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A Linguistic Test Battery for Support Verb constructions

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Introduction

This article presents a collection of tests to delineate different types of verb-noun-constructions that are situated between fully compositional and completely frozen constructions. In the first section I will try to clarify the notions that are used to describe such constructions. In the process of clarification we will see that the basic concept underlying support verb constructions is not language-specific, but can be applied in a wide range of languages. This is also true for most of the tests that are described in the main section of this article, apart from those that involve language specific test parameters.

1 Support verb constructions

Semi-compositional verb-noun constructions have been investigated under various labels in the different linguistic traditions. Terms that are in use to denominate such constructions, parts of them, or a superset of semi-compositional expressions are *light verbs*, *operator verbs*, *complex predicates*, *support verb constructions* and others. In German linguistics the notion of *Funktionsverbgefüge* (function verb construction) has received a lot of attention in pure linguistics as well as in natural language processing. Unfortunately the notion has different competing definitions. Polenz (1997 and 1989), a researcher who was involved in coining the notion on the one hand, and Helbig / Buscha (1991), a grammar which is very often cited in articles on phenomenon have a completely different concept. This nebulous research situation recently led to a thesis by Pottelberge (2001) who tries to prove that the phenomenon as such does not have clear enough borders to deserve a linguistic denomination. But this is certainly an unnecessary overreaction, which we can see clearly if we take into account the research on similar constructions in Romance linguistics. Here the related- though not identical - notion of support verb construction has been studied intensely, so in French linguistics since the 80s under the label "constructions a verbe support" (Gross, M. 1981, Giry-Schneider 1987). More recently, this notion has also found its way into anglo-saxon traditions of linguistics (e.g. Dras 1995, Fillmore et al 2003) and has been applied to the analysis of verb-nouns-constructions in many languages (e.g. Nøhr-Pedersen 1989). The notion support verb construction is quite well defined, and it can be shown that it tags a subset of the German *Funktionsverbgefüge* in its wider definition as used by Helbig/Buscha 1991. Some researchers in German linguistics now use the German notion as a translation of the term support verb construction (Detges 2002).

The clarity of the concept of support verb construction has also made it possible to use the notion in several formalisms that cope with semi-compositional phenomena among verb-nouns-constructions. Two of them are the treatment in the framework of Mel'cuk's lexicon-grammar (e.g. Mel'cuk 1996), using his concept of lexical functions¹, the other is the more recent description in Frame Semantics (Fillmore/Johnson/Petruck 2003). If we distil the basic properties out of these two formal treatments we get the following picture:

- A support verb construction (SVC) consists of a predicative noun and a support verb.
- The basis for the description of a SVC is the formal specification of the argument structure of the predicative noun. The noun is not semantically reduced or shifted with respect to a usage in compositional constructions.
- The fundamental idea of a SVC is the realization of the arguments (i.e. the semantic actants) of the predicative noun as syntactic actants of the support verb. In prototypical

¹ Mel'cuk's analysis of support verb constructions is in fact older than the notion itself. However he has started to use this denomination in recent articles (Mel'cuk 1996).

support verb constructions, the verb does not semantically subcategorize any of its syntactic complements. This means that the noun is the predicate of the construction, the verb has mainly syntactic relevancy. The verb is used to encode diathesis – i.e. the verb determines which nominal arguments receive which syntactic slot.

- The predicative noun is realised as head of a noun phrase in a syntactic slot provided by the support verb; in many cases but not always this is the direct object position.
- The semantics of the support verb is either void or reduced to a small set of semantic features that are relevant for very large subclasses of verbs (basically lexicalized aspect, which is pertinent to event/action verbs or amplification/attenuation; see Blanco/Buvet (this volume)).

This means that prototypical support verb constructions are semi-compositional structures consisting of a semantically transparently used noun and a verb that is semantically reduced and adapted to the construction. Examples are:

- (1) *(en) He gives a lecture*
- (2) *(fr) Elle fait une presentation*
- (3) *(de) Sie hält eine Vorlesung*

A related kind of constructions are the ones that have been in the main focus of German research on semi-compositional verb-noun constructions. They consist of a predicative noun embedded in a prepositional phrase, again combined with a support verb. The difference between those constructions and prototypical support verb constructions lies in the fact that there are three constituting elements – the preposition, the noun and the support verb. The prepositional phrase containing the noun is more or less lexicalised and the predicative noun is not referential. Examples for this are:

- (4) *(en) to come into bloom*
- (5) *(fr) etre en fleur*
- (6) *(de) in Blüte stehen*

Neither here are the syntactic actants of the verb semantically subcategorized by the verb, but in this case they can only be indirectly related to the semantics of the predicative noun and can be viewed as arguments of the prepositional phrase. This type of construction is more difficult to describe semantically, allows much less generalizations and especially does not easily allow the construction of semantic equivalence classes between verbal and nominal predicates as in the case of prototypical support verb constructions.

To make the situation more complicated, there are some true support verb constructions that formally resemble the tripartite type described in the previous paragraph, but where the preposition is selected by the verb and serves rather as a kind of case marker than an autonomous semantic constituent.

- (7) *to suffer from a disease*
- (8) *souffrir d'une maladie*
- (9) *an einer Krankheit leiden*

And, of course, there exist all degrees of lexicalisation in SVCs, which means that there is a continuous transition between truly semi-compositional constructions and idioms. The main purpose of the presented test battery is to have linguistic criteria to single out prototypical SVCs and distinguish them from other types of not fully compositional verb-noun combinations.

2 Linguistic tests

Defining linguistic tests to delineate support verb constructions serves several purposes:

- 1) Find manifest properties of SVCs that are based on the theoretical definition of the construction. This can eventually lead to a revision of the theoretical concept.
- 2) Delineate prototypical support verb constructions from marginal cases and from other construction types (mainly compositional verbo-nominal constructions on the one hand and from non-compositional idioms on the other).
- 3) Describe the concrete behaviour of a given SVC by defining a matrix of properties that hold for that construction.
- 4) Last non least: find such manifest properties that can be automatically or semi-automatically be derived from corpus data as an aid for lexicographers of electronic and traditional dictionaries.

The linguistic tests presented in the following paragraphs are divided into three sections, according to the properties of support verb constructions described earlier. In the first section I list tests that are suitable to test the referentiality of the predicative noun phrase. The second section is dedicated to tests about verb semantics, checking the property of semantic reducedness and compositionality of the construction. The third section lists two additional tests for the status of the complements within the support verb construction. The tests listed here are not new. Many of them have been mentioned in a long row of articles on the phenomenon, others are occasionally mentioned in publications.²

2.1 Referentiality of the predicative noun phrase

The following tests deal with the referentiality of the predicative noun phrase. There are several concrete features that allow to check this property.

2.1.1 Anaphors

Predicative nouns in SVCs can be pronominalised in two ways: the noun in the construction can be referenced by a pronoun outside, and the predicative noun can be replaced by a pronoun within the construction. Here some examples for the first type of pronominalisation ((10)-(12)). This property does not hold for the adverbial type of SVCs (13):

- (10) *He gives a lecture that no one understands*
- (11) *Er hält eine Vorlesung, die niemand versteht*
- (12) *Il fait une présentation que personne ne comprend*
- (13) **The tree comes into bloom that is white*

In constructions where the predicative noun can be referenced by a pronoun outside the construction, it can also be represented by a pronoun within (14)-(16). Again, this is not possible for adverbial support verb constructions. None of the pronominalisation tests should hold for idioms, of course, because the parts are not referential. However, remotivation of parts of idioms makes it possible to pronominalise the noun in certain cases (17):

- (14) *He regretted the decision that he had taken*
- (15) *Er bedauerte die Entscheidung, die er getroffen hatte*
- (16) *Il regrettait la décision qu'il avait prise*
- (17) *He let the cat out of the bag that the theatre was about to ask me to be a member*

Van Durme (1995, 38f) notes that pronominalisation is restricted in support verb constructions. She gives the Danish equivalent to the construction in (19). Such constructions

² The presentation of this test battery has benefited much from a seminar held jointly with Gaston Gross at the University of Munich in summer 2001, where he presented most of the properties described here.

are possible in a none support verb context (21) :

- (18) *She makes an assumption about the reason*
- (19) **She makes one about the reasons*
- (20) *She makes a cake for the wedding*
- (21) *She makes one for he wedding*

It is evident that the reason for this is the lack of the predicative meaning in the sentence with the pronoun. In contrastive contexts, where the pronoun meaning can be easily identified, even this kind of pronominalisation is possible:

- (22) *She makes an assumption about the reasons for this event, he makes one about the consequences*

Pronominalisation of the predicative noun is one of the few linguistic tests that seem to hold for all support verb constructions.

2.1.2 Substitution by question words

In some cases the predicative noun in support verb constructions can also be substituted by a question word in some contexts (this criterion is given in Helbig/Buscha, 1991: 98f).

- (23) *Was bekommt sie von ihm (what does she get from him)*
- *Eine Anregung (a suggestion)*

However, this substitution is very limited, because the full verb reading of the support verb is dominant over the support verb reading, which makes the question difficult to interpret, in a similar way as the non-anaphoric pronoun in the previous section:

- (24) *Was übte er?* (what does he exercise himself in)
- (25) *Er übte Geige* (he exercise himself in playing the violin)
- (26) *?Er übte Kritik* (he criticised)

This substitution test is therefore less suited for checking the property of referentiality.

2.1.3 Variability of the noun phrase

In support verb constructions the noun phrase is not fixed. The article and number are variable, and attributes can be added to the predicative noun.

a) Article and number are variable:

- (27) *He committed a sensational murder*
- (28) *He committed the most sensational murders in the 20th century*
- (29) *Er beging einen aufsehenerregenden Mord*
- (30) *Er beging die aufsehenerregendsten Morde des 20 Jahrhunderts*
- (31) *Il a commis un assassinat spectaculaire*
- (32) *Il a commis les assassinats les plus spectaculaires du 20ième siècle*

If number is restricted, this can usually be explained by restrictions on the predicative noun semantics that are valid outside the support verb construction as well. In idioms the noun phrase is much less variable, and the same is true for the adverbial support verb constructions involving a preposition.

b) Variable Negation: This criterion is closely related to the use of the article. Different types of negations are possible with support verb constructions:

- (33) *He has committed no crimes*
- (34) *He didn't commit a crime*
- (35) *Il n'as pas commis un crime*
- (36) *Il n'as commis aucun crime*

In idioms, the use of the negation is much more restricted in general.

c) Possessive pronouns: The predicative noun phrase may also contain possessive pronouns. However, for those, there is an additional restriction coming from the theta-criterion – the semantic actant of the noun encoded as a complement of the support verb must not be realised again as a possessive pronoun, which accounts for the restrictions in the following construction (37). However there are many evident counterexamples that still need to be explained (38).

- (37) *?The government gives its priority to infrastructure*
- (38) *He committed his murder*

Because of this complicated situation, this criterion is not well suited to test for referentiality of the noun phrase.

d) Attributes to the predicative noun: In support verb constructions, attributes can be joined to the predicative noun. A similar criterion is the possibility to build compound nouns with the predicative noun as head:

- (39) *To make a difficult/tough decision*
- (40) *Prendre une lourde décision / décision difficile*
- (41) *ask a science question*
- (42) *eine Wissenschaftsfrage stellen*

In idioms, attributes are not possible, apart from cases of evident remotivation.

e) Coordination of predicative nouns: In similar support verb constructions, two different predicative nouns can be co-ordinated:

- (43) *He committed a murder and other crimes*
- (44) *Il a commis un assassinat et d'autres crimes*

This is not possible in idiomatic verb-noun-constructions.

2.1.4 Passive

This criterion is only valid for the case where the predicative noun is formally the direct object of the support verb (Mel'cuk's OPER function). Here it is normally possible to passivise the construction (ex. (45) - (47)). In idioms this is less common (48).

- (45) *A murder was committed*
- (46) *Un assassinat a été commis*
- (47) *Ein Mord wurde verübt*
- (48) *?the dead horse was flogged*

2.2 Verb is semantically reduced

Tests referring to verb semantics in SVCs verify whether the verb has a reduced semantic deviating from the semantics of the corresponding full verb.

2.2.1 Support verbs cannot be nominalised

The verb in SVCs cannot be nominalised. The reason for this is the lack of verb semantics.

- (49) *To take decision*
(50) **The take of a decision*

Exceptions to this are the nominalized infinitive in German and the –ing nominalisation in English, which are always possible. This kind of nominalisation does not exist in French:

- (51) *Das Stellen einer Frage*
(52) *The asking of a question*

Unfortunately, there are various other exceptions to this criterion, even for expressions that by other criteria can be judged as prototypical support verb constructions:

- (53) *Begehung eines Verbrechen (The committing of a crime)*
(54) *Prise d'une decision (making of a decision)*

2.2.2 Nominalising the support verb construction as a whole

In lexicalised verb-noun constructions, it is often possible to nominalise the full construction using a synthetic compound:

- (55) *Etwas in Frage stellen (to call into question)*
(56) *Die Infragestellung (the calling into question)*

This is usually not possible in support verb constructions:

- (57) *Kritik an etwas üben*
(58) **Die Kritikübung*

This is due to the fact that in SVCs the noun alone can convey the predicative meaning of the construction and constitutes the nominalisation. This criterion only applies to languages with synthetic compounds, such as German, Dutch and the Scandinavian languages.

2.2.3 Zeugma-test

Earlier it was mentioned that it is possible to co-ordinate two predicative nouns with the same support verb. It is not possible to co-ordinate a noun from a non support verb construction with another one:

- (59) **He gives a lecture and a lot of money*
(60) **He commits a crime and a file*

However, Namer/Schmidt (1997: 407) list an alleged support verb construction where co-ordination with a non-predicative noun seems possible:

- (61) *Luc donne un livre et un baiser à Marie*

(62) *He gives Mary a gift and a kiss*

It seems that "give a kiss" has a metaphoric reading, where kiss is viewed as an object that is passed from one person to another. This is not typical for support verb constructions in general.

2.2.4 Replacement of the support verb construction by a verb

In many cases there is a synonymous verb that can replace the support verb construction as a whole. Often, this verb is morphologically related to the predicative noun – in most cases the noun is deverbal:

(63) *Il a pris une decision*

(64) *Il à décidé*

(65) *He has made a decision*

(66) *He has decided*

There are also some cases of denominal verbs, e.g. German *kritisieren* or English *prioritize*.

(67) *Er übte Kritik an der Regierung (he criticized the government)*

(68) *Er kritisierte die Regierung*

(69) *The government gives priority to infrastructures*

(70) *The government prioritizes infrastructure*

In some cases, the verbal synonym has a slightly different argument structure. In the following case the verb alone is not fully synonymous to the support verb construction, having a habitual reading.

(71) *He committed a murder*

(72) *He murdered someone*

(73) *He murdered*

Passive support verb constructions have to be replaced by a passive verbal paraphrase.

(74) *He received support*

(75) *He was supported*

In case of support verb constructions that denote a state rather than a event, often a paraphrase using a copula and an adjective is possible, in most cases, again, the adjective is morphologically related to the predicative noun.

(76) *He suffers from a severe illness*

(77) *He is very ill*

(78) *Il souffre d'une maladie sévère*

(79) *Il est très malade*

The replacement criterion is suitable to differentiate support verb constructions from compositional verb-noun combinations where such a substitution is not possible.

2.2.5 Replacement of the support verb

When the predicative noun denotes an action, there often exists a approximative paraphrase with the verb *to make / to do* (en) *faire* (fr) or *machen* (de). In many cases this paraphrase is ungrammatical, but still understandable.

- (80) *He takes an excursion*
 (81) *He makes an excursion*

This is only possible in cases where the support verb is semantically empty and does not carry aspectual information.

2.2.6 Omitting the support verb

If the verb is omitted from the construction, no semantic information is lost (also see Giry-Schneider, 1987, 28). This means that an NP containing the predicative noun is synonymous to the full construction including the support verb. This property can be checked by substituting a subordinate clause with the NP:

- (82) *William was happy that John had committed the murder*
 (83) *William was happy about John's murder*
 (84) *Willi freute sich, dass John den Mord begangen hatte*
 (85) *Willi freute sich über Johns Mord*

In cases of support verbs that carry aspectual meaning, this replacement is more difficult, but still possible in many cases:

- (86) *She told me how John got into difficulties*
 (87) *She told me about the start of John's difficulties*

2.2.7 Different support verbs

For many predicative nouns there exist several support verb constructions, expressing different diathesis or different aspectual information; apart from these differences the constructions are synonymous:

- (88) *William placed an order with Shakespeare Ltd*
 (89) *Shakespeare Ltd received an order from William*

2.2.8 Interchangeability of adverb and attribute

Above we showed that the predicative NP in support verb constructions is variable and can take attributes. Often, adverbs and attributes are interchangeable while keeping the semantics. This is called "descente de l'adverbe" in Giry-Schneider 1987: 31. She gives the following example, which is also possible in English (90)-(93). The German translation of the sentence with the adjective is problematic, but the same phenomenon occurs in many other constructions (94).

- (90) *Marie fait fréquemment des faux pas*
 (91) *Marie fait des faux pas fréquents*
 (92) *Mary makes frequent mistakes*
 (93) *Mary makes mistakes frequently*
 (94) *Er übte harsch(e) Kritik (he criticized in a harsh manner)*

2.3 Status of the complements

In support verb constructions, some semantic arguments of the noun are syntactically realised as complements of the support verb, whereas others are still subcategorized by the predicative

noun. The former property is covered by some of the tests that have been listed in the previous sections, i.e. the replacement of the construction by the predicative noun alone and the status of possessive pronouns in the noun phrase. In addition, two more tests can be listed.

2.3.1 Double realisation of arguments

It is impossible to express any syntactic actant of the predicative noun twice as a complement of the support verb and of the predicative noun. In regular constructions, the complements of the verb and the noun are not mutually exclusive, because they have different underlying semantic actants.

- (95) *?He committed Jack the Ripper's murder*
- (96) *He investigated Jack the Ripper's murder*
- (97) *?Il a commis les assassinats de Jacques l'Eventreur*
- (98) *Il a enquêté sur les assassinats de Jacques l'Eventreur*

2.3.2 The complements of the predicative noun can be moved out of the noun phrase

Apart from the semantic complements of the predicative noun that are syntactically subcategorized by the verb, there can be complements of the predicative noun that are still syntactically dependent on the noun. Those become the complements of the full support verb constructions. This can be mainly tested by looking at the possible ordering of syntactic constituents in the sentence.

Therefore they can be moved out of the nominal phrases (see Barrier/Barrier 2003), which is not possible in compositional constructions:

- (99) *C'est contre Luc que Max commet un crime*
- (100) *?C'est contre Luc que Max raconte un crime*
- (101) *It is against them that he committed the vast majority of his crimes*
- (102) *An Unschuldigen verübte er keine Verbrechen*

3 Conclusions

It could be shown that there is a whole variety of tests that can be used to delimit support verb constructions. However, most of those tests have exceptions and it is difficult to find examples that match all of them. Different degrees of lexicalisation, systematic polysemy of predicative nouns and idiosyncratic properties of all involved constituents make it impossible to design a definitory set of criteria. These difficulties together with the fact that many of the presented test frames do not seem to be automatable in the context of corpus linguistics will make it hard to design any automatic detection and extraction of support verb constructions even from very large corpora. Any dictionary project dealing with support verb constructions will necessarily involve a high degree of manual classification, and also here, the different tests have to be applied with care and always with respect to the underlying semantic concept the support verb construction. This notion, like many concepts used in natural language processing, is a (necessary) idealization of the very complex field of constructions situated between fully compositional constructions and idioms, and in the long run, the classification of an expression as a support verb construction will only serve to determine the matrix of properties that has to be filled in for each single construction separately.

Summary

Semi-compositional verb-noun constructions have been investigated under various labels in

the different linguistic traditions. In this article we start from the quite well defined notion of support verb construction to present a battery of linguistic tests to distinguish truly semi-compositional constructions from semantically compositional verb-noun combinations on the one hand and from idiomatic constructions on the other. The tests are not genuinely designed by the author but collected from various linguistic investigations on such constructions. As the concept of support verb construction spans across a wide variety of languages, most tests can be applied to several languages. In the article, examples are given for French, English and German. It will be shown that most of the tests that cover the grammaticality of syntactic or semantic transformations of verb-noun constructions only present an approximation of underlying semantic properties and that to almost each alleged property exceptions can be found. However, taken as a whole, the test battery seems to be suitable to delineate support verb constructions from superficially similar linguistic expressions.

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