Complex Predicates

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Abstract

Complex predicates usually are defined as predicates which are multi-headed; they are composed of more than one grammatical element (either morphemes or words), each of which contributes part of the information ordinarily associated with a head.

I discuss phenomena that were used to motivate complex predicate analyses. For instance in many languages certain predicates form a cluster, i.e. a topological unit. In free constituent order languages, the dependents of the predicates in the cluster sometimes can be permuted as if they were dependents of a single head. The matrix predicate sometimes determines the case of a dependend of an embedded predicate.

I sketch several analyses of these phenomena that were suggested in various frameworks.

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In Section 1, I discuss several phenomena that were explained by complex predicate analyses and in Section 2 I sketch several analyses that were suggested in various frameworks.

1 Phenomena

If one deals with language from a crosslinguistic perspective, one realizes that languages differ in the way they express properties like tense, aspect, and agreement. These notions can be either expressed synthetically or analytically. As an example consider the French and the German sentence in (1): French expresses the future tense syntetically, whereas German uses a combination of the infinitive of a main verb and an inflected form of the auxiliary *werden*.

(1) a. Je le varrai.
         I him will.see
         'I will see him.'

     b. weil   ich ihn sehen werde
         because I   him see   will
         'I will see him.'

Such periphrastic constructions are often analyzed as complex predicates, i.e., it is assumed that the auxiliary forms a complex with the embedded verb that has a status similar to a verb combined with the future morpheme in other languages.

In addition to periphrastic constructions, certain verbal complexes, particle verbs, and combinations of a resultative secondary predicate and a verbal element were treated as complex predicates. The evidence for assuming a closer connection between two heads is discussed in the following subsections. I use German examples for the illustration but some pointers to literature regarding similar cases in other languages are given.

1.1 Topological Properties

German is a SOV language and particle verbs, complex forming verbs, and resultative constructions form a topological unit at the right periphery of the clause. (In the descriptive literature the part in which the respective elements are located is called the right sentence bracket. For a brilliant description and analysis of verbal constructions in German see Bech, 1955.)

(2) a. weil   jemand   ihn   anlacht
         *because somebody.*NOM *him.*ACC PART *(to).laughs*
         'because somebody smiles at him'

     b. weil   jemand   ihn   zu reparieren versucht
         *because somebody.*NOM *him.*ACC *to repair   tries*
         'because somebody tries to repair it'

     c. weil   jemand   ihn   klug findet
         *because somebody.*NOM *him.*ACC *smart finds*
         'because somebody finds him smart'

> d. weil jemand den Teich leer fischt.
> *because somebody.*NOM *the pond.*ACC *empty fishes*
>
> 'because somebody fishes the pond empty'

The accusatives in (2) are dependents of the particle *an* ('towards'), the infinitive *zu reparieren* ('to repair'), and the resultative predicate *leer* ('empty'), respectively. *lachen* ('laugh') is an intransitive verb as evidenced by (3):

(3) a. Er lacht.
    he laughs

    b. * Er lacht sie.
    he laughs her

The additional argument in (2a) is licenced by the particle (Stiebels and Wunderlich, 1994; Stiebels, 1996).

    The finite verb + particle/infinitive/resultative predicate forms a topological unit in (2), but this is not necessarily the case, since the finite verb can be serialized in clause initial position in languages like German and Dutch. Similarily it is possible to front the embedded infinitive and the resultive predicate in V2 sentences. Even particle fronting is possible under certain circumstances (Müller, 2002b). Therefore the constructions in (2) should be analyzed in syntax.

    That predicates form a topological unit in some variant of a clause that could be assumed to be basic is not a necessary condiation for predicate complex formation. Butt (1997) discusses constructions in Urdu that she analyzes as complex predicates and which nevertheless are discontinuous.

1.2 Constituent Order

German is a language with relatively free constituent order. Arguments of a single head can be reordered with respect to each other in the so-called *Mittelfeld* (the area between the complementizer and the finite verb in verb last sentences, the area between the finite verb and other verbs or verb particles in verb initial sentences).

    The sentences in (4) show that the arguments that are introduced by different heads in (2) may be reordered:

(4) a. weil ihn jemand anlacht
    *because him.*ACC *somebody.*NOM PART *(to).laughs*
    'because somebody smiles at him'

    b. weil ihn jemand zu reparieren versucht
    *because him.*ACC *somebody.*NOM *to repair tries*
    'because somebody tries to repair it'

    c. weil ihn jemand klug findet
    *because him.*ACC *somebody.*NOM *smart finds*
    'because somebody finds him smart'

    d. weil den Teich jemand leer fischt.
    *because the pond.*ACC *somebody.*NOM *empty fishes*

        'because somebody fishes the pond empty'

The important thing to notice about (4) is that the heads and the accusative elements, which are arguments of the respective heads, appear discontinuously. If one assumes that *anlacht* ('smiles at'), *zu reparieren versucht* ('tries to repair'), and *leer fischt* ('fishs

empty') form a complex head that requires all arguments of the matrix and the embedded element, the data in (4) is explained automatically: Since arguments of simplex heads can be reordered in German, it would follow automatically that the nominative and the accusative arguments of the complex heads could be reordered in sentneces like (4).

1.3   Remote Passive

The examples in (5) show that the argument of the embedded predicate can be realized as the subject in passive constructions:

(5)   a.   weil   er   angelacht   wurde
           *because he.*NOM PART *(to).laughed was*
           'because he was smiled at'

      b.   weil   er   zu reparieren versucht wurde
           *because he.*NOM *to repair   tried   was*
           'because somebody tried to repair it'

      c.   weil   er klug   gefunden wurde
           because he smart found   was
           'because he was found smart'

      d.   weil   der Teich   leer   gefischt wurde
           *because the pond.*NOM *empty fished   was*

           'because the pond was fished empty'

See Höhle (1978, p. 175–176) on the remote passive in verbal complexes. Corpus examples are provided in Müller, 2002a, Chapter 3.1.4.1.

Again such data can be explained by assuming that the particle verb combination, the combination of infinitive and embedding verb, and the combination of verb and resultative predicate act like a simplex head: The subject of the respective complexes is suppressed and the accusative object is realized as subject.

See also Rizzi, 1982 and Monachesi, 1998 for long passives in Italian, Manning, 1992 for passives of verbal complexes in Romance languages, and Grimshaw and Mester, 1985 for passives in Inuit Eskimo.

1.4   Other Phenomena

Due to space limitations not all phenomena related to complex predicate formation can be discussed here. Some should be mentioned briefley though.

The example in (6) shows a verbal complex construction that has two readings:

(6)   daß Karl   den Roman   nicht zu lieben scheint.
      *that Karl.*NOM *the novel.*ACC *not   to love   seems*
      'that Karl does not seem to love the novel.'
      'that Karl seems not to love the novel.'

The negation can scope over the *zu* infinitive or over the matrix verb although it is placed between parts of what would normally be analyzed as an infinitival VP, i.e., between *den Roman* and *zu lieben*. If *zu lieben* and *scheint* form a complex, *nicht* may attach to it before combination of arguments and the wide scope reading can be explained.

Furthermore Binding Theoretic effects may be observed: reflexives that are arguments of the embedded predicate can be bound by the subject (or by another argument) of the matrix verb.

Apart from the phenomena that were demonstrated using German examples, there is a phenomenon called Clitic Climbing in Romance languages. Usually a clitic is attached to a verb it depends on, but with certain auxiliary verbs and causative verbs it is possible that a clitic that corresponds to an embedded verb attaches to the matrix verb. Again such clitic constructions can be analyzed as involving complex predicate formation: The matrix verbs selects both its own arguments and the arguments of the embedded verb. Since the arguments of the embedded verb are treated as arguments of the matrix predicate, it can be explained why they can be realized as a clitic to the matrix predicate (Monachesi, 1998; Abeillé et al., 1997).

2 Analyses

There are various proposals for an analysis of the data discussed in the previous section. In what follows I discuss some of them. The analyses can be grouped into two groups: One assumes that two predicates form a syntactic (or morphologic) constituent and the other one assumes that two heads project as they would do normally as simplex heads. In the latter approach, the complex predicate effects are explained by restructuring or by movements of heads that result in mono-clausal structures. We discuss the latter approaches in the following subsection and turn to the approaches that belong to the first group in Section 2.2.

2.1 VP Embedding and Small Clauses and Incorporation

One way to analyze the data provided in Section 1 is to assume that verbal heads uniformly embed maximal projections of a certain type. In the case of complex forming control verbs and/or raising verbs it is assumed that the embedded constituent is a CP, IP, or VP. For particle verbs and for resultative constructions authors assumed Small Clause analyses (for instance Hoekstra, 1988; den Dikken, 1995, see also references cited there).

The fact that the structures have monoclausal properties is explained by restructuring, reanalysis, or incorporation: An initial structure that contains the full XPs is mapped to another structure with different properties that accounts for the fact that a subject of an embedded predicate behaves like an object or that arguments of embedded heads may scramble with respect to arguments of higher heads (Evers, 1975; Grewendorf, 1994; Grewendorf and Sabel, 1994; Wurmbrand, 2001). For instance verbal particles are said to incorporate into their matrix verb (see Baker, 1988 for a detailed discussion of Incorporation).

Such accounts are attractive since they can assume that there is just one underlying structure for a certain thematic realtion. All other configurations are derived from this configuration by movement. Baker (1988) formulates this as the Uniformity of Theta-Assignment Hypothesis (UTAH):

> Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure.

See also den Dikken, 1995 for other formulations of the UTAH and some discussion.

Usually, so-called Small Clauses, i.e. verbless predication structures, are assumed for particle verbs (den Dikken, 1995), *consider* predication, and resultative constructions (Hoekstra, 1988). For instance, (2c) would get an analysis like in (7):

(7) weil   jemand   [$_{SC}$ ihn   klug] findet
     *because somebody.*NOM   *him.*ACC *smart finds*
     'because somebody finds him smart'

The matrix verb *finden* selects a Small Claus that contains the adjective *klug* and the subject that *klug* predicates over.

Small Clause analyses are critizised for many reasons, which cannot be discussed here due to space limitations (Bresnan, 1982, Section 9.6; Williams, 1983; Booij, 1990, p. 56; Hoeksema, 1991; Neeleman and Weermann, 1993; Neeleman, 1995; Pollard and Sag, 1994, Chapter 3.2; Stiebels, 1996, Chapter 10.2.3; Winkler, 1997, Chapter 2.1).

One problematic aspect can be demonstrated by the following data from Demske-Neumann (1994, p. 63) (See also Fanselow, 1991, p. 70 for German and Hoekstra, 1987, p. 232 for a discussion of Dutch data.). (8) shows that NPs, adjectives, and PPs can be used predicatively in copula constructions. But not all of these predicative constructions can be used in all Small Clause environments, as (9) and (10) shows. Therefore the category of the predicative element has to be availible for selection by the governing verb, i.e., *machen* ('to make') or *nennen* ('to call'), respectively.

(8) a. Herr K. ist kein Verbrecher.
         Mr. K. is not.a criminal

     b. Herr K. ist unschuldig.
         Mr. K. is innocent

     c. Herr K. ist in Berlin.
         Mr. K. is in Berlin

(9) a. * Der Richter macht Herrn K. einen Verbrecher.
         the judge   makes Mr.   K. a   criminal

     b. Das Gericht macht Herrn K. müde.
         the court   makes Mr.   K. tired

     c. Der Richter macht Herrn K. zum   Verbrecher.
         the judge   makes Mr.   K. to.the criminal

(10) a. Herr K. nennt den Richter einen Idioten.
         Mr. K. calls the judge   an   idiot

     b. Herr K. nennt den Richter voreingenommen.
         Mr. K. calls the judge   biased

     c. * Herr K. nennt den Richter als/zum Idioten.
         Mr. K. calls the judge   as/to.the idiot

Demske concludes that the elements that are predicated over have to be treated as specifiers of N, A, and P projections in a Small Clause analysis. However, this is incompatible with $\overline{\text{X}}$-theoretic assumptions. In particular the relation between *den Richter* and *einen Idioten* is unclear (see also Hoekstra, 1987, S. 296–297 on this point). The specifier of *Idioten* is *einen*, so there is no slot for another specifier. See also Pollard and Sag, 1994, Chapter 3.2 for English examples that are parallel to (9) and (10).

One way out of this is to introduce an additional projection on top of the NP, but then the category features of the predicative phrase inside the Small Clause have to be

made availible for selection by heads governing the Small Clause (den Dikken, 1995, p. 26).

There are many proposals for dealing with the mapping from bi-sentential to mono-sentential structures: Baker's incorporation (1988), which may take place overtly or non-overtly or the approach by Haegman and Riemsdijk (1986) that assumes simultaneous representations, i. e., their is not one underlying structure that is mapped to another one, but it is assumed that several analyses together (so-called coanalyses) constitute the analysis of a sentence.

Frameworks that use multiple strata to represent grammatical information can account for the mono-clausal status on one or several levels. For instance Butt (1997), who is working in the framework of LFG, suggests a complex predicate analysis for Urdu where the complex predicate is not formed in the constituent structure but in the functional structure. See also Rosen, 1997 for a multistratal analysis in the framework of Relational Grammar.

2.2 Complex Predicates

The alternative to an analysis that assumes that maximal projections are embedded and that these structures are reanalyzed, have coanalyses or similar things is to assume that the two predicates form a close unit at some level of representation right from the start. Such analyses were suggested across frameworks in Transformational Grammar, Government & Binding, Categorial Grammar, Lexical Functional Grammar, and Head-Driven Phrase Structure Grammar.

The question is how the selectional properties of the heads that take part in complex formation are described. One option is to assume that *fischen* ('to fish') is an intransitive verb in (2d) and that the subject of *leer* ('empty') becomes the object of the complete predicate complex *leer fischen*. Such approaches were suggested for instance by Chomsky (1985, §100–101) for English particle verbs and *consider* + predicate constructions, by Dowty (1979, Chapter 4.7) for English resultatives and by Neeleman and Weermann (1993); Neeleman (1995) for English and Dutch resultative constructions. Alternatively the fact that there will be additional arguments could be encoded in the lexical entry of *fischen* already. Such approaches were suggested for resultative constructions, but also for all the other phenomena discussed in Section 1: Argument Attraction approaches for verbal complexes were suggested by Geach (1970) in the framework of Categorial Grammar, by Karttunen, 1986 for Finnish in the framework of Categorial Unification Grammar, by Haider (1986) and Bierwisch (1990) for German in the Government & Binding framework, and in the framework of Head-Driven Phrase Structure Grammar by Hinrichs and Nakazawa (1989, 1994), Kiss (1995), Ackerman and Webelhuth (1998), Müller (1999, 2002a), and Meurers (2000) for German, and by van Noord and Bouma (1994, 1997) and Rentier (1994) for Dutch.

Przepiórkowski and Kupść (1997) suggest a complex predicate analysis for Polish, Monachesi (1998) uses argument attraction to account for restructuring verbs in Italian, Abeillé et al. (1997) deal with complex predicate formation in French, and Manning et al., 1999 suggest a complex predicate analysis of Japanese causatives.

Verspoor (1997); Wechsler (1997); Wechsler and Noh (2001) and Müller, 2002a suggest HPSG analyses for resultative constructions in Englisch, Korean, and German. Winkler (1997, Chapter 6.2.2) proposes a corresponding analysis for resultative constructions in the GB framework.

In what follows, I demonstrate how so-called argument attraction approaches work. The analysis of the phenomena discussed in Section 1 will be sketched in the following.

In frameworks like Categorial Grammar or Head-Driven Phrase Structure Grammar (HPSG), functors are specified together with descriptions of the syntactic properties of their dependents. These descriptions are cancelled off during syntactic combination. In the case of HPSG, the arguments are specified in a list. (This is a simplification. More recent approaches assume two lists: One for the subject and one for the remaining arguments. For languages like German it is assumed that the subject of finite verbs is treated like the other arguments since it can be permuted with them.) Identity of elements is indicated by identical numbers in boxes.

Hinrichs and Nakazawa (1994) developed an argument attraction approach for auxiliary verbs and modals.

(11) weil   er ihn reparieren will
      because he him repair   want
      'because he wants to repair it'

In this analysis *reparieren* ('to repair') and *will* ('to want') form a close unit that functions as the head of the whole clause. The syntactic information contained in the valence specifications of the respective verbs is given in (12):

(12) a. *reparieren*: SUBCAT $\langle$ NP[*str*], NP[*str*] $\rangle$
      b. *will*: SUBCAT $\boxed{1}$ $\oplus$ $\langle$ V[SUBCAT $\boxed{1}$] $\rangle$
      c. *reparieren will*: SUBCAT $\langle$ NP[*str*], NP[*str*] $\rangle$

NP[*str*] stands for a noun phrase with structural case. Case is assigned according to the following principle: The first argument in a SUBCAT list with structural case is realized as nominative unless it is raised to a higher head (Meurers, 1999b). All other NPs with structural case are realized as accusative. The specification for *will* shows how argument attraction works: *will* selects a verb and attracts all elements of the SUBCAT list of the embedded verb. The identity of the attracted elements and the arguments of the embedded verb is indicated by the $\boxed{1}$. Since the arguments of *reparieren will* are not raised by a higher predicate, the first one gets nominative and the second one accusative.

This kind of analysis was extended to infinitival constructions involving zu infinitives such as the one in (2b) by Kiss (1995). As Kathol (1998) notes, remote passive cases like (5b) fall out automatically: If *versuchen* is analyzed as an argument attraction verb, the accusative object of *reparieren* is simultaneously an object of the embedded verb *zu reparieren* and of the complex head *zu reparieren versucht*:

(13) a. *reparieren*: SUBCAT $\langle$ NP[*str*]$_i$, NP[*str*]$_j$ $\rangle$
      b. *versucht*: SUBCAT $\langle$ NP[*str*]$_k$ $\rangle$ $\oplus$ $\boxed{1}$ $\oplus$ $\langle$ V[SUBCAT $\langle$ NP[*str*]$_k$ $\rangle$ $\oplus$ $\boxed{1}$] $\rangle$
      c. *zu reparieren versucht* (finite): SUBCAT $\langle$ NP[*str*]$_k$, NP[*str*]$_j$ $\rangle$
      d. *zu reparieren versucht wurde* (passive): SUBCAT $\langle$ NP[*str*]$_j$ $\rangle$

versuchen is a subject control verb, therefore the referential index of the subject (*k*) is identified with the referential index of the subject of the embedded predicate in (13b). The non-subject arguments of the embedded verb ($\boxed{1}$) are attracted by the matrix verb. Therefore the object of the embedded verb is simultaneously the object of the matrix verb.

Since both the downstairs object and the upstairs subject are dependents of the same (complex) head, the possibility of reordering is expected since this phenomenon also occurs with simplex heads in German.

If the matrix verb is passivized as in (13d), the subject ($NP[str]_k$) is suppressed and the second argument becomes the first one in the SUBCAT list. Since it is the first argument in this list, it is realized as nominative and the remote passive example in (5b) is explained.

Examples like (2c), (4c), and (5c) can be explained similarly: Verbs like *finden* embed an adjective and attract the subject of this adjective.

As Manning (1992) pointed out the passive examples seem to be problematic for theories that assume that verbal complex formation is a syntactic process, since passive is treated as a lexical process in many frameworks (for instance LFG and HPSG). If argument composition happens at the point where the actual combination takes place, lexical processes cannot access arguments that are selected by other predicates. The argument composition approach that was sketched above does not have the problems mentioned by Manning. The reason is that the argument composition is done in the lexicon albeit in an underspecified way: The attracting head does not specify the exact form of the elements that are attracted. If lexical processes are applied to the higher verb, these lexical processes can impose requirements on the raised arguments and make the list ① more specific. See for instance Müller, 2003 for adjectival derivation with *-bar* ('-able').

Bobaljik and Wurmbrand (2004) and Wurmbrand in an unpublished manuscript argue that modification data and fronting data shows that a complex predicate analysis for verbal complexes is not adequate. Wurmbrand discusses the example in (14):

(14) Sie haben den Fisch eine Woche lang in zwei Minuten zu fangen versucht.
      they have the fish   one week   long in two   minutes to catch tried
      'They tried for a week to catch the fish in two minutes.'

This example shows that both verbs must be availible for modification, i.e. a fusion of the two events is not tenable. This sentence is not problematic for complex predicate approaches if one assumes that adverbials can attach to the verb directly. The adjunct does not change the projection level and therefore *in zwei Minuten zu fangen* has the same status as *zu fangen*. There are also examples in which the adjunct is not adjacent to the verb. To analyze these examples one could assume discontinuos head-adjunct structures (Müller, 1999, Chapter 17.6) or one could assume an analysis that introduces adjuncts lexically. This was suggested by van Noord and Bouma (1994) for Dutch: A lexical rule introduces an adjunct into the valence list of a head. Argument composition works as outlined above. If adjuncts are combined with the complex head, they scope over the verb as a dependend of which they were introduced. See also Manning et al., 1999 for an analysis of Japanese causatives that assumes a lexical introduction of adjuncts. The third possibility is to assume that the events variables of the verbs involved in complex formation are availible at the predicate complex and that adverbials attach to verbal complexes and pick one of the availible event variables. This is suggested by Crysmann (2004).

Appart from this Wurmbrand argues against the complex predicate analysis on the basis of fronting examples like (15):

(15) a. Reparieren wird er den Wagen müssen.
          repair   will he the car   must

      b. Den Wagen wird er reparieren müssen.
          the car   will he repair   must

She points out that *reparieren* and *müssen* are not adjacent and that the verb can be fronted without its object. That the verbs are not adjacent is not a problem if there

is some device that mediates between the fronted constituent and the place where argument composition is assumed to take place. In GB usually movement is assumed for such dislocations, in HPSG this phenomenon is handled by percolation of feature bundles. (15a) has the structure indicated in (16):

(16) Reparieren$_i$ wird er den Wagen [_$_i$ müssen].

The _$_i$ is a trace that corresponds to the fronted *reparieren*, i.e. it has the same syntactic and semantic properties. The argument composition of the arguments of _$_i$ and *müssen* works exactly parallel to the composition of arguments of *reparieren* and *müssen*. See also Haider, 1990, Section 4 for a parallel treatment in the GB framework. Wurmbrand argues that (15a) is evidence for the XP status of *reparieren*, since *reparieren* is fronted and only maximal projections can be fronted, but this is a theory internal assumtion that is not shared by everybody: Since $\overline{\text{X}}$ Theory does not restrict the set of possible grammars if empty elements are allowed (Koronai and Pullum, 1990), there is no reason to stick to $\overline{\text{X}}$-theoretic assumtions. Analyses of partial verb phrase fronting that allow projections of different projection levels to be fronted were developed by Haider (1990, Section 4) in the GB framework and by Müller (1999, 2002a) and Meurers (1999a). See also Bierwisch, 1990, Section 6 for remarks on the necessity to admit phrasal and lexical material in front of the finite verb.

The same argument attraction technique that is used for verbal complexes can be used to account for particle verbs: For the particle *an* ('towards') the valence list contains one argument with structural case:

(17) *an*: SUBCAT $\langle$ NP[*str*] $\rangle$

The verb *lachen* has one argument, which has structural case also:

(18) *lach-*: SUBCAT $\langle$ NP[*str*] $\rangle$

Müller, 2002a, p. 344 suggests a lexical rule, that licences an additional lexical item for *lach-* that is subcategorized for a particle in addition to the normal arguments of *lach-*. The result of the rule application is a lexical item with the following subcategorization list:

(19) *lach-*: $\langle$ NP[*str*] $\rangle \oplus \boxed{1} \oplus \langle$ PART[SUBCAT $\boxed{1}$] $\rangle$

When *lacht* and *an* are combined, the resulting complex head selects both the subject of the intransitive base verb *lachen* and the argument of the particle:

(20) *anlacht*: $\langle$ NP[*str*], NP[*str*] $\rangle$

Since both NPs depend on the same head, scrambling of these NPs as in (4a) is expected.

If *lach-* is passivized, the subject of *lach-* is suppressed and whathever is contributed by the particle ($\boxed{1}$) will occupy the first position in the SUBCAT list. If the passivized form of *lach-* is combined with the particle *an*, the first element of the SUBCAT list of *angelacht* will be the NP[*str*] contributed by *an*. This element is realized as nominative. The example in (5a) is accounted for.

Verspoor (1997); Wechsler (1997); Wechsler and Noh (2001) and Müller, 2002a suggest a lexical rule for resultative constructions in Englisch, Korean, and German. The lexical rule licences additional lexical items that select for a resultative predicate. The subject of the resultative predicate is attracted from the embedded predicate. The matrix verb and the resultative predicate form a complex head and therefore the subject

of the resultative predicate can be permuted with the subject of the matrix verb and the subject of the embedded predicate can be realized as the subject of the matrix predicate if the matrix predicate is passivized.

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3 Biography

Stefan Müller studied in Berlin at the Humboldt-University and in Edinburgh Computational Lingustics and Computer Science from 1989 until 1993. He worked at the Chair for Computational Linguistics at the Humboldt University from 1994–1996. He developed a grammar fragment of German and implemented a Prolog system for the processing of this grammar.

In 1997 he defended his dissertation on specification and implementation of German syntax in Head-Driven Phrase Structure Grammar at the Technische Fakultät der Universität des Saarlandes, Saarbrücken.

From 1997 until 2003 he worked as grammar developer at the Language Technology Lab at the DFKI in Saarbrücken in the project Verbmobil and teaching at the department for computational linguistics of the University of the Saarland, Saarbrücken

From 2001 until 2003 he was the active Chair for Applied Linguistics/Computational Linguistics at the Institute for German Linguistics of the Friedrich-Schiller-Universität Jena.

In 2001 he finished his Habilitation for Computational Linguistics at the Philosophischen Fakultät der Universität des Saarlandes for the Habilitationsschrift Complex Predicates: Verbal Complexes, Resultative Constructions, and Particle Verbs in German.

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4   Keywords

1. complex predicate,

2. verbal complex,

3. secondary predicate,

4. resultative construction,

5. particle verb,

6. small clause,

7. argument attraction,

8. argument composition,

9. passive,

10. case,

11. constituent order

12. incorporation

5 Suggestions for Cross-References

5.1 Categories

- Control & Raising

- Long Distance Dependencies

- Periphrasis

- Verb Movement

5.2 Issues

- Agreement & Subcategorization

- Argument structure

- Binding Theory

- Predication

- Word Order & Linearization

- X-bar Theory

5.3 Theories

- HPSG

- LFG

- Principles & Parameters

- Relational Grammar