Changes in Valency Structure of Verbs: Grammar vs. Lexicon[*]

Václava Kettnerová and Markéta Lopatková

Institute of Formal and Applied Linguistics
Charles University in Prague, Czech Republic

Abstract. In this paper, we deal with changes in valency structure of Czech verbs from a lexicographic point of view. We focus only on syntactic constructions that are related in principle to the same (generalized) situation. Changes in valency structure are understood as different mappings between individual participants of a generalized situation and valency slots, including their morphemic realization. We distinguish two types of changes in valency structure, so-called grammatical diatheses and semantic diatheses. We introduce a basic typology of potential changes in valency structure and we propose a method of the representation of these changes in the valency lexicon of Czech verbs VALLEX.

1 Motivation

Syntactic behavior of verbs is determined to a great extent by their lexical semantic properties. Prototypically, a single valency structure corresponds to a single meaning of verb. However, in many cases semantically related uses of verbs can be syntactically structured in different ways. E.g., the pairs of sentences in (1a)-(1b), (1a)-(2a) and (1b)-(2b) differ in their syntactic structure despite their obvious semantic similarity:

(1)   a. *Peter loaded the truck with hay.* — b. *Peter loaded hay on the truck.*

(2)   a. *The truck was loaded with hay.* — b. *Hay was loaded on the truck.*

Such uses of the verb *load* cannot be described by a single valency frame; however, separating four valency frames appears to be redundant with respect to the regularity in morphemic realizations of valency slots. Let us focus on the pairs of sentences (1a)-(2a) and (1b)-(2b). In these cases, (i) the information on the possibility of such change in valency structure of the verb *load* and (ii) the rule describing such change are sufficient for lexicographic description. Other changes in valency structure of verbs can be treated in a similar way under the condition that these changes are so regular that they can be captured by means of rules.

In this contribution, we deal with changes in valency structure of Czech verbs from a lexicographic point of view. We introduce and exemplify a basic typology of potential changes in valency structure of Czech verbs as they have appeared during the lexicographic processing language data (based on corpus evidence). Finally, we propose a method of representing these changes in a valency lexicon of Czech verbs.

Basic approaches to changes in valency structure. In Czech linguistics, the study of syntactic constructions characterized by changes in valency structure of verbs from the syntactic point of view started in the late sixties, mainly under the influence of Russian linguistics, esp. [1, 3, 6]. The terms hierachization, diathesis or conversion were introduced in Czech and Slovak grammars, see esp. [7, 8, 15, 21] and [11]. Roughly speaking, such terms refer to change in mutual assignment of semantic participants and (surface) syntactic positions, while the real situation expressed by sentences remains the same.

In American linguistics, there are three basic approaches to changes in valency structure of verbs, (i) structurally based approaches represented mainly by transformational-generative grammars, esp. [4, 5], (ii) lexically based approaches focusing on the relation between lexical semantic properties of verbs and their syntactic behavior, esp. [12], and (iii) constructionally based approaches based on the assumption that difference in syntactic forms marks the difference in meaning, esp. [2, 10].

Here we focus on the description of changes in valency structure of verbs in the theoretical framework of the Functional Generative Description (FGD), see esp. [20]. The valency theory of FGD, esp. [16], was applied to a large number of data in building the Prague Dependency Treebank, PDT 2.0[1] and the valency lexicon of Czech verbs, VALLEX[2] [13]. We attempt to propose an adequate framework for description of changes in valency structure of verbs which can be applied in lexicographic processing of language data.

2   Basic typology of changes in valency structure of verbs

In our typology of changes in valency structure of verbs, the concept of situation plays a key role. The **(generalized) situation** represents a class of abstract situations characterized by a particular set of semantic participants.[3] In the present paper, we focus only on those syntactic constructions that relate to the same (generalized) situation. Such a situation is expressed by a single verb lexeme and it is characterized by an identical set of semantic participants. Changes in valency structure are understood as different mappings between individual semantic participants of a generalized situation and their surface syntactic positions, including their morphemic realization. We distinguish two types of changes in valency structure, so-called grammatical diatheses (g-diatheses) and semantic diatheses (s-diatheses).

2.1   Grammatical diatheses

G-diatheses represent pairs of related syntactic constructions that prototypically satisfy the following criteria:

---

[1] `http://ufal.mff.cuni.cz/pdt2.0/`

[2] `http://ufal.mff.cuni.cz/vallex/2.5/`

[3] See also type situation [8, 22] or semantic event. Semantic participants roughly correspond to semantic roles here.

I. Verbs in the marked construction are prototypically morphologically marked with respect to the grammatical category of voice. Their forms typically either consist of auxiliaries and non-finite form of lexical verbs or they have reflexive forms.

II. The mapping between semantic participants of a generalized situation and valency slots remains unchanged, their number and type are identical as well. Changes in valency frames are typically connected with a choice of a particular valency member for the subject syntactic positions; these changes are limited to morphemic realizations of individual valency slots.

G-diatheses primarily represent a language means that enables the speaker to choose a particular semantic participant of a generalized situation for the syntactically prominent position of (surface) subject. In the marked case, the valency member ACT (Actor, corresponding to the semantic participants of generalized situation such as Agent, Initiator, Causator, Bearer of Action, etc.) is prototypically shifted from the subject syntactic position into a less prominent surface position; eventually, it cannot be expressed on the surface syntactic level at all (as in deagentive g-diathesis, see e.g. [9]). Another semantic participant of a generalized situation (typically having the form of accusative) is shifted into the subject syntactic position, as in (1a)-(2a) repeated below.[4] Under certain conditions, a 'subject-less' construction occurs (see example (7b) below).

(1) a. *Peter*.ACT *loaded the truck*.PAT *with hay*.EFF

(2) a. *The truck*.PAT *was loaded with hay*.EFF (*by Peter*.ACT)

G-diatheses can be illustrated by the scheme in Figure 1, the asymmetry concerns the different mappings between a set of valency members and their surface positions.
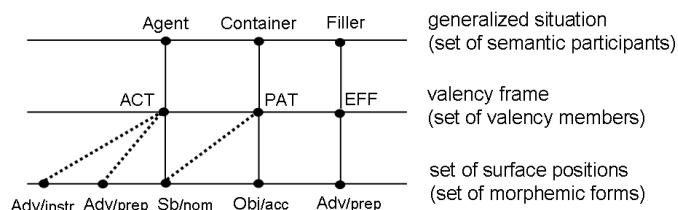

Fig. 1. Mapping between semantic participants of a generalized situation and their surface syntactic positions for passive diathesis as a typical g-diathesis (for the verb *naložit* 'to load').

We assume that changes in the valency structure of verbs characteristic of g-diatheses arise from the special verbal meanings. These verbal meanings are reflected as values of relevant verbal grammatemes in FGD (grammatemes represent tectogrammatical correlates of the morphological categories, see [14, 19]).

---

[4] We mark the valency members with labels (so-called functors) ACT, PAT, EFF etc. in accordance with FGD (and with VALLEX in particular).

2.2   Semantic diatheses

S-diatheses are characterized by changes in number and type of valency slots, while the (generalized) situation still remains unchanged. Furthermore, verbs are not morphologically marked with regard to voice. Contrary to g-diatheses, it is not apparent which of the related constructions should be understood as unmarked ones and which as marked ones, see also [8].

Moreover, s-diatheses are typically associated with coherent semantic classes of verbs, as in sentences (1a)-(1b) (see also, e.g., *spray/load* verbs in [12]).

(1) a. *Peter*.ACT-Agent *loaded the truck*.PAT-Container
        with hay.EFF-Filler
     b. *Peter*.ACT-Agent *loaded hay*.PAT-Filler
        on the truck.DIR-Container

In Czech grammars, s-diatheses are described as hierarchizations without marked voice [8], as objective diatheses [11], or some of them are treated as examples of the so-called decauzativization [11].

S-diatheses can be illustrated by the scheme in Figure 2, the asymmetry concerns the different mappings between a set of semantic participants of a generalized situation and a set of valency members.
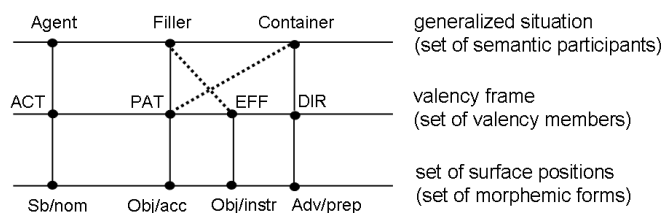

Fig. 2. Mapping between semantic participants of a generalized situation and their surface syntactic positions for Container-Filler diathesis (for the verb *naložit* 'to load').

As to the possibility of combining g- and s-diatheses, diatheses of different types are mutually combinable; i.e., having a marked construction with respect to a g-diathesis, a particular s-diathesis rule may be subsequently used (if applicable for the given verb), and conversely, see ex. (1)-(2) in Section 1. However, mutually combining diatheses of the same type is very restricted.[5]

Distinguishing between g-diatheses and s-diatheses is motivated by the needs of lexicographic work. We will see later that in case of **g-diatheses**, the changes in valency

---

[5] E.g., *Když se dostane přidělena pracovna, to se to pracuje.* — Eng. If a new study is allocated, it is easy to work (example from [9]).

frames are regular enough to be treated within a single verbal lexical unit – general rules in the grammar component and information on their applicability to individual lexical units in the data component of the lexicon are sufficient. However, for **s-diatheses**, we propose to set separate lexical units interlinked with general rules identifying a relevant type of s-diathesis. This solution results from the corpus evidence that changes in valency structure of verbs are diverse even within an individual type of s-diatheses.

3   Representation of G-diatheses

In this section, we introduce a way of capturing g-diatheses in the valency lexicon VALLEX. In our approach, g-diatheses are described by means of general fine-grained rules in the grammar component of the valency lexicon. All applicable g-diatheses are listed for each verbal lexical unit separately in a special attribute in the data component of the lexicon.

Our method will be demonstrated on the passive diathesis as a prototypical g-diathesis. **Deagentive diathesis**, **recipient diathesis**, **resultative diathesis** and **mediopassive diathesis**, see esp. [19], can be described in the same way. In addition, we consider also **reciprocity** as a phenomenon that can be treated in a similar way (within FGD, reciprocity and the possibility of its representation have been broadly studied by Panevová, esp. [17]).[6]

3.1   Passive diathesis

Passive diathesis is a relation between two syntactic constructions in which the marked one contains the auxiliary verb *být* 'to be' and the past participle of a lexical verb. We propose the following representation of passive diathesis in the valency lexicon:

 (i) In the **data component**, a single lexical unit is represented by an (unmarked) valency frame. If a given lexical unit can be subject to passive diathesis, then its applicability is indicated in the special attribute 'diathesis-pass'.
 (i) In the **grammar component**, a general rule describing regular changes in a valency frame for this diathesis is stored.

For example, a lexical unit for the transitive verb *postavit* 'to build' has three valency slots in its valency frame: obligatory ACT (Actor, in nominative in the unmarked construction), obligatory PAT (Patient, in accusative) and optional ORIG (Origin, expressed as the prepositional group *z* 'from/of' plus genitive). In the marked construction, ACT is realized either as instrumental or as prepositional group *od* 'by' plus genitive, and PAT is expressed as nominative (morphemic realization of ORIG remains unchanged):

 (3)   a. *David*.ACT$_{nom}$ *postavil kůlnu*.PAT$_{acc}$ *ze dřeva*.ORIG$_{z+gen}$
          Eng. David.ACT built a shed.PAT from wood.ORIG
       b. *Kůlna*.PAT$_{nom}$ *byla postavena ze dřeva*.ORIG$_{z+gen}$ (*Davidem / od Davida*.ACT$_{instr,od+gen}$)
          Eng. A shed.PAT was built from wood.ORIG (by David.ACT)

---

[6] **Causative constructions** are another candidates that can be taken into account for this type of representation.

Passive diathesis for verbs with valency member expressed by accusative. Passive diathesis concerns verbs with at least two semantic participants of a generalized situation and thus at least two valency slots, prototypically ACT in nominative and PAT in accusative. Valency frame for the marked member of the diathesis can be described by the following rule **Pass.r1.PAT**, see Table 1.

It should be stressed here that all information captured in valency frame remains unchanged, unless a change is explicitly mentioned by the rule Pass.r1.PAT; i.e., if a valency frame contains a member or morphemic form that is not cited in the rule, then it is preserved also in a derived valency frame.

Pass.r1.PAT	Unmarked	Marked	Note
verbal grammateme	diathesis-pass: 0	diathesis-pass: pass	(1)
valency frame	ACT_{nom}	$ACT_{instr,od+gen}$	(2)
	PAT_{acc}	PAT_{nom}	(3)
	$PAT_{var,inf,dcc}$	$PAT_{excluded}$	(4)
	? $EFF_{jako+acc}$	? $EFF_{jako+nom}$	(5)

Table 1. Pass.r1.PAT rule for the passive diathesis.

Commentary on the Pass.r1.PAT rule:

(1) The passive diathesis is represented by the verbal grammateme 'diathesis-pass'; its value for the unmarked member of the pair is '0', for the marked member it is 'pass'.

(2) In the marked construction, ACT is shifted from the prominent subject syntactic position into the adverbial position. This change is accompanied by the change of morphemic realization of ACT from nominative into instrumental or into the prepositional case *od* 'by'+genitive.

(3) The valency member PAT (expressed by accusative) is selected for the prominent surface syntactic position of subject for the marked member of the passive diathesis. Its morphemic form is changed into nominative.

(4) If the PAT valency member may be expressed also by other morphemic forms such as infinitive (abbr. *inf*), dependent content clause (*dcc*) or another preposition or prepositionless case (*var*) (mentioned below as 'unaccusative variants'), all these possible morphemic variants are excluded in the marked frame. PAT expressed by unaccusative forms is treated with Pass.r2.PAT rule, see below.

(5) If there is a slot for EFF in the unmarked frame with the form *jako* 'as'+accusative, then its form is changed into *jako* 'as'+nominative.

Note on agreement: Verbal categories of person, number and gender agree with ACT in nominative in the unmarked construction, whereas a verb in the marked construction has agreement with PAT in nominative.

For example, by applying Pass.r1.PAT rule to the unmarked valency frame for the verb *postavit* 'to build', see ex. (3a)-(3b), we obtain the following valency frame describing the marked syntactic construction:

$$ACT_{nom} \ PAT_{acc} \ ORIG_{z+gen}$$
$$\Rightarrow_{Pass.r1.PAT} \ ACT_{instr,od+gen} \ PAT_{nom} \ ORIG_{z+gen}$$

The change in the realization of EFF expressed with *jako* 'as'+accusative may be exemplified by the verb *hodnotit* 'to assess'. See the unmarked and marked valency frames and their realizations in sentences (4a)-(4b) (note also the reduction of possible morphemic forms for PAT in (4b)):

$$\text{ACT}_{nom}\ \text{PAT}_{acc,var,inf,dcc}\ \text{EFF}_{jako+acc,na+acc}$$
$$\Rightarrow{}_{\text{Pass.r1.PAT}}\ \text{ACT}_{instr,od+gen}\ \text{PAT}_{nom}\ \text{EFF}_{jako+nom,na+acc}$$

(4) a. *Učitelé*.ACT$_{nom}$ *hodnotili jeho práci*.PAT$_{acc}$
jako nedostatečnou.EFF$_{as+acc}$
Eng. The teachers.ACT assessed his paper.PAT as poor.EFF
b. *Jeho práce*.PAT$_{nom}$ *byla hodnocena učiteli*.ACT$_{instr}$ *jako nedostatečná*.EFF$_{as+nom}$
Eng. His paper.PAT was assessed as poor.EFF by his teachers.ACT

For some verbs with at least three valency members, the accusative position may be labeled with other functors, namely ADDR (for Addressee) or EFF (for Effect),[7] see (5a)-(5b) and (6a)-(6b). The changes in valency structure of these verbs are captured by analogous rules Pass.r1.ADDR and Pass.r1.EFF.

(5) a. *Sekretářka*.ACT$_{nom}$ *ředitele*.ADDR$_{acc}$ *upozornila,* (*že má podepsat smlouvu*).PAT$_{dcc}$
Eng. The secretary.ACT has reminded the director.ADDR (to sign the contract).PAT
b. *Ředitel*.ADDR$_{nom}$ *byl upozorněn sekretářkou*.ACT$_{instr}$, (*že má podepsat smlouvu*).PAT$_{dcc}$
Eng. The director.ADDR has been reminded by his secretary.ACT (to sign the contract).PAT

(6) a. *Zadržený*.ACT$_{nom}$ *řekl vyšetřovateli*.ADDR$_{dat}$ *lež*.EFF$_{acc}$
Eng. The detained man.ACT said to the interrogator.ADDR a lie.EFF
b. *Vyšetřovateli*.ADDR$_{dat}$ *byla* (*zadrženým*.ACT$_{instr}$) *řečena lež*.EFF$_{nom}$
Eng. A lie.EFF was said to the interrogator.ADDR (by the detained man.ACT)

Passive diathesis for verbs with valency member expressed by 'unaccusative' forms.
Furthermore, passive diathesis can be applied to verbs with valency members realized by 'unaccusative' forms, see ex. (7a)-(7b):

(7) a. *Radní*.ACT$_{nom}$ *o té záležitosti*.PAT$_{o+loc}$ *rozhodli včera.*
Eng. The councilors.ACT decided the matter.PAT yesterday.
b. *O té záležitosti*.PAT$_{o+loc}$ *bylo* (*radními*.ACT$_{instr}$) *rozhodnuto včera.*
Eng. The matter.PAT was decided (by councilors.ACT) yesterday.

Changes in valency frame are described by the following rule **Pass.r2.PAT**, see Table 2. Again, except for the changes explicitly mentioned in the rule, all other information captured in a valency frame remains unchanged.

---

[7] We leave aside the functors DPHR (for Dependent Part of Phraseme) and CPHR (Part of Compound Predicate) here.

Pass.r2.PAT	Unmarked	Marked	Note
verbal grammateme	diathesis-pass: 0	diathesis-pass: pass	(1)
valency frame	ACT_{nom}	$\text{ACT}_{instr,od+gen}$	(2)
	$\text{PAT}_{var,inf,dcc}$	$\text{PAT}_{var,inf,dcc}$	(3)
	? PAT|ADDR|EFF_{acc}	? PAT|ADDR|$\text{EFF}_{excluded}$	(4)

Table 2. Pass.r2.PAT rule for the passive diathesis.

Commentary on the Pass.r2.PAT rule:

(1) and (2) See the Commentary on the Pass.r1 rule.

(3) The 'unaccusative' morphemic realization of PAT[8] remains unchanged. If PAT is realized by infinitive or dependent content clause, it is shifted into the subject syntactic position. Applying the given rule to PAT expressed by prepositional case or prepositionless case (with the exception of accusative), 'subject-less' sentence is created.

(4) The possible accusative realization of any valency slot is excluded. If no other morphemic variant remains, the given valency member cannot be realized in a surface sentence,[9] see also ex. (8c).

Note on agreement: In the marked construction, verbs have incongruent agreement with 3rd sg. neutr.

Let us exemplify the application of Pass.r2.PAT rule to the valency frame of the verb *rozhodnout* 'to decide', see also sentences (7a)-(7b):

$$\text{ACT}_{nom}\ \text{PAT}_{o+loc,dcc}\ \Rightarrow_{\text{Pass.r2.PAT}}\ \text{ACT}_{instr}\ \text{PAT}_{o+loc,dcc}$$

Verbs allowing for two passive constructions. There are verbs allowing for two passive constructions. First, such verb has a valency member that may be realized both as accusative and 'unaccusative' form (e.g., the verb *hodnotit* 'to asses', see ex. (4)) – then both types of rules are applicable to this valency member (Pass.r1.PAT or Pass.r2.PAT for the verb *hodnotit* 'to asses'). The second case is represented by verbs with at least three semantic participants of generalized situations. Such verbs have at least three valency members (prototypically realized as nominative, accusative and 'unaccusative').[10] Again, both types of rules may be used – they are applied to two different valency members depending on the choice of subject. We exemplify this by the verb *žádat* 'to ask', see sentence (8a) for the unmarked case, (8b) for the Pass.r1.ADDR rule and (8c) for the Pass.r2.PAT rule:

$$\text{ACT}_{nom}\ \text{ADDR}_{acc}\ \text{PAT}_{o+acc,inf,dcc}$$
$$\Rightarrow_{\text{Pass.r1.ADDR}}\ \text{ACT}_{instr,od+gen}\ \text{ADDR}_{nom}\ \text{PAT}_{o+acc,inf,dcc}$$

$$\text{ACT}_{nom}\ \text{ADDR}_{acc}\ \text{PAT}_{o+acc,inf,dcc}$$
$$\Rightarrow_{\text{Pass.r2.PAT}}\ \text{ACT}_{instr,od+gen}\ \text{ADDR}_{general}\ \text{PAT}_{o+acc,inf,dcc}$$

---

[8] The analogous rules are set for ADDR and EFF.

[9] This case results in so called generalized valency member in FGD, see [18].

[10] The verb *učit* 'to teach' with two valency members expressed in accusative represents a rare exception.

As the accusative is the only possible realization of ADDR in the unmarked valency slot (and accusative is excluded in the marked valency frame according to Pass.r2.PAT rule), the ADDR valency slot cannot be realized in the surface sentence, see ex. (8c).

(8)   a. *Novináři*.ACT$_{nom}$ *vládu*.ADDR$_{acc}$ *žádali,* (*aby byly zveřejněny výsledky*).PAT$_{dcc}$
       Eng. The journalists.ACT asked the government.ADDR (to publish the results).PAT
    b. *Vláda*.ADDR$_{nom}$ *byla* (*novináři*.ACT$_{instr}$) *žádána,* (*aby byly zveřejněny výsledky*).PAT$_{dcc}$
       Eng. The government.ADDR was asked (by the journalists.ACT) (to publish the results).PAT
    c. *Novináři*.ACT$_{instr}$ *bylo opakovaně žádáno,* (*aby byly zveřejněny výsledky*).PAT$_{dcc}$ (general ADDR)
       '(by) journalists - was - repeatedly - asked - to - publish - results'   Eng. The publication of the results was repeatedly asked (by the journalists).

4   Representation of S-diatheses

In this section, we focus on s-diatheses and their adequate representation in the valency lexicon VALLEX. To recapitulate, s-diathesis is a relation between two (or more) syntactic constructions describing a same generalized situation. These constructions refer to the same (polysemous) verb lexeme, however, the mappings between individual semantic participants of the generalized situation and valency slots is different. As a consequence, not only morphemic realization but also number, type and obligatoriness of valency members may differ. In contrast to g-diatheses, morphological categories of the given verb typically remain unchanged.

Let us demonstrate our approach on the Container-Filler diathesis as a prototypical s-diathesis. Other s-diatheses can be captured in the same way (selected examples are listed below).

4.1   Container-Filler diathesis

Container-Filler diathesis[11] can be exemplified by sentences (9a)-(9b) (note that 'negative' variant can be also distinguished).

(9)   a. *Petr*.ACT$_{nom}$-Agent *naložil vůz*.PAT$_{acc}$-Container
       senem.EFF$_{instr}$-Filler
       Eng. Petr.ACT-Agent loaded the truck.PAT-Container
       with hay.EFF-Filler
    b. *Petr*.ACT$_{nom}$-Agent *naložil seno*.PAT$_{acc}$-Filler

---

[11] This type of diathesis counts among a group of 'co-occurrence diathesis' in [8]; see also 'spray/load alternation' in [12]. We adopt a labeling based on semantic participants involved in the diatheses as we consider it more transparent.

na vůz.DIR-Container
Eng. Petr.ACT-Agent loaded hay.PAT-Filler
on the truck.DIR-Container

These two sentences describe in principle the same generalized situation with three semantic participants – Agent (who causes the action described by the given verb), Filler (substance or entity whose location is changed) and Container (location where Filler is moved). Despite the single set of semantic participants of the generalized situation, this situation can be structured in a different way. While Agent is realized as ACT in both cases, there are two possibilities for Filler and Container: (i) either Container is mapped onto PAT (in accusative) and Filler is mapped onto EFF valency slot (in instrumental), as in (9a); (ii) or Filler occupies the PAT slot (in accusative) and Container is structured as Directional modification DIR, as in (9b) (see also Figure 2 in Section 2.2).

The most studied semantic property of this diathesis deals with a partitive / holistic effect. The semantic participant of the generalized situation realized as PAT in accusative typically receives holistic interpretation; i.e., in Container-Filler diathesis either Container (9a) or Filler (9b) is understood as completely affected by the action expressed by the verb *naložit* 'to load'.

Contrary to g-diatheses, the changes in valency frames accompanying s-diatheses are not regular enough: individual verbs exhibit many irregularities in their valency characteristics even within a single type of s-diathesis (see below for the examples).

For the purpose of the valency lexicon VALLEX, we propose the following representation of s-diatheses:

(i) In the **data component**, we establish a set of two lexical units within one lexeme – each member of s-diathesis is represented by a separate lexical unit with its own valency frame. These lexical units are interlinked via the type of s-diathesis (captured in a special attribute 's-diathesis').

(ii) In the **grammar component**, a general rule describing possible mappings between semantic participants of a generalized situation and individual valency slots is provided, see Table 3.

Container-Filler	Agent	Filler	Container	examples
Filler ∼ PAT	ACT	PAT	DIR	*naložit seno na vůz*
				doplnit cukr do cukřenky
				nasypat mouku do pytle
				(na)točit vodu (do kýble)
Container ∼ PAT	ACT	EFF	PAT	*naložit vůz senem*
				doplnit cukřenku cukrem/o cukr
	ACT	—	PAT	*nasypat pytel *moukou*
				*(na)točit kýbl *vodou*

Table 3. General rule for the Container-Filler diathesis (see the translations below).

The dissimilarities in the Container-Filler diathesis concern number, type, and morphemic realization of complements as well:

– Whereas the set of semantic participants of the generalized situation is the same (Agent, Filler, Container) and prototypically all of them can be realized as valency members, this does not hold for some verbs (e.g., *nasypat mouku do pytle* 'to put flour into the sack' but *nasypat pytel *moukou* 'to put the sack *with flour').

– Whereas directional valency member that realizes Container participant is prototypically obligatory (e.g., *doplnit cukr do cukřenky* 'to add sugar to the sugar bowl'), there are verbs with only typical directional valency member (e.g., *točit vodu (do kýble)* 'to draw water (to the bucket)').

– Morphemic realizations of a particular valency member may differ with individual verbs (e.g., *doplnit cukřenku cukrem / o cukr* 'to replenish the sugar bowl with sugar').

4.2   Examples of other S-diatheses

While g-diatheses are intensively studied in Czech linguistics, there is only a limited number of studies of phenomena referred here to as s-diatheses, see esp. [8]. Let us exemplify here at least several frequent s-diatheses in Czech which can be captured in the valency lexicon in a similar way as the Container-Filler diathesis:

Surface-Cover diathesis (positive or negative)
    Jana si očistila bláto.PAT-Cover *z bot*.DIR-Surface
    Eng. Jane cleaned the mud.PAT-Cover off her shoes.DIR-Surface
    — *Jana si očistila boty*.PAT-Surface *od bláta*.ORIG-Cover
    Eng. Jane cleaned her shoes.PAT-Surface of the mud.ORIG-Cover

Material-Product diathesis (positive or negative)
    Kadeřník jí učesal vlasy.PAT-Material *do drdolu*.EFF-Product
    Eng. Hairdresser arranged her hair.PAT-Material into a bun.EFF-Product
    — *Kadeřník jí učesal z vlasů*.ORIG-Material *drdol*.PAT-Product
    Eng. Hairdresser arranged a bun.PAT-Product from her hair.ORIG-Material

Source-Substance diathesis
    Slunce.ACT-Source *vyzařuje teplo*.PAT-Substance
    Eng. The sun.ACT-Source radiates heat.PAT-Substance
    — *Teplo*.ACT-Substance *vyzařuje ze slunce*.DIR-Source
    Eng. Heat.ACT-Substance radiates from the sun.DIR-Source

Object-Direction diathesis ('from where', 'through' or 'to where')
    Marta vylezla kopec.PAT-Object
    Eng. Martha climbed the mountain.PAT-Object
    — *Marta vylezla na kopec*.DIR-Direction
    Eng. Martha climbed up the mountain.DIR-Direction

Direction-Location diathesis
    Matka umístila dítě do jeslí.DIR-Direction
    Eng. Mother put her child into a nursery school.DIR-Direction
    — *Matka umístila dítě v jeslích*.LOC-Location
    Eng. Mother put her child into a nursery school.LOC-Location

Agent-Location diathesis

 Včely.ACT-Agent *se rojí na zahradě*.LOC-Location
 Eng. Bees.ACT-Agent are swarming in the garden.LOC-Location
 — *Zahrada*.ACT-Location *se rojí včelami*.MEANS-Agent
 Eng. The garden.ACT-Location is swarming with bees.MEANS-Agent

Conclusion

For lexicographic description of verbal valency, it is necessary to specify (i) valency frame of each lexical unit, (ii) information on the applicability of a particular set of rules describing the possible diatheses, and (iii) precise formulations of rules. Information (i) and (ii) are stored in the data component whereas (iii) is stored in the grammar component of the valency lexicon.

We distinguish two types of changes in valency structure, which are referred to as g-diatheses and s-diatheses. G-diatheses are prototypically characterized by morphologically marked form of verb in the marked construction, while the mapping between semantic participants of a generalized situation and valency slots remains unchanged, their number and type are identical (the changes in valency frames are limited to morphemic realizations of individual valency slots). On the other hand, s-diatheses are characterized by changes in number and types of valency slots. They are typically limited to verbs of certain semantic classes.

Distinguishing between g-diatheses and s-diatheses in the valency lexicon VALLEX is motivated by the needs of lexicographic work. In case of g-diatheses, the changes in valency frames are regular enough to be treated in the form of general rules (in the grammar component) and as a single verbal lexical unit (for both syntactic constructions) marked with the possibility of a particular type of diathesis. For s-diatheses, separate lexical units are established and interlinked with general rules identifying a relevant type of s-diathesis. This solution reflects the corpus evidence that changes in valency structure of verbs are diverse even within an individual type of s-diathesis.

References

[1] Apresjan, J. D. (1974). *Leksicheskaja semantika. Sinonimicheskie sredstva jazyka*. Nauka, Moskva.

[2] Borer, H. (2005). *The Normal Course of Events*. Oxford University Press, Oxford.

[3] Cholodovič, A. A. (1970). Zalog. Kategoria zaloga. In *Materialy konferencii*, pages 2–26, Leningrad.

[4] Chomsky, N. A. (1957). *Syntactic Structures*. Mouton, The Hague.

[5] Chomsky, N. A. (1965). *Aspects of the Theory of Syntax*. MIT Press, Cambridge.

[6] Chrakovskij, V. S., editor (1977). *Problemy lingvisticheskoj tipologii i struktury jazyka*. Nauka, Leningrad.

[7] Daneš, F. (1968). Some Thoughts on the Semantic Structure of the Sentence. *Lingua*, 21:55–69.

[8] Daneš, F. (1985). *Věta a text: studie ze syntaxe současné češtiny*. Academia, Praha.

 [9] Daneš, F., Grepl, M., and Hlavsa, Z., editors (1987). *Mluvnice češtiny 3*. Academia, Praha.

[10] Goldberg, A. E. (1995). *Constructions. A Construction Grammar Approach to Argument Structure*. University of Chicago Press, Chicago.

[11] Grepl, M. and Karlík, P. (1998). *Skladba češtiny*. Votobia, Olomouc.

[12] Levin, B. C. (1993). *English Verb Classes and Alternations: A Preliminary Investigation*. The University of Chicago Press, Chicago and London.

[13] Lopatková, M., Žabokrtský, Z., and Kettnerová, V. (2008). *Valenční slovník českých sloves*. Nakladatelství Karolinum, Praha.

[14] Mikulová, M. et al. (2006). Annotation on the Tectogrammatical Level in the Prague Dependency Treebank. Annotation Manual. Technical Report TR-2006-30, ÚFAL MFF UK, Prague.

[15] Ondrejovič, S. (1989). *Medzi slovesom a vetou*. Jazykovedné štúdie. Veda, Bratislava.

[16] Panevová, J. (1980). *Formy a funkce ve stavbě české věty*. Academia, Praha.

[17] Panevová, J. (2007). Znovu o reciprocitě. *Slovo a slovesnost*, 68:91–100.

[18] Panevová, J. and Řezníčková, V. (2001). K možnému pojetí všeobecnosti aktantu. In Hladká, Z. and Karlík, P., editors, *Čeština – univerzália a specifika 3*, pages 139–146. Masarykova Universita, Brno.

[19] Panevová, J. et. al (manuscript). *Syntax současné češtiny (na základě anotovaného korpusu)*. Nakladatelství Karolinum, Praha.

[20] Sgall, P., Hajičová, E., and Panevová, J. (1986). *The Meaning of the Sentence in Its Semantic and Pragmatic Aspects*. Reidel, Dordrecht.

[21] Štícha, F. (1984). *Utváření a hierarchizace struktury větného znaku*. Univerzita Karlova, Praha.

[22] Uspenskij, V. A. (1977). K ponjatiju diatezy. In Chrakovskij, V. S., editor, *Problemy lingvisticheskoj tipologii i struktury jazyka*, pages 65–84. Leningrad.