t$_i$ nicht t$_j$.
often reads he him not
'He does not read it often.'

c. Lesen$_i$ wird$_j$ er es t$_i$ müssen t$_j$.
read will he it must
'He will have to read it.'

t$_j$ is the verb trace and t$_i$ is an extraction trace. In (23a) the verb trace forms a constituent with an argument, in (23b) with an adjunct and in (23c) with *müssen*, which a part of the predicate complex. For these cases we need the first three rules. The second set of rules is needed for the combination with extraction traces of respective types: In (23a) the extracted element is an argument, in (23b) it is an adjunct, and in (23c) it is a part of the predicate complex.

If we look at grammars containg two traces we get the following situation:

(24) $\overline{\text{v}} \rightarrow$ np, v
v $\rightarrow \epsilon$
np $\rightarrow \epsilon$

Taking the rules from (20) and (22) we get:

(25) $\overline{\text{v}} \rightarrow$ np, v
$\overline{\text{v}} \rightarrow$ np
$\overline{\text{v}} \rightarrow$ v

Due to the elemination of the extraction trace in (24) we got the rule $\overline{\text{v}}$ $\rightarrow$ v, but since we have the rule v $\rightarrow \epsilon$ in (24) this means that $\overline{\text{v}}$ can also be ϵ. $\overline{\text{v}}$ is a new empty element that resulted from the combination of two other empty elements. To get rid of all empty elements, this empty element has to be eliminated as well. This is done in the same way as before. $\overline{\text{v}}$ is removed from all righthand sides of rules were a $\overline{\text{v}}$ appears.

For our HPSG grammar this means that we get nine new grammar rules: We have three new empty elements that arise when a verb movement trace is directly combined with an extraction trace. Since the

extraction trace can be the non-head daughter in the head-argument structure (26a), head-adjunct structure (26b) or head-cluster structure (26c):

(26) a. Er$_i$ [schläft$_j$ t$_i$ t$_j$].
b. Jetzt$_i$ [schlaf$_j$ t$_i$ t$_j$]!
c. Geschlafen$_i$ [wird$_j$ t$_i$ t$_j$]!

Due to these new three traces we need three aditional rules where each of the new traces is folded into the rule instead of the argument daughter in the head-argument schema.

For the examples in (27) and (28) we need six new rules, since the trace combinations can function as heads in head-argument structures (27) and in head-adjunct structures (28):

(27) a. Den Aufsatz$_i$ liest$_j$ [er t$_i$ t$_j$].
b. Oft$_i$ liest$_j$ er [ihn t$_i$ t$_j$].
c. Lesen$_i$ wird$_j$ er [ihn t$_i$ t$_j$].

(28) a. Den Aufsatz$_i$ liest$_j$ er [nicht t$_i$ t$_j$].
b. Oft$_i$ liest$_j$ er ihn [nicht t$_i$ t$_j$].
c. Lesen$_i$ wird$_j$ er ihn [nicht t$_i$ t$_j$].

I applied this technique of epsilon elimination to the HPSG grammar that was developed for the Verb*mobil* system (Müller and Kasper, 2000), but there are processing systems, like Trale (Meurers, Penn, and Richter, 2002), that do such grammar conversion automatically (Penn, 1999). The grammar in (24) and the corresponding HPSG equivalent directly encode the claim that the np and v can be omitted, while this information is only implicitly contained in the rules we get from specifying an epsilon free grammar by hand. The same would be true for a grammar that accounts for copulaless sentences by stipulating several constructions for questions and declarative sentences with a missing finite verb.

Using grammar transformations to get epsilon-free linguistic descriptions can yield rather complicated rules that do not capture the facts in an insightful way. This is especially true in cases where two or more empty elements are eliminated by grammar transformation. While this is not a problem for computational algorithms that deal with formally specified grammars, it is a problem for linguistic specifications. For more discussion see Müller, 2002a, Chapter 6.2.5.1, 2005a.

7.5 Conclusion

I have shown that a theory that requires positions to be filled for certain clause types is problematic. It cannot cope with elliptic patterns where no finite verb is present or where an element in the *Vorfeld* is omitted. The only possibility to get the data described in such models is to stipulate several constructions that correspond to the observable patterns. The number of constructions that had to be stipulated in a construction-based approach would be higher than the number of empty heads that are needed in more traditional approaches and generalizations regarding combinations of syntactic material would be missed.

As an alternative, I suggested that clause types are determined with reference to features that get instantiated in immediate dominance schemata. Furthermore I provided an HPSG analysis for copulaless sentences and Topic Drop in German.

The discussion showed that an entirely surface-based syntax cannot capture regularities that can be observed in the data in an insightful way. I therefore suggest returning to more traditional approaches to German clausal syntax.

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