

On the Passive and Discontinuous Valency Slots¹

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Résumé

Les mots à positions de valence sémantique passives et discontinues ont des propriétés radicalement différentes des mots à valence habituels. Ces types de positions de valence ne sont pas remplis par des actants syntaxiques et ne peuvent par conséquent être décrits par des schémas de gouvernement. Un mot qui occupe une telle position n'est pas syntaxiquement gouverné par le mot de valence. Soit il gouverne le mot de valence (tel est le cas des positions passives) soit il n'est pas directement lié à ce mot (une position de valence discontinue). Nous allons illustrer les traits saillants de ces positions de valence sur des mots de types différents. Ces traits incluent la sous-spécification des structures syntaxiques en ce qui concerne le marquage de valence, l'emploi d'un marquage identique pour les diverses positions de valence d'un même mot, l'occupation active et passive de la même position de valence, le marquage des positions de valence dans la structure communicative, le glissement obligatoire d'un actant, la fusion de différentes positions de valence dans un même syntagme.

Abstract

Words with passive and discontinuous semantic valency slots drastically differ in their properties from the habitual valency words. These types of valency slots are not filled with syntactic actants and therefore cannot be described by means of a government pattern. A word that fills such a slot is not syntactically governed by the valency word, but either governs it itself (as is the case of a passive slot) or is not directly linked to it at all (a discontinuous slot). We illustrate salient features of these valency slots with the words of varied types. These features include: underspecification of the syntactic structure with respect to valency marking, use of identical marking for different valency slots of the same word, active and passive filling of the same valency slot, marking of a valency slot in the communicative structure, obligatory shift of an actant, merging of different valency slots in one phrase.

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Keywords – Mots Clés

Position de valence active, passive, discontinue, portée, actant, quantificateur, sous-spécification, structure communicative, acte de langage, *majorité*, *minorité*, *plupart*

Active valency slot, passive valency slot, discontinuous valency slot, scope, actant, quantifier, underspecification, communicative structure, speech act, *majority*, *minority*, *most*.

1 Problem definition

Suppose we wish to construct semantic structures (SemS) of sentences. What information should we receive from the linguistic description to obtain this goal? Obviously, we need semantic definitions of all meaningful units of the sentence (lexemes, grammemes, syntaxemes, etc.). Of course, we should also know the syntactic structure (SyntS) of the sentence, since semantic links cannot be established without taking into consideration the syntactic ones². The question is how to combine the semantic definitions together on the basis of SyntS in order to obtain SemS of the whole sentence.

The major linguistic mechanism devised for the amalgamation of meanings is valency slot instantiation. It requires that every valency slot be supplied with the information on how it can be filled. Already in the early days of MTT, a convenient way to present this information was found. It is the Government Pattern (GP). For example, if we find conjunction *that* in the second column of GP, we know which fragment of SyntS fills the second valency slot of the word: it is its first complement introduced by conjunction *that*. However, it is not always possible to establish the correspondence between the SyntS of the sentence and its SemS in such a simple way, even as far as the actants are concerned.

In MTT, a distinction is drawn between semantic and syntactic actants (Mel'čuk 1974: 85-86, 134-136, Apresjan 1974: 119ff.; Mel'čuk (in print)). A semantic actant of word *L* is a fragment of SemS that fills a valency slot of *L*. Syntactic correlates of semantic actants – syntactic actants – should syntactically depend on *L* and have the function of a subject or some kind of a complement. However, subjects and complements are not the only syntactic functions that a word corresponding to a semantic actant may fulfill in SyntS. I will proceed below from the approach proposed in Boguslavsky 1980 and further elaborated in Boguslavsky 1985, 1996.

It is expedient to distinguish between three types of valency slots. I will call a valency slot of lexeme *L* ACTIVE, if it is prototypically filled by a word syntactically subordinated to *L*. It is active valency slots that are filled with syntactic actants. I will call a valency slot PASSIVE if it is prototypically filled by a word that syntactically subordinates *L*. Finally, I will call it DISCONTINUOUS if in a prototypical sentence there is no direct syntactic link between *L* and the word filling this slot³. In other words, there exist syntactic entities that systematically express semantic actants but are not syntactic actants. In order to do justice to the importance of these

² As a syntactic structure we will take the Surface Syntactic Structure of MTT disregarding, for simplicity sake, the difference between the Surface and the Deep Syntactic Structure.

³ These three types of valency slot filling correspond only to prototypical cases. In non-prototypical situations the slot may be filled in a different way.

cases and obtain a more general perspective, it is useful to have a generic term that covers ANY fragment of SyntS systematically corresponding to a semantic actant. As a generalization of the term “syntactic actant”, I introduced the term SFERA DEJSTVIJA (SCOPE) (Boguslavsky 1980, Boguslavsky 1985: 19 – 20)⁴.

To maintain the parallelism between the syntactic and the semantic levels, the concept of scope has been extended to the semantic level. The fragment of SemS that fills a valency slot of *L* can be called SEMANTIC SCOPE of *L*, which is the same as semantic actant. The corresponding fragment of SyntS, irrespective of its syntactic function with respect to *L*, is called SYNTACTIC SCOPE OF *L*. Hence, A SYNTACTIC ACTANT IS A PARTICULAR CASE (though a very important one!) OF THE SYNTACTIC SCOPE.

To give an example, the valency slots of the verb *to precede* are active because in the prototypical sentence *The conference preceded the workshop* its actants syntactically depend on the verb. However, if one compares this sentence with the sentence *The conference was before the workshop* we will see that, from the purely semantic point of view, the preposition *before* denotes the same situation as the verb *to precede* - the situation of the temporal precedence of one event with respect to another. This situation has at least two participants: an event that takes place earlier and another one that takes place later. These participants can be systematically expressed in a sentence with the given word and therefore the preposition *before* has the same semantic rights to have valency slots as the verb *to precede*. The only difference between these slots concerns their syntactic realization. In case of the verb, both slots are filled with phrases which are syntactically subordinated to the verb (i.e. with the subject and with the direct object) and therefore they are active, while with the preposition it is different. One of the slots is also filled with a subordinated NP (*before the workshop*) whereas the other is filled with a phrase which syntactically subordinates the preposition (*the conference was before*), which makes this slot passive.

Passive valency slots are characteristic of many classes of words. These classes do not only include prepositions, but also adverbs, adjectives, particles and conjunctions. In most cases, passive valency slots are filled in a standard way, in accordance with the syntactic nature of the valency word. For example, adjectives usually have one valency slot which is prototypically filled with the noun they modify (*yellow fence*). In non-prototypical (or less prototypical) sentences an adjective may have no direct syntactic link with the noun (*The fence was <seemed, was supposed to be> yellow*). Sentential adverbs normally fill their valency slots with a proposition: *Tomorrow I am leaving for Stockholm*. Syntactically, this semantic link is manifested as a subordination of the adverb to the head of the proposition⁵.

⁴ The choice of the term has been motivated by the negation. In logical languages, the fragment of the formula affected by the negation is called the scope of negation. The corresponding natural language words such as *not, nicht, ne... pas*, etc. are typical instances of words with a passive valency slot. It should be noted that modern linguistic frameworks, first of all formal semantics, adopted a logical tradition and use the term *scope* in a much narrower way than we do. In these frameworks, it refers only to one of the valency slots of a very limited class of words - logical operators and quantifiers.

⁵ In this area, my approach differs from the one maintained in Mel'čuk (in print). Since I. Mel'čuk does not admit the filling of semantic valency slots by anything other than syntactic actants, he postulates blocking semantic valency slots in the cases where I prefer to speak of filling them by syntactic governors or other systematic syntactic means.

These properties characterize large classes of words (parts of speech) and therefore relate to grammar and need not be represented in the lexicon. What should be treated lexicographically are instances of less standard or totally non-standard behavior. One of the examples is three-argument prepositions. These may seem strange because prepositions are intended for expressing only two-argument relations, but in fact prepositions with three valency slots do exist. I have already mentioned one of such prepositions - *before*. This preposition (just as the parallel preposition *after*) refers not only to two events separated in time (*He came before <after> lunch*) but also to the time interval separating them:

(1) *He came twenty minutes before <after> lunch.*

One of these valency slots is passive and the other two are active. SyntS of this sentence is shown in Fig. 1 (for simplicity, I omit syntactic relation labels).

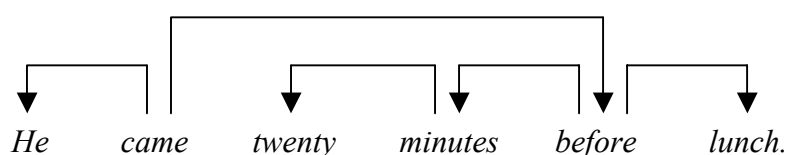


Fig. 1

The existence of a syntactic link between *before* and *minutes* is substantiated by the fact that if one omits the prepositional phrase *before lunch*, the phrase *twenty minutes* will lose any syntactic support and the sentence will become ungrammatical: **He came twenty minutes*. Interestingly enough, it can be shown that the corresponding Russian prepositions *do* ‘before’ and *posle* ‘after’ demonstrate a different behavior. In the sentence

(2) *On prišel za dvadcat’ minut do obeda*
 lit. ‘he came for twenty minutes before lunch’
 He came twenty minutes before lunch

it is not *do* ‘before’ that has three valencies but *za* ‘for’ – Boguslavsky 1996: 56-67.

As for the discontinuous valency slots, they can best be illustrated by the so-called quantifiers.

2 Quantifiers

We will begin by comparing the Russian adjectives *mnogočislennye* ‘numerous’ and *mnogie* ‘many of’. Although they are not exactly synonymous, their meaning is quite similar: both claim that the number or quantity of something is large. Yet, in many contexts they are not interchangeable. Cf.:

- (3) *Mnogočislennye posetiteli emu nadoeli.*
 ‘the numerous visitors make him sick’
 (4) *Mnogie posetiteli emu nadoeli.*
 ‘many of the visitors make him sick’.

In (3), *mnogočislennye* only says that there are many visitors. To find out what is considered to be numerous in the given sentence (i.e. the number of what is large), it is sufficient to stay within the NP *mnogočislennye posetiteli* ‘numerous visitors’ which is semantically complete and understandable in itself.

It is different with the word *mnogie* ‘many of’. In (4) it is not the overall number of the visitors that is large, but the number of those among the visitors who make him sick. This means that in order to determine the semantic contribution of the adjective to the sentence meaning one cannot restrict oneself to the NP *mnogie posetiteli* ‘many of the visitors’. This NP is semantically incomplete. If we remain within the NP, we will not be able to find out the number of what is claimed to be large. To do it, we will have to refer to the VP *emu nadoeli* ‘make him sick’. In other words, the adjective *mnogie* ‘many of’, as opposed to *mnogočislennye* ‘numerous’, has two semantic valency slots instead of one. The first slot is filled by the NP it modifies (*posetiteli* ‘visitors’) and the second - by the VP *emu nadoeli* ‘make him sick’. To use the terms introduced above, the first slot is passive and the second – discontinuous, since, syntactically, *mnogie* and the VP *emu nadoeli* are not directly linked.

I will call a word a QUANTIFIER if it has at least two valency slots such that (a) one of them corresponds to an object (or objects), and (b) the other corresponds to a property of this object (objects) and is prototypically filled with a VP.

Within MTT, quantifiers have not been studied in detail, but they have been intensively investigated in logic-based theories (Barwise and Cooper 1981, Swart 1991, Bach et al. 1995, Partee 1995, Chierchia and McConnell-Ginet 2000). R. Montague introduced into linguistics the notion of Generalized Quantifier. The systematic study of NPs as Generalized Quantifiers performed by Barwise and Cooper (1981) has led to an influential line of research, which is currently referred to as Generalized Quantifier theory. For this theory, a Generalized Quantifier is an expression of the semantic type $\langle\langle e, t \rangle, t \rangle$. This means that a Generalized Quantifier is any NP that links with a VP to produce a sentence. Typical instances are: *every student*, *some student*, *no student*, *two students* and even *John* (Chierchia and McConnell-Ginet 2000: 513). From the semantic point of view, NP *two students* denotes a set of sets such that the intersection of each of them with the set of students consists of two elements. Sentence *Two students smoke* means that the set {smoke} belongs to the set of sets {two students}.

Thereby, under the Generalized Quantifier theory quantifiers have nothing to do with valency words. My intention is to look at all the words from the single perspective – that of valency, which does not mean of course that differences between different classes of words will be neglected. From this point of view, I see a crucial difference between phrases like (5) and (6):

(5) *two students; John*,

(6) *every student; many of the students*.

Phrases (5) are semantically all-sufficient. One can draw a picture and entitle it “*Two students*” or “*John*”. Phrases (6) make no sense without a VP. One cannot imagine a picture entitled “*Every student*” or “*Many of the students*”. For the Generalized Quantifier theory, both the phrases (5) and (6) are Generalized Quantifiers. According to our definition above, only phrases (6) contain quantifiers.

3 *Bol'sinstvo* 'majority' and *men'sinstvo* 'minority': valency properties.

3.1 Underspecification of the syntactic structure

Passive and discontinuous valency slots are not marked in SyntS as clearly as the active ones. There are at least two aspects in which SyntS can be underspecified with respect to passive and discontinuous valency slots. First, it can provide several opportunities for the instantiation of one and the same valency slot in a sentence. As any quantifier, the word *only* fills one of its valency slots with a VP: *The students use [P] only the textbook [Q]*. However, if the sentence contains more than one VP, there may be more than one possibility to fill this slot. Two readings of the sentence (7) differ in the way in which property P is represented. In (7a), P is conveyed by the main predicate of the sentence (prototypical case), while in (7b) it is the infinitive that plays this role.

(7) *The teacher permitted the students to use only the textbook.*

(7a) 'the teacher permitted the students to use the textbook, and did not permit to use anything else' [P = 'permit']

(7b) 'the teacher permitted the students to use the textbook and not to use anything else' [P = 'use']

The second, much more amazing, type of underspecification can be illustrated with the quantifiers *bol'sinstvo* 'majority, most' and *men'sinstvo* 'minority'. Sentence (8)

(8) *Bol'sinstvo sobravšixsja kričalo.*

'the majority of the audience was shouting'

means that in a class R (= audience) there is a part Q that has a certain property P (= be shouting) and is larger than the rest of the class. In prototypical sentences, P is conveyed by the main predicate, as is the case in (8). However, in (9) the situation is different:

(9) – *Skol'ko možno davat' slovo men'sinstvu! – kričit bol'sinstvo i ne beret slova.*

'Stop giving the floor to the minority! – shouts the majority and does not take the floor'

Here the main predicate *kričit* 'shout' does not play the same role P with respect to *bol'sinstvo* that it is playing in (8). It does not denote the property that distinguishes the majority and the minority. This property is not mentioned in the sentence and should be extracted from the context. It follows that in (9) a very peculiar situation takes place. The sentence contains an element that prototypically instantiates the valency slot P of *bol'sinstvo*, i.e. the main predicate of the sentence. However, this predicate does not fulfill this role. The reason is not that the valency slot is filled in a different, non-prototypical way, as was the case in (7b). The fact is that the valency slot is not filled altogether. As far as I know, such a situation has no counterpart in the domain of active valency slots. It is hard to imagine, for example, that in a sentence the following combination of conditions holds at the same time: (a) a verb has an optional valency slot, prototypically filled by means of the first complement; (b) the verb has a first complement; (c) yet, the valency slot remains uninstantiated.

3.2 Active and passive filling of the same slot

It is typical of quantifiers that they may use a prototypical valency marking for different valency slots. For nouns, the most prototypical valency marking is a subordinated NP in the genitive. If a noun has only one valency slot, it will most probably be marked in this way. For *bol'sinstvo* and *men'sinstvo*, the genitive of the subordinated noun corresponds to valency slot R denoting the class (see above):

- (10) *bol'sinstvo francuzov*
'most of the French'

What is remarkable is that subordinated NP in the genitive may serve to fill two different slots – not only slot R, but also slot P that denotes a property. As mentioned above, slot P is prototypically passive and is filled by a VP. In (11) it is filled by a phrase (*byt'*) *protiv vojny v Čečne* 'be against the war in Chechnya':

- (11) *Bol'sinstvo rossijskogo obščestva protiv vojny v Čečne.*
'the majority of the Russian society is against the war in Chechnya'

Oddly enough, in the next example, this valency slot is filled by a subordinated NP in the genitive:

- (12) *Na protjaženii goda i četyrex mesjacev vojna v Čečne raskalyvaet rossijskoe obščestvo na bol'sinstvo ee protivnikov i men'sinstvo storonnikov* (ITAR-TASS, 1996).
'for a year and four months, the war in Chechnya has been splitting the Russian society into the majority of its opponents and the minority of supporters'

Bol'sinstvo protivnikov vojny 'the majority of the opponents of the war' does not refer here to the whole class of opponents out of which a part is selected. The contribution of *bol'sinstvo* in (12) is quite different. It selects a part of the Russian society that is constituted by those people who are opponents of the war, just as in (11).

Different interpretations of the same expression (NP in the genitive), as represented in (10) and (12), cannot co-occur in the same sentence. The next example shows that the same expression may fill different valency slots within the same sentence, giving rise to ambiguity. The word *procent* 'per cent' denotes one-hundredth part of a whole. Beside this valency slot, the words denoting a part have a valency slot for a property ascribed to the part. Different distribution of words among these slots accounts for two different interpretations of (13):

- (13) *V Izraile zhivet 80% evreev.*
lit. 'in Israel live 80% of Jews'
(13a) '80% of Jews live in Israel'
(13b) '80% of those who live in Israel are Jews'

Examples (12) and (13) show that there is no impassable gulf between the active and passive slot filling. Active slots (i.e. those prototypically filled in an active way) may happen to be filled passively, while passive slots (i.e. those prototypically filled in a passive way) may be filled actively.

3.3 Communicative marking

Prepositional phrase *v bol'sinstve* 'in the majority' is roughly synonymous with *bol'sinstvo*:

(14) *Starye bol'sheviki byli v bol'sinstve svoem sovsem molodymi ljud'mi.*

lit. 'old Bolsheviks were in their majority quite young people'

(15) *Bol'shinstvo staryx bol'shevikov byli sovsem molodymi ljud'mi.*

'the majority of old Bolsheviks were quite young people'

The major difference in their behavior consists in the way they mark their valency. The word *bol'sinstvo* prototypically has a direct syntactic link to the actant R. As for *v bol'sinstve*, its only syntactic link is to the VP that corresponds to the property valency slot P. Since this prepositional phrase is not syntactically connected with the actant R, a question arises as to its position in the sentence. In many cases valency slot R is expressed by the subject (as in (14)), but not necessarily so. A more fundamental property of valency slot R of *v bol'shinstve* is that it corresponds to the Theme of the sentence. Relevant fragments of sentences (16) and (17) have the same syntactic links but differ in the communicative structure. In (16) subject *druz'ja* 'friends' is the Theme, and in (17) this role is committed to the complement *inostrannye (knigi)* 'foreign (books)'. This difference results in a different instantiation of R and therefore in a different meaning – 'most of the friends' in (16) and 'most of the books' in (17).

(16) *Druz'ja v bol'sinstve privozili iz-za granicy knigi.*

lit. 'friends in the majority brought books from abroad'

'most of the friends brought books from abroad'

(17) *Russkie knigi sobiral sam xozjain doma, a inostrannye v bol'sinstve privozili iz-za granicy druž'ja.*

lit. 'Russian books collected the master of the house himself, and foreign (books) in the majority brought from abroad friends'

'Russian books were collected by the master of the house, and most of the foreign books were brought from abroad by the friends'.

3.4 Obligatory shift of an actant

As mentioned above, the major way of expressing valency slot R of the words *bol'sinstvo* 'majority' and *men'sinstvo* 'minority' is an NP in the genitive: *bol'sinstvo francuzov* 'the majority of the French'. Besides this, there are two prepositions that can fulfill the same function – *iz* 'out of' and *sredi* 'among'. The first of these prepositions is also syntactically connected with *bol'sinstvo* and *men'sinstvo*. In some cases both genitive and *iz* are possible, in some other cases – if the NP is pronominal – bare NP is prohibited and *iz* is obligatory:

(18) *bol'sinstvo francuzov – bol'sinstvo iz francuzov*

(19) **bol'sinstvo ix* 'the majority of them' – *bol'sinstvo iz nix*.

As for the preposition *sredi* 'among', its meaning is very close to the meaning of *iz*, but the syntactic behavior is quite different: it cannot make a phrase with *bol'shinstvo* and *men'shinstvo*. It only links with a VP:

(20) *Bol'sinstvo učaščixsja <iz učaščixsja> bylo iz bednyx semej.*

'most of the students were from poor families'

(21) **Bol'sinstvo sredi učaščixsja bylo iz bednyx semej.*

(22) *Sredi učaščixsja bol'sinstvo bylo iz bednyx semej.*

The "true" semantic head of the *sredi*-group is obviously *bol'sinstvo*. Yet, *sredi* cannot be syntactically connected with this word and is obligatorily reattached to the VP. Such a shift,

obligatory or optional, occurs in Russian in some other situations as well. Cf., for example, shifting of the negation from its scope to a higher node in the syntactic structure. In (23)-(24) the negation semantically affects the quantifier *vse* ‘all’, and can be syntactically attached both to *vse*, and to the higher VP. In (25), the negated element is *etoj* ‘this’: ‘I left for some reason; it is not this’. However, the negation cannot be attached to *etoj*. It is obligatorily shifted to the higher preposition.

(23) *On rešil ne vse zadači.*
lit. ‘he not solved all the problems’

(24) *On ne rešil vsech zadač.*

(25) *Ja ušel ne po etoj pričine*
lit. ‘I left not for this reason’
‘I did not leave for this reason’

(26) **Ja ušel po ne etoj pričine.*
lit. ‘I left for not this reason’

3.5 Merging of valency slots

As we already know, the words *bol’shinstvo* ‘majority’ and *men’shinstvo* ‘minority’ have three valency slots: whole (R), part (Q) and property (P):

(27) *Bol’shinstvo sobravšixsja [R] okončilo [P] Garvard.*
‘most of the audience [R] graduated [P] from Harvard’

With some minor exceptions, valency slot Q can only be filled in the presence of a support verb (a copulative or an Oper/Func verb):

(28) *Takie, kak vy, skoro stanut bol’shinstvom.*
‘people like you will soon become the majority’

(29) *Vypuskniki Garvarda sostavljali [Oper (bol’shinstvo)] sredi sobravšixsja zametnoe bol’shinstvo.*
lit. ‘Harvard graduates constituted an apparent majority among the audience’

(30) *Vypusknikov Garvarda bylo [Func (bol’shinstvo)] sredi sobravšixsja zametnoe bol’shinstvo.*
lit. ‘Harvard graduates made the apparent majority among the audience’

An interesting fact is that in these contexts, valency slot Q is normally expressed TOGETHER WITH P. NP *Harvard graduates* in (29) and (30) not only denotes a larger part of the audience (i.e. fills slot Q). It also specifies property P that distinguishes this group from all the rest – ‘to have graduated from Harvard’. This is what makes (29) and (30) synonymous with (27) where P is expressed in a prototypical way.

Conclusion

As is well-known, not nearly all semantic valency slots are filled by syntactic actants. They may be filled actively (by syntactic actants), passively (by subordinating words) and discontinuously (by words having no direct syntactic links with the valency word). Moreover, in some cases, a meaning that fills a valency slot is not conveyed by words or phrases, but by other types of significant linguistic units (parts of lexical meaning, grammemes, speech act information, etc.). All these cases are of utmost theoretical and descriptive interest. On the one hand, they should be taken into account during text synthesis and analysis. On the other hand,

they are not covered by Government Patterns – a standard method of describing the correspondence between semantic actants and their correlates at the syntactic level.

We give new material concerning passive and discontinuous valency slots of different types of words, first of all – quantifiers. It is shown that there is no insurmountable barrier between active, passive and discontinuous valency slots, as well as between syntactic actants and other types of syntactic scope. The same semantic valency slot may be filled according to different patterns. For example, valency slot P of words *bol'sinstvo* 'majority' and *men'sinstvo* 'minority' that is prototypically passive may be filled actively (example (12) above), slot R that is prototypically active, may be filled in a discontinuous way (example (22)). For *procent* 'per cent', both valency slots can be filled actively and passively (example (13)).

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