Construction Grammar in the Service of Slavic Linguistics, and Vice Versa

Mirjam Fried

Abstract: This paper explores the connection between Slavic languages and the theoretical tenets of construction grammar, a cognitively and functionally oriented approach to linguistic analysis. The strengths of traditional Slavic linguistics consist particularly in its focus on diachronic concerns, lexical semantics, and on issues of morphology. Constructional analysis provides a firm theoretical grounding for these traditional areas and also draws attention to phenomena and issues that have been less prominently pursued by Slavic linguists. This concerns various kinds of syntactic patterning but also the domain of discourse organization and grammatical devices that serve specific discourse functions, be it the nature of pragmatic particles, specific clausal structures, expressions of subjective epistemic stance, etc. Of interest is also the origin and evolution of such devices. This area has been generally left just about untouched in Slavic linguistics, yet it represents an enormous pool of interesting data and relates directly to theoretical questions that are presently in the forefront of general linguistic research. With respect to the evolutionary perspective, the present paper also comments on the role of pragmaticization and constructionalization and their manifestations in particular instances, including suggestions for how they can be conceptualized with the contribution of construction grammar.

1. Crossing Traditional Borders and Divisions

A few decades ago, some of us started making forays into Slavic material for testing the viability of construction grammar in dealing with grammatical phenomena and categories not encountered in English. We were motivated by the obvious promise of a theoretical framework which, though developed on the basis of English, openly welcomed the prospect of broadening its empirical scope and theoretical impact to other, typologically different, languages. But one also kept running up against a rather discouraging view of the time, held in the non-constructional theoretical camps (then clearly the majority) within the world of linguistic theory, namely, that Slavic linguistics has its own and very different traditions, Slavic languages are well described within

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that tradition and, besides, do not hold much interest for general linguists because they are not that different from other Indo-European languages (read: from English). And to be fair, not much enthusiasm for bringing together Slavic linguistics and general linguistic theorizing was coming from the other side of the divide either. Well, we've come a long way since then.

There is no doubt that a major breakthrough in this traditional thinking is owed to Laura Janda, whose pioneering work on the semantics of verbal prefixation and case marking in Russian and Czech introduced some fundamental concepts of cognitive linguistics into the analysis of Slavic material (e.g., Janda 1988, 1990, 1993b). Her seminal and well-known work on these topics was inspired by the cognitively minded way of thinking as it started to emerge in the theoretical proposals put forth by Fillmore, Lakoff, and Langacker during the late 1970s and throughout the 1980s. From the start, Janda's semantic analyses of long-standing puzzles in Slavic linguistics explored the applicability of cognitive models and other key concepts of cognitive linguistics (metaphor, metonymy, prototype theory, radial categories, etc.) to Slavic data, thus opening up new ways of approaching some of the most traditional domains of research in Slavic. All this work eventually led her to explicitly argue for adopting the cognitive approach in Slavic linguistics, pointing out a natural affinity between the conceptual and analytic goals of the Jakobsonian tradition and these newly emerging cognitive linguistic approaches (Janda 1993a). The connection has continued to develop ever since (more recently e.g., Divjak and Kochańska 2007, Grygiel and Janda 2011) to the benefit of both sides—Slavic linguistics and linguistic theory.

The mutual enrichment holds also for one of the specific branches of cognitive linguistic research, namely, the constructional approach to grammatical analysis, known as construction grammar (CxG).

2. Construction Grammar

The attractiveness of this specific approach to grammatical analysis consists in its basic premises: (i) grammatical categories also have a meaning/function, and this is inseparable from their form, (ii) linguistic structures can only be fully and properly understood when their usage context is taken into account, and (iii) grammar and lexicon cannot be conceptualized as two cleanly and always unambiguously separated independent modules. Instead, the relationships between lexical items and grammatical structures form a continuum; thus form and meaning always have to be taken into account together. All these assumptions are conceptually quite close to the traditional interests of Slavic linguists, as laid out explicitly in Divjak and Kochańska (2007). Let me, then, start by summarizing the basics of the CxG approach, as a general background that should help us appreciate the ways in which the constructional

tools—conceptual, analytic, and representational—have been applied in the study of various Slavic phenomena.

CxG developed out of the need to include semantic considerations in the description of grammatical structure as a unique framework for syntactic analysis that necessarily incorporates what we know about human cognition. This entails the necessity to accord an equal status to grammatical, semantic, and textual features in the description of grammatical patterning, including the broader issue of text interpretation: what mental processes can help explain our observations about speakers' natural communicative behavior, and what kind of evidence of those processes are offered by authentic linguistic material? The general question that frames the constructional approach aims at discovering what constitutes speakers' linguistic knowledge that corresponds to language use with native-like fluency.

Conceptually, the constructional approach is based on one fundamental assumption, namely, that the basic unit of grammatical analysis is a "grammatical construction," which is understood as a complex, multidimensional sign, not in the traditional sense of a syntagmatic string of words. Constructions thus hold the status of a theoretical entity which represents a conventional pairing of form and meaning/function. Both these poles are seen as clusters of features which collectively determine the character of a given construction. The form pole of this pairing refers to any combination of morphological, syntactic, and/or prosodic features, while the semantic/functional pole may be instantiated by any combination of semantic, pragmatic, and/or discourse-functional features. Moreover, constructions are the basic unit at all levels of analysis, all easily found in Slavic material as well (in Table 1 exemplified by patterns from Czech): lexical constructions (words and multiword lexical units, such as idioms), morphological constructions (e.g., inflected word-forms of any kind as well as results of word-formation; i.e., internally complex, multi-morpheme words, including, for example, prefixation as a strategy for aspect marking), argument-structure constructions (relevant, for example, in issues of case marking, as briefly sketched in Diagrams 7 and 8), phrasal constructions (from basic syntactic patterns such as a subject-predicate construction to those related to word order as well as various kinds of discourse patterns; a specific phrasal construction is shown in Diagram 2).

Table 1. Constructions as the basic analytic unit—examples of different levels of analysis

Levels of analysis:	**Examples:**
lexical constructions	*hlad* 'hunger', *nahoře* 'up/at the top', *za* 'behind/on behalf of'; *tam a zpátky* 'back and forth', *slibovat hory doly* 'promise the moon', *jít na nervy* 'get on [one's] nerves'
morphological constructions	[ADJ_{root}-*e*] (e.g., *vesele* 'merrily', *hrozně* 'terribly'); [[V_{root} —*ou*/í — *c*]$_{part.}$—case/gender/number]$_{PA}$[1] (e.g., *nes-ou-c-í* 'carrying', *hraj-í-c-í* 'playing')
argument-structure (or 'linking') constructions	val(ence) { [agent, SUB, NOM], [patient, OBJ, ACC], [goal, OBL, LOC] }
phrasal constructions	[NP VP]$_S$, [Quant Adj]$_{AdjP}$; [[NUM-*krát*] *za* [time.unit]]$_{QuantP}$ (e.g., *dvakrát/stokrát za den/měsíc/dopoledne* 'twice/hundred times in [a] day/month/morning')

In addition, constructions at all levels may differ from each other in their degree of schematicity on a continuum which defies a strict separation between grammar and lexicon. Taking the examples from Table 1, we can rearrange them according to their relative closeness to either end of the continuum, as shown in Table 2 (adapted from Fried 2013).

It follows from the above definition that constructions are multidimensional emic signs corresponding to linguistic units of varying size, degree of schematicity, and internal complexity, all described in the form of hierarchically organized feature clusters. Put differently, actual linguistic expressions are always realizations of one or more such constructions. CxG thus makes a fundamental distinction between *constructions* (abstract signs) and *constructs* (concrete linguistic expressions in actual communication). Moreover, every construction is defined simultaneously from two perspectives: internal and external. The internal properties characterize the pieces that form a given construction, their mutual relationship, and the constraints (semantic, formal,

[1] The abbreviation PA stands for "participial adjective." This schematization is necessarily somewhat simplified; for a full representation of this kind of morphological construction, as well as its diachronic development, cf. Fried (2015).

Table 2. Degrees of constructional schematicity

Degree of schematicity:	**Examples:**
lexically fully fixed	*hlad* 'hunger', *nahoře* 'up/at the top', *za* 'behind/on behalf of'; *tam a zpátky* 'back and forth'
lexically fixed, but partially schematic	*slibovat* [$_{person,\ number,\ tense,\ mood}$…] *hory doly* 'promise the moon'; *jít*[$_{person,\ number,\ tense,\ mood}$…] *na nervy* 'get on [one's] nerves'; *uherskej*[case$_i$] *rok*[case$_i$] 'blue moon'
schematic, but partially lexically fixed	[[NUM-*krát*] *za* [time unit]]$_{QuantP}$ (e.g., *dvakrát/stokrát za den/měsíc/dopoledne* 'twice/hundred times in [a] day/month/morning'); [[*až*...V$_{NON\text{-}PAST,\ PERF}$ ...]$_S$ [... V$_{NON\text{-}PAST}$...]$_S$]$_S$ (e.g., až přijdu domů, budu číst/přečtu noviny 'when I come$_{PERF}$ home I'll read$_{IMPERF./PERF.}$ the newspaper'); [ADJ$_{root}$-*e*] (e.g., *vesele* 'merrily', *hrozně* 'terribly')
fully schematic	[NP VP]$_S$, [Quant ADJ]$_{AdjP}$

prosodic, etc.) that delimit the kinds of lexical material that can fill a given slot (phrase, word, morpheme). This level involves the description of such phenomena as grammatical agreement, categorial information, constraints on semantic classes for a given slot, pragmatic constraints, and the like. But since every construction can also be a part (constituent) of a larger construction, it is necessary to take into account its combinatorial properties with such larger patterns, which amounts to capturing the holistic, gestalt characteristics of each construction as a distinct unit (complex sign). For example, a nominal phrase is a construction with a particular internal organization (in most Slavic languages, this would involve the marking of agreement in various nominal categories, also word order, etc.), but at the same time it serves as a constituent in other constructions, such as prepositional constructions, or as a complement in a clause, which again poses certain expectations concerning both form and meaning, and so on. This internal/external distinction is summarized, in a highly schematic and simplified representation, in Diagram 1. The outer box represents the construction as a whole, the inside boxes are its constituents (words, other phrases, morphemes, morpheme combinations—depending on the type of construction) and capture the internal properties of the construction. The double-pointing arrows indicate that both the construc-

tional/external constraints and the internal structure are always in a particular mutual relationship although this by no means implies that both levels contain only matching features.

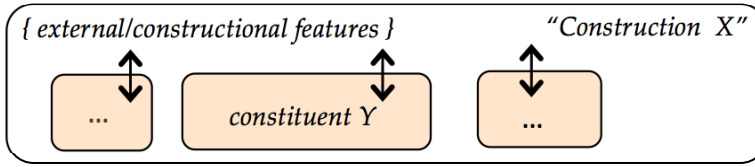

Diagram 1. Schematic representation of a constructional skeleton

In fact it is precisely this double perspective that gives constructions their special theoretical status as gestalts carrying their own, "constructional" meaning, unpredictable from simply knowing the internal organization. The notion of a constructional meaning, in turn, becomes essential and particularly prominent in accounting for patterns in which the external and internal properties clearly do not match.

A relatively straightforward example of such a mismatch taken from Czech are sentences of the kind shown in (2), in contrast to (1):

(1) Ještě jednou na to sáhl a pak odešel.
'He touched it one more time and then he left.'

(2) Ještě jednou na to sáhneš a bude zle!
'You touch it one more time and you'll get it!'

Syntactically, both examples show a coordination structure consisting of two clauses conjoined by the coordinating conjunction *a* 'and', but only the first one reports a simple juxtaposition of two events the way we automatically expect in coordinate structures. In contrast, the combination in (2) expresses the same meaning as conditional sentences ('if you touch it one more time, you'll get it') and marks a speech act that corresponds to an indirect threat. Neither the conditional meaning nor the pragmatic force are associated with coordination or follow from the meaning of the two clauses; as evidenced by (1), not every case of clause coordination has these properties. It is only this particular combination that amounts to this overall meaning, and Czech speakers must have knowledge of this complex whole as a distinct grammatical pattern in order to produce and interpret the corresponding expressions correctly.

The aim of CxG to provide an explicit articulation of the nature of constructions as linguistic units entails also the use of certain formal tools for properly organizing all the necessary details that capture the construction's full nature. CxG does have its own formalism, although different strands of

the constructional approach hold different views of its usefulness and use it to different degrees. Nevertheless, descriptive precision is the *sine qua non* for the purposes of capturing the dynamic nature of language, since most grammatical change involves feature-based microchanges that are at first invisible at the holistic level (as grammaticalization research argues), and also for proposing constructional networks, which show the degree to which related constructions share certain features and to what degree they differ from each other. To give an example, one of the topics in which tracing grammatical change at the level of individual features has been worked out in detail concerns the development of the Old Czech participial adjective (referred to in Table 1, the type *nesúcí* 'carrying'). The change consists in shifting the relative prominence of verbal vs. nominal properties within the word-form, resulting in distinct functional outcomes at the syntactic level. This is a rather complicated issue to delve into here, but relevant representations and supporting argumentation can be found elsewhere (e.g., Fried 2008, 2015). A similar approach applies in the categorial change briefly discussed in section 3.2—the development of a discourse particle out of syntactic complementizer through a series of low-level changes.

Without burdening ourselves with unnecessary technical detail, we can illustrate the general idea of constructional representations for a complex syntactic structure on the above example of coordinate conditional sentences. These sentences are actual instantiations of an abstract construction that can be somewhat informally sketched as in Diagram 2, which is a concrete elaboration of the generic structure shown in Diagram 1 above. The three inside boxes, which represent the internal properties of this construction, specify several things. First of all, they capture the syntactic structure, which consists of three constituents organized in a flat configuration [S1 *a* S2], where the middle constituent (the coordinating conjunction) is lexically restricted to *a* 'and' (this pattern does not admit any other coordinating expression, unlike standard, regular coordination structures). But in addition, it also specifies otherwise unpredictable semantic properties of each constituent: the conditional antecedent/protasis-consequent/apodosis relationship between the clauses (contradicting the coordinating syntax) and certain additional constraints, such as S1 leaving a choice between indicative or imperative mood (but no other) and both clauses allowing only future tense. The outside box refers to the construction as a whole unit and specifies its external features, above all its pragmatic function, which cannot be deduced from any of the internal characteristics. This is where a clear mismatch between the internal and the constructional, holistic levels resides: the conditional semantics (which alone is not predictable simply from the form) does not automatically invoke the speech act of indirect warning. All of this holds only in this particular combination of the constituents and individual features, not outside of it, and that is precisely what makes it a distinct construction.

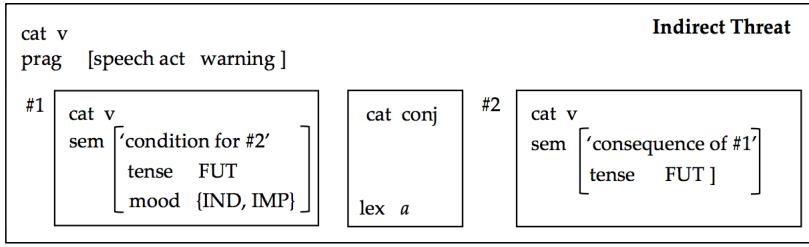

Diagram 2. Partially formalized representation of the Czech Indirect Threat construction[2]

Some of these issues are reminiscent of other kinds of idiosyncrasies observed in various coordinate structures in Slavic, including a familiar set of patterns in Russian discussed by Israeli (2001) and Gurevich (2010), to which I will return in section 3.1.2.

To summarize, constructions are abstract grammatical units that can be seen as prototypes ("blueprints") representing hypotheses about speakers' linguistic knowledge. In other words, constructions are treated as cognitive entities that articulate, in a schematic way, how a given pattern is typically produced and interpreted, while allowing for the fact that these "blueprints" can be stretched in various ways, leading to permanent language variability and on-going change. In accordance with cognitive linguistics in general, explanations for constructional patterning are sought in general cognitive and communicative principles. For the former, reference is made to categorization, attention allocation, inferencing, associative memory, planning, etc.; for the latter, relevant concepts involve information flow, the relationship between interlocutors, face-saving strategies, subjective attitudes, text cohesion, etc.

With this brief overview of the framework, we can now turn to specific ways in which it has been engaging with research in Slavic linguistics. In the following section, I will comment on some of the work that shows how much distance we have already covered on this path.

3. Examples of Constructionally Informed Domains of Analysis

The analytic and explanatory concerns of the constructional approach as outlined above are certainly relevant to the interests of various strands of Slavic linguistics, whether in the synchronic or diachronic perspective. Conceptually, CxG fits well with the wealth of observations about Slavic languages and with the traditional emphasis on studying language as a constantly changing

[2] Note on abbreviations in the constructional representations: *cat* indicates lexical categories (v = verb, CONJ = conjuction), *prag* = pragmatic features, *sem* = semantic features, *lex* = lexeme (i.e., concrete lexical material), IND = indicative, IMP = imperative.

tool for communication. What CxG can offer is a new, theoretically grounded way of asking certain questions, searching for explanations, and accounting for various well-studied but in some ways still puzzling phenomena. In turn, the systematic study of Slavic languages has much to offer for further elaboration and development of the constructional model and its aspirations toward universal applicability. At a minimum, Slavic languages require a serious attention to issues of morphosyntax and morphology (both inflectional and derivational). Morphology has been steadily neglected by linguistic theories, which were originally developed largely or entirely on the basis of English; most theories have not, therefore, ventured much beyond syntax. And yet, Slavic morphology is an excellent source of new insights in constructional theorizing; it is both well-known, well-described and documented, and now also available in its authentic usage patterns through systematically developed corpora. But even categories that seemingly have been part of the constructional model all along—such as aspect—introduce complexities and questions that have not been part of the mainstream concerns of constructional analyses.

I cannot do justice to the full amount and breadth of existing work. Even the topics that could be commented on just in this section alone amount to a very diverse portfolio which the space of this contribution cannot accommodate.[3] Additionally, not all analyses in Slavic linguistics that operate with the term "construction" are in reality applications of the constructional framework for the simple reason that the term is used in its traditional meaning (a string of words) and not in the technical sense of CxG; those, therefore, will not be discussed. On the other hand, some authors (Dancygier 1997, Grygiel 2011, Rakhilina 2000) explicitly refer to certain basic architectural features of CxG as relevant to specific topics (such as the notion of grammar-lexicon continuum, further indivisible form-meaning pairings, inclusion of irregular, idiosyncratic, and traditionally considered marginal structures, or attention to meaning in grammatical patterns) even though the analysis itself does not necessarily lead toward identifying constructions in the strict theoretical sense. I will leave these aside as well and instead concentrate primarily on those works that indeed aim at building constructional descriptions (regardless of whether or not they also include formalized representations, which is of secondary importance in the present context). The section is organized into four sets of topics according to broad methodological domains rather than by specific phenomena, some of which, unsurprisingly, will appear in more than one area. And in any case, the range of specific linguistic topics is so broad

[3] Another area of intersection, in addition to CxG, concerns the rich Slavic tradition in lexical semantics, which shares common interests with Frame Semantics, the semantic sister theory of CxG, originally also developed by Charles J. Fillmore. I will have to leave this domain aside here.

that it would make for a very fragmented picture. Thus the following main areas employing some version of CxG will be considered: synchronic analysis, diachronic analysis, quantitative methods, and robotic simulations.

3.1. Synchronic Analyses of Selected Phenomena in Case Marking and Clausal Syntax

In addition to case marking, this section brings up also the topic of reflexivization and certain special imperative patterns bordering on the domain of discourse markers. All of these phenomena provide a natural testing ground for a constructional analysis, and it is worth reflecting upon the outcome.

3.1.1. Case Marking and Constructional Meaning

One of the highly fertile domains for the constructional approach is certainly case marking, especially when it comes to issues of competing case forms in argument realization or in sorting out the polysemy of individual case forms. An instructive example of the latter is the analysis of two Russian V-N patterns involving the instrumental case by Rakhilina and Tribushinina (2011), which is explicitly grounded in the CxG approach. On the basis of corpus-based collocational possibilities of particular classes of verbs and classes of nouns in the instrumental case, the authors argue that in order to account plausibly for the usage patterns, we need the notion of grammatical construction in the CxG sense as the relevant unit of analysis. In studying the locative instrumental (the type *idti lesom* 'walk through the woods'), they find that the V-N combination is preferentially or exclusively restricted to certain verbs of motion (purposeful motion with a specific endpoint, e.g., *idti* 'walk', *bežat'* 'run', *dvinut'* 'start off', *ponestis'* 'rush along', etc.) and not any kind of noun of location, but only nouns denoting a largish area, e.g., *pole* 'field', *more* 'sea', *les* 'forest') to yield a structure with its own conventional meaning, defined as "purposeful movement along a fixed route through a larger space" (Rakhilina and Tribushinina 2011: 150).

This empirical observation leads to a larger point, though: the distribution of a particular case form is not just an issue of argument-structure requirements or of fitting into a particular semantic role slot at the level of syntax, but may relate both to the inherent meaning of the noun and to the conventional meaning associated with a V-N combination. This insight cannot be reached without the concept of constructions in the CxG sense, as the meaning of the whole is not independently predictable from the pieces: verbs of motion do not necessarily select for denotations of large areas, and nouns denoting large areas do not automatically select for verbs of motion, let alone a particular subclass of such verbs. And yet speakers of Russian must have mental access

to such a pattern in order to produce and interpret the corresponding expressions, because it is crucial to their understanding of the semantic spectrum of a given case form. It is a well-known fact that cases are polysemous, some very richly so, and not all of the polysemy can be attributed solely to the meaning of the nouns or of the verbs (as tends to be the case in the more traditional approaches, whether cognitively oriented or not).

A similar conclusion emerges from the analysis of the combination of verbs of position and motion with the instrumental, which appears to be in competition with comparative *kak*-clauses (3a), its apparent synonym, and has been traditionally considered an instrument of comparison (3b) (Rakhilina and Tribushinina 2011: 153):

(3) a. Gody leteli kak strela.
years flew like arrow
'Years flew [by] like an arrow.'

b. Letela streloj Stal'naja, vovsju staralas'.
flew arrow$_{INS}$ S. full.force exerted$_{REFL}$[4]
'Stalnaya moved about like an arrow, did her utmost.'

In a fine-grained analysis of the combinatorial properties of this instrumental, the authors arrive at the conclusion that there are really two senses of this instrumental, only one of which expresses a true comparison and can be treated as synonymous with the *kak*-clauses, shown in (3a). The other serves a descriptive function: it does not compare two parallel eventualities but merely describes an entity in terms of the shape of another entity, as is well-illustrated by the following contrast. The instrumental in (4a) does not compare two piles on the table but simply ascribes a certain shape to the collection of books:

[4] I use the following abbreviations in the glosses: NOM 'nominative', INS 'instrumental', GEN 'genitive', DAT 'dative', ACC 'accusative', LOC 'locative', N 'neuter', SG/PL 'singular/plural', NEG 'negation', REFL 'reflexive', PST 'past', PRES 'present', FUT 'future', IMP 'imperative', INF 'infinitive', POSS-A 'possessive adjective', CL 'clitic', ADJ 'adjective', PURP 'purpose', COP 'copula', COND 'conditional', PFV 'perfective verb', IPFV 'imperfective verb'.

(4) a. Na stole ležat stopkoj 10 odinakovyx
on table lie$_{3PL.PRES}$ pile$_{INS}$ 10 identical$_{GEN.PL}$
knig.
books$_{GEN.PL}$
'Ten identical books are piled up on the table.'

(Rakhilina and Tribushinina 2011: 155, ex. 15a)

b. *na stole ležat kak stopka 10 odinakovyx
on table lie$_{3PL.PRES}$ like pile$_{NOM}$ identical$_{GEN.PL}$
knig
books$_{GEN.PL}$

(Rakhilina and Tribushinina 2011: 155, ex. 15b)

The only coherent way of accounting for this state of affairs is to treat the non-comparative V-N$_{INS}$ structure as having a meaning that can only be attributed to the combination as a whole: "observable states or actions." This meaning does not follow from either the meaning of verbs of motion and position or from the meaning of the noun.

In sum, a constructional analysis is shown to have predictive power in relation to the distribution and usage of these forms and can account more accurately for the linguistic knowledge which underlies native-like fluency in language use.

A different take on case marking issues involves the conditions on choosing a particular case form for expressing certain argument roles. This topic has received a CxG treatment especially in the work on various uses of the Czech dative in competition with the accusative in expressing the experiencer role (Fried 2004) or with other forms in marking possessors (Fried 2009a and her works cited therein). In typological literature, the latter is commonly referred to as the contrast between external possessor (EP), marked by the dative in Czech, and internal possessor (IP), marked either by the genitive, the possessive adjective (7b), or a possessive pronoun (5b). This labeling has its origin in their distinctly different structural properties, in (5) indicated by the square brackets, but a closer look makes it clear that a lot more than syntax is involved. The heart of the difference is illustrated by the examples in (5). The excerpt shown in (5a) is taken from the written corpus SYNEK in the *Czech National Corpus*. (5b) is a grammatically well-formed constructed variant:

(5) a. Když [jim] vzali [peníze] měnovou
when $_{3PL.DAT}$ take$_{PST.PL}$ money$_{ACC}$ currency$_{ADJ.INS.SG}$
reformou,
reform$_{INS.SG}$
prodávali koberce, šperky a obrazy, jen aby mohla zůstat doma.
'When [the government] took their money in the currency reform, they kept selling rugs, jewelry and paintings, anything [to make it] possible for her [=mother] to stay at home.'

b. když vzali [jejich peníze] ...
when take$_{PST.PL}$ their money$_{ACC}$

The follow-up context of the attested example in (5a) makes it unambiguously true that the possessor was affected by the currency reform (hence the selling of other property to make up for the negative impact), and this is the semantic feature strongly associated with dative marking in general (experiencer, recipient, *dativus* (*in*)*commodi*, etc). In contrast, the IP marking involves no such a priori association and expresses the possessive relationship without any necessary connection to the impact the depicted event has on the possessor. The form in (5b) is thus neutral with respect to the relationship between the possessor and the fact of the reform (i.e., the possessor need not have even been alive when the reform was taking place), but the dative form (5a), with its inherent affectedness feature, can be meaningfully used only if the possessor was alive—and, hence, capable of suffering the consequences.

Fried (2009a) argues that each form is associated with a distinct grammatical construction, each of which, in turn, encodes a distinct conceptualization of the possessive relationship. In particular, the constructional approach coherently captures the fact that while both patterns are sensitive to the alienability of the possessum, each pattern covers a different section of the continuum. For example, the dative is obligatory when marking explicitly the possession of a true body part (inalienable), as shown in the contrast between (6a) and (6b), while possessa low on the hierarchy (i.e. alienable or nonpossessible items) can be expressed by either form, depending on possessor affectedness, as described above, as well as other conditions, including the requirements of particular information structure articulation (Theme-Rheme relations), as shown in (7a-b). The EP pattern allows for the possessor to be treated as a distinct pragmatic role—e.g., Theme in (7a)—while the IP pattern affords no such independent status:

(6) a. V **uších** **nám** hvízdal vítr.
in ear$_{LOC.PL}$ $_{1PL.DAT}$ whistle$_{PST.SG}$ wind$_{NOM.SG}$
'Wind was whistling in our ears.'

b. *V **našich** **uších** hvízdal vítr
in our$_{LOC.PL}$ ear$_{LOC.PL}$ whistle$_{PST.SG}$ wind$_{NOM.SG}$

(7) a. **Sousedovi**$_{Theme}$ někdo pobořil **plot**$_{Rheme}$.
neighbor$_{SG.DAT}$ somebody$_{NOM}$ break$_{PST.3SG}$ fence$_{ACC}$
'[Our] neighbor$_{Theme}$ had his FENCE$_{Rheme}$ damaged by somebody.'

b. Někdo pobořil **sousedův** **plot**.
somebody$_{NOM}$ break$_{PST.3SG}$ neighbor$_{POSS\text{-}A}$ fence$_{ACC}$
'Someone damaged the neighbor's fence.'

In sum, the point of selecting one or the other variant in actual discourse rests in a number of co-occurring conditions. Among them is the degree to which the possessor is involved in the depicted event, but the dative construction is also more restrictive with respect to possessor animacy (the possessor must be human) and, crucially, puts restrictions on the meaning of the verb, that is, situates the possessive relationship in an affective type of event, which targets not just the possessum but also the possessor. In contrast, the genitive construction is completely independent of verb semantics and less restrictive about the type(s) of possessors.

The issue of choosing between the variants is a particularly broadly discussed topic in linguistics since the EP vs. IP competition is widespread in languages and relates to general typological questions far beyond Slavic. There are plenty of reasons to study this phenomenon more closely also in Slavic (i.e., beyond just Czech) since the case-marking patterns are quite varied within the family and would provide an interesting refinement of the general typological observations. The constructional analysis, together with a frame-semantic component, brings a unified perspective on alternative expressions of possession and helps disentangle the areas of usage where both syntactic patterns may overlap and where they clearly differ both semantically and pragmatically.

3.1.2. Clausal Syntax

With issues of clausal syntax, CxG has made its way into areas that cover both structures that are specific to Slavic (such as reflexivization) and forms that are commonly found in other languages but have also very interesting and

idiosyncratic manifestations in Slavic, such as some nonstandard conditionals in Russian.

Slavic linguistics has been preoccupied with reflexive patterns for a very long time, as they present one of the most conspicuous features of Slavic languages. The polyfunctional nature of the reflexive morpheme as well as its formal variants have proven a major challenge for finding a unified account of its distribution and functions. The complex character of the phenomenon naturally invites an approach that works with multidimensional clusters of co-occurring features in order to sort out all the well-known functions and their mutual relationships and to arrive at a fully fleshed-out single family of constructions. A first attempt at taking such an approach is in Dancygier's (1997) treatment of the contrast between *się* and *siebie* in Polish, in which the constructional character is hinted at by arguing that a proper understanding of the distribution and use of these markers necessarily involves both their meaning and the syntactic environment each of them requires or favors. Dancygier's focus lies in issues that the literature on reflexives tends to neglect (the fine differences in usage between the light and heavy variants of the reflexive and also on metaphoric extensions associated with the heavy form *siebie*), but without a full-fledged constructional analysis. Both, however, would deserve to be elaborated into a fully formulated constructional network.

A synchronic analysis with precisely this aim—i.e., treating the constructions as members of a fully defined constructional network—is Fried's (2007) detailed examination of the Czech reflexive *se*. The treatment is based on the pragmatic concept of unexpected referentiality that helps motivate four distinct conceptualizations of the agent-patient relations (in many ways compatible with Dancygier's general conclusion about *się*) and hence functions of *se*: marking referential identity between agent and patient (8a); distancing discourse participants from their involvement in the reported event, shown with the transitive verb *vyřešit* 'solve' and intransitive verb of motion *jít* 'go' (8b); recasting a transitive event as a spontaneous change of state, restricted to transitive verbs only (8c); expressing an attitude toward the reported event (8d). Examples in (8b–d) are from the *Prague Spoken Corpus* (*Pražský mluvený korpus*), example (8a) is from the written corpus *SYN2000*.

(8) a. Stojím před výkladem s dýkama

a	**nenávidím**	**se**,	jakej	jsem
and	hate$_{PRES.1SG}$	self$_{ACC.CL}$	what.kind	am

posera.
shit.eater$_{NOM.SG}$

'I'm standing in front of a store with daggers, and I hate myself for being such a chicken.'

(8) b. jenom **se** **vyřešil** problém , za pět
only *REFL* solve$_{PST.SG}$ problem$_{NOM.SG}$ in 5
minut **se** **šlo** domů
minutes *REFL* go$_{PST.SG.N}$ home
'[all it took was] a problem got solved [and] in five minutes [everybody] went home'

c. aby **se** jim sem **nenavalila** revoluce
PURP *REFL* *3PL.DAT* here NEG.pile.up$_{PST.SG}$ revolution$_{NOM.SG}$
'(they let national states form) so that revolution wouldn't barge in on them'

d. (další kluk […], docela chytrej),
dobře **se** s nim **kecá**
well *REFL* with *3SG.INS.M* gab$_{PRES.3SG}$
'(another guy […], fairly smart), easy to gab with'

The main point of the CxG treatment is the conclusion that grammatical categories cannot be properly defined outside of a broader grammatical context, and once the specific features of such a context are taken into consideration, we are able to view the attested functions not as a reduction to a single feature (such as transitivity), but as distinct conventionalized combinations of a number of properties, specifically: preferences in aspect and transitivity, semantic and/or pragmatic constraints on agents and patients, verb semantics, modal extensions, shifts in pragmatic force, and specific morphosyntactic constraints. It then becomes possible to organize these functions into a prototype-based constructional map of overlapping grammatical patterns.

Three members of this network that are also attested in Old Czech are further analyzed in Pergler's (2014) recent study of their historical development, based on the hypothesis of gradual grammaticalization of *se* from a pronoun toward a purely grammatical marker. He argues that in order to capture this process adequately, it does not help to ask the traditionally posed questions of whether a given reflexive token is part of a verbal lexeme, inflectional verbal form, or an independent syntactic unit. Instead, we can only understand the development as a diachronic relationship between clusters of specific semantic and formal features, i.e., between distinct grammatical constructions that change their shape over time.

An interesting and rich syntactic topic is presented in Gurevich's (2010) work on Russian imperative conditionals, drawing on Israeli's (2001) earlier descriptive survey of these conditionals. At issue are expressions such as the following (the relevant part is bolded):

(9) Čto tvorilos' za ètim junym lbom? Travkin, buduči primerno odnix let s nimi, čuvstvoval sebja gorazdo starše. Emu prijatno bylo soznavať, čto on nemalo uže sdelal.

Pogibni	**on**,	bojcy	budut	gorevať,
die$_{IMP.2SG}$	he$_{NOM}$	soldiers$_{NOM}$	be$_{FUT.3PL}$	grieve$_{INF}$

ego pomjanet daže komandir divizii.

'What was happening behind this young forehead? Travkin, being of roughly the same age as them, felt much older. He was pleased to recognize that he had already accomplished a fair amount. **If he were to die** the soldiers would grieve, and even the division commander would remember *him*.' (Gurevich 2010: 95, ex. 15)

Just like the introductory example of coordinate conditionals in Czech (2), these Russian patterns also represent a textbook illustration of the basic definitional feature of constructions in the CxG sense (i.e., their noncompositional nature). Taking an onomasiological approach—which is specifically motivated by the comparative angle Gurevich takes but which is naturally compatible with the CxG enterprise—she elaborates this general view by grounding the analysis in the theory of mental spaces and offers formal representations that capture precisely the constructional nature of these conditional structures, i.e., the mismatch between the form (imperative in coordination with an assertion in the second clause) and the complex meaning of the whole. For one, the syntactically coordinate structure encodes a logical condition (if *p* then *q*),[5] not a simple coordination. On top of that, the imperative encodes a contingency that is overlaid with the speaker's or protagonist's (as is the case in the above example) subjective viewpoint, which Gurevich argues is highlighted by this structure. In other words, the imperative form of the verb not only does not express the expected speech act (an order) but is idiosyncratically associated with additional semantic and discourse-pragmatic features (personal involvement, emotional relevance) that can only be attributed to a particular syntagmatic context, not to the individual items contained in the pattern. The special status of the pattern as a conventional sign is further corroborated by the well-known observation that even verbs that do not normally form imperatives are welcome here (e.g., Xrakovskij and Volodin 1986: 146, and elsewhere). I will return to this fact in the next section, but for the moment let us stay with the issue of expressing epistemic stance and emotional involvement.

[5] Though not discussed either by Gurevich or by Israeli, some of their examples suggest the possibility of a concessive interpretation, as a sort of intensification of the imperative conditional (as in example 16 in Gurevich 2010: 95), along the lines of "even if you graduate from three more institutes, you still would not know what to do with Klimka." It seems to me that this interpretive extension is worth examining further, particularly from the constructional perspective.

The topic of expressing (subjective) evaluative meanings has gained in popularity in the last decade or so. It makes sense that the CxG approach is helpful in capturing the ways in which speaker's attitudes can be signaled because it is the kind of meaning that is very often hard to pin on a single lexeme and, in fact, often falls into the category of nonpropositional meanings. Not always, though, as shown for example in Richterová's (2014) study of the collocational patterns in Czech involving the long form of the present active participle, the type *odpovídající* 'corresponding', and the copula *být* 'be'. Through a comparative (with English and German), corpus-based analysis of this combination, she is able to identify a distinct syntactic pattern—[$pro_{3pers.}$ COP *–ící/oucí*]—as licensing a specific type of evaluative expression, marking the speaker's stance and emotional involvement (*To je rozhodující/alarmující/osvěžující* 'It is decisive/alarming/refreshing'). The insight we gain from a constructional conceptualization is the conclusion that these participial forms are used as an expression of subjective evaluation only in this particular syntactic pattern and not in other syntactic positions. Moreover, the lexical meaning of a given form need not be inherently evaluative (cf. *odpovídající* 'corresponding', *fungující* 'functioning'), and a contributing factor is a particular discourse situation (e.g., in establishing norms within legal or technical discourse). Clearly, the evaluative potential is not in the lexical meaning of the individual tokens of the *–ící/–oucí* forms but in a larger abstract pattern of which they are one part. The topic, of course, brings up the question of the relationship between these collocations and the adjectival status of the participial forms. Richterová is not directly concerned with this general issue, but her treatment amounts essentially to classifying the forms as adjectival by virtue of their syntactic distribution in these patterns: the copular structure as well as the collocational habits concerning the nouns they frequently co-occur with. She simply states that her focus is on the "participial forms becoming adjectives (i.e., participial adjectives)" (Richterová 2014: 61).

3.2. Constructionalization

A substantial and actively pursued research agenda in general linguistics concerns issues of language variability and language change. With increasingly better access to authentic data (through relevant corpora, including Slavic) and fast developing tools for quantitative analysis, this domain is attracting more and more attention. This is evident especially in that strand of grammaticalization research that seeks explanations for diachronic changes in communicatively motivated reinterpretations of specific collocational combinations occurring in actual usage. This perspective is implicitly present in the very first observations about the behavior of such collocational patterns (Humboldt 1825), later made more explicit by Lehmann (1982/1995: 406) in stating that "grammaticalization does not merely seize a word or morpheme […] but

the whole construction formed by the syntagmatic relations of the element in question." More recent research clearly shows that morphologization, i.e., formation of inflectional morphemes out of previously (more) independent units, is not the only domain that involves grammaticalization processes but that analogous developments concern much more diverse and complex kinds of changes, generally involving a very gradual, feature-based change in categorial status. The crucial concept underlying this perspective is that of context, including syntagmatic context, which naturally leads to interest in the constructional model as a way of capturing the effect which the syntagmatic context has on the grammaticalizing element(s). Put differently, constructions in the sense of CxG are taken to be the domain of change, and the fact is that the basic architecture of CxG, as summarized in section 2, is naturally compatible with this line of thinking. I will now reflect on two particular areas in which the constructional model brings new ways of conceptualizing the reorganization of grammatical patterns.

One of the topics that opens up a wide and rich field of constructional investigation, including in Slavic, is the rise of pragmatic particles out of lexical or grammatical items (more accurately perhaps labeled as pragmaticization, even though the basic process is the same as the one observed in the rise of grammatical morphemes, only the resulting function is distinctly different). This area in general has been rather neglected in traditional approaches and deserves systematic attention. Another set of topics concerns developments that involve recategorization not so much of a single element as of a whole internally complex structure, whether at the level of syntax or morphology.

The development of pragmatic particles (sometimes also referred to as discourse markers or discourse particles) is a phenomenon relevant primarily to spoken discourse. Its systematic investigation thus owes significantly to the availability of language corpora, especially those containing conversational language, but other kinds of authentic usage as well. Corpus-based study of one such item in Czech concerns the usage of the word *jestli*, which is richly attested in a range of specific pragmatic functions never mentioned in traditional grammars. Through an internal reconstruction from the interrogative subordinating conjuction (*jestli* 'whether, if') to the uses attested in conversational Czech, Fried (2009b) argues that this morpheme has acquired—among other functions (cf. Fried and Östman 2005)—the status of a pragmatic particle that signals the speaker's subjective epistemic stance. The point is to capture the pattern exemplified in (10–11), in which there is no main verb that would justify the presence of a *jestli*-clause (the examples 10–12 are all taken from the spoken corpora of the *Czech National Corpus*):[6]

[6] In spontaneously produced speech, the lexeme *jestli* is often phonetically reduced, resulting in at least four additional phonetic variants: (*j*)*esli* and (*j*)*esi*.

(10) 1 A: potkala sem teda NJ v krámě, že jo, a to ti řeknu, že teda vypadala pěkně blbě, /

2–3 [….][7]

4 A: / pěkně v obličeji, jak dyž je vopařená,

jesi se vopalovala, nebo co, v pátek sem ji potkala
IF *REFL* sunbathed or what

nebo kdy /

5 D: /dyť vona je /

6 A: /čoveče, vona ti vypadala,

1 A: 'so I ran into NJ in the store, right, and I'll tell you she looked pretty dreadful /

2–3 [….]

4 A: /in her face, as if she got scalded,
I-guess she'd been sunbathing, or something, I saw her on Friday or whenever [it was] /

5 D: /well of course she's/

6 A: /man, I'll tell you [the way] she looked,'

(11) 1 A: a teďka primátor prosadil, že pojede z Dejvic metro až na letiště.

2 B: to je správný. protože vono je to trapný, dyž někdo přiletí a musí se plácat těma autobusama.

3–5 […][8]

6 C: ale **jesi** jim vláda uvolní peníze.
but IF to.them government releases money

7 A: na to peníze budou.

[7] In turns 2–3, other speakers are simultaneously carrying on an unrelated conversation that does not affect A's reporting.

[8] In turns 3–5, speakers A and B go on repetitively about the soundness of the Mayor's decision, reinforcing the A's point.

(11) 1 A: 'and now the Mayor pushed through [the idea] that there will be a subway line from Dejvice all the way to the airport

2 B: that's good. 'cause it's embarrassing when people fly in and then they have to drag themselves on those buses

3–5 [….]

6 C: but **I-think** the government **may not** provide money for it

7 A: there WILL be money for this'

The gist of the analysis derives from the observation that in full sentences in which the interrogative *jestli* occurs, the overwhelming majority of the main clauses contains verbs expressing lack of knowledge (not, e.g., verbs of asking, as one might also expect) and within those, a clear majority is actually the token *nevím* 'I don't know'. This distribution suggests that language users may associate the use of the syntactic *jestli* with the speaker reporting his own limited knowledge. In such a context, the explicit presence of the main verb may become pragmatically redundant, and its semantic contribution to the whole is absorbed by the *jestli*-clause. This development, as argued in the published work, is motivated by the cooperative principle: it is not very informative to simply state that I don't know something; for the conversation to continue, it is more productive to offer at least a guess ('I know I have no factual knowledge, but I'm offering at least my best guess'). The fact that the opinion can take a positive, explicative flavor '[in-my-opinion-] maybe *p*', as in (10), or the seemingly opposite meaning '[in-my-opinion-] probably not *p*' (11), can be taken as evidence that the independent *jestli*-clause is not simply a case of verb ellipsis but a new, distinct grammatical pattern with its own (constructional) meaning. Depending on text type, the compositional, predictable meaning 'I don't know if *p*' ends up evolving either into the explicative 'I think maybe *p*', (10), or the counterargument usage 'I don't think that *p*' (11).

It is the constructional treatment that allows us to coherently conceptualize this development in a very simplified form summarized as follows (full representations and a full analysis can be found in Fried 2009b). Diagram 3 sketches the configuration in which the lexically fixed main clause becomes backgrounded (*nevím* 'I don't know'), giving way to two possible outcomes of an independent *jestli*-clause—its explicative variant in Diagram 4 and the argumentative variant in Diagram 5. Note that each of these is also marked by additional formal features: the explicative construction optionally contains the trailing *nebo co* 'or something' shown also in (10), as an explicit vestige of the erstwhile Y/N question, and the argumentative construction is optionally introduced by the adversative *ale* 'but', as in (11), and equally optionally con-

tains the negative polarity expression *vůbec* 'not at all', further reinforcing the negative assessment expressed by the whole structure.

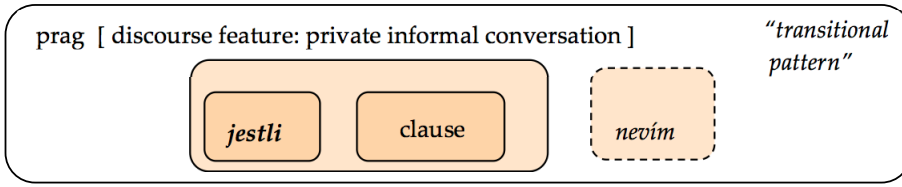

Diagram 3. A transitional collocational pattern as attested in the corpus

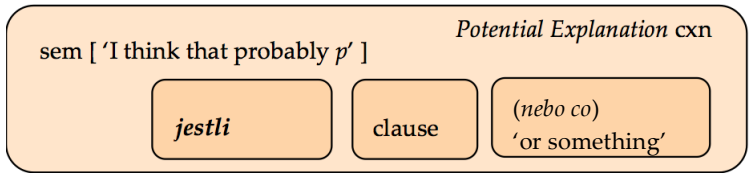

Diagram 4. Potential explanation construction

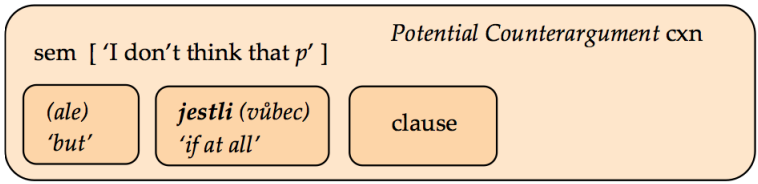

Diagram 5. Potential Counterargument construction

In the types (10–11), *jestli* must be categorized as a contextualizer connecting two turns in discourse, rather than a syntactic complementizer connecting two clauses. But there is an additional stage of development in which *jestli* no longer expects a clause as its "phrase mate" but combines with any kind of nonclausal constituent, here shown with a quantifier:

(12) a kilo melounů tam stoji **esi** sedumdesát—nějakejch těch jejich halířů nebo co to tam mají
'and a kilo of melons there costs **I-guess** seventy—of those cents of theirs or whatever it is they use there'

Here the word (in its most reduced form *esi*) functions simply as a modal particle, formally emancipated from its complementizer origin but still preserving the semantics of the speaker's best guess that something is likely to be the case (and there are ways to test this difference in comparison to its apparent synonym, *asi* 'maybe', which lacks the necessary flavor of subjectivity, cf. Fried 2009b: 284–285). And again, the result of this development is a construction with its own idiosyncratic meaning at the external level and a specific internal composition, as sketched in Diagram 6.

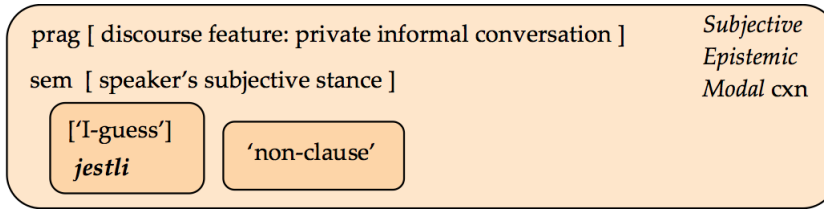

Diagram 6. *jestli* as a modal particle

To summarize, the point of the analysis is to show that a constructional treatment allows us to coherently trace this development, including its intermediate stages, and to motivate the complex nature of the resulting new unit. The crucial concept being the interaction between the "holistic" (external) perspective with the internal, feature-based organization of the whole pattern.

In fact, a good candidate for a similar analysis suggests itself in the Russian conditional imperatives discussed in section 3.1.2., which also are characterized as a feature of colloquial speech (Gurevich 2010: 101). It appears that the imperative form of the verb has acquired a different functional (and, hence, also categorial) quality, which is more reminiscent of a simple pragmatic marker, rather than being truly a verb. It retains the shape of a particular inflectional word-form, but that is about all that is left of it. It need not be a surprise, then, that even verbs that "do not normally produce an imperative" (Gurevich 2010: 99) can be found in the same slot, as exemplified in (13):

(13) (Xozjain, ego počitajut, ego slovo—zakon, i)

zaxoti	on	exať	v	Švejcariju,	
want$_{PFV.IMP.2SG}$	he$_{NOM}$	go$_{IPFV.INF}$	in	Switzerland$_{ACC}$	
to	bylo	by	tak,	kak	on
then	be$_{IPFV.PST.3SG}$	$_{COND}$	so	how	he$_{NOM}$

rešit.
decide$_{PFV.PRES.3SG}$
'(He is the master, he is respected, his word is the law, and) if he wanted to go to Switzerland, it would have happened the way he decided.'

(Gurevich 2010: 99, ex. 23)

In short, it may very well be that these erstwhile imperatives have fully crossed over into the category of pragmatic particles with a specific function and specific expectations about their syntagmatic surroundings, thus also exemplifying the process of decategorialization in the service of expressing a discourse-pragmatic function, specifically, the speaker's attitude. And there is no doubt that the domain of pragmatic particles—and the syntax of conversational discourse, in general—would be a fertile domain in all Slavic languages.

A different example of constructionalization is provided by the work of Banášová et al. (2011), which focuses on the recent emergence of a new construction where there was not one before. They trace the rise of the pattern [NP$_{ACC}$ *nemusím*] 'I don't like NP$_{ACC}$' (lit. 'I needn't NP$_{ACC}$') found in Czech and Slovak, without any equivalent in other Slavic languages; the following examples illustrate the usage, ex. (14a) is from the *Czech National Corpus* and (14b) is from the *Slovak National Corpus* (Banášová et al. 2011: 248):

(14) a. No pravda je, že Klause moc nemusím, ale v tomto kole to byla jediná osobnost.
'Well it's true I don't exactly care for Klaus but he was the only [real] personality in this round.'

b. Napríklad slepačiu polievku rodine uvarím, ale ja ju naozaj nemusím.
'For example, I'll make chicken soup for the family but it really isn't something I [personally] like to eat.'

Just like in the cases discussed above, we cannot grasp the true nature of these expressions by invoking an ellipsis analysis and treating them as a variant of modal verb patterns. For one thing, it is not clear what would be the elided verb that could be reconstructed. When a lexical verb is omitted in modal constructions, it is typically a verb of motion (this pattern is actually

attested beyond just Slavic), and it has the form of the infinitive. Neither of these properties applies here: nothing is missing and the hypothetical lexical verb cannot be reconstructed. In fact, Banášová et al. identify a whole set of features that are idiosyncratic to this usage of the verb *nemusieť/nemuset*, among them especially the following (none of them are true of modal verbs elsewhere, in their canonical usage):

(15) a. **the modal:**

–takes an object in the accusative as its complement;

–is obligatorily negated and only in 1st or 3rd person (i.e., does not target the addressee);

–does not occur in the future tense;

–does not express negative necessity;

–can be modified by evaluative adverbs including degree quantifiers;

b. **the referent in the accusative:**

–is preferentially placed preverbally;

–must be present in the context (i.e., is thematic/topical);

c. **the entire pattern:**

–expresses an epistemic stance;

–has an expressive, emotional flavor.

Given all these characteristics, which do not follow from what we otherwise know about modal verbs in these languages, and the overall meaning of the pattern expressing not a negative necessity but an emotionally colored dislike, there is a good reason to treat the pattern [NP_{ACC} *nemusím*] as a distinct and complete grammatical unit (construction in the CxG sense), which has its own constructional meaning unpredictable from the meanings of its parts. In other words, it is not just any sequence of an accusative-marked NP and a modal verb, but a particular combination that also involves a host of constraints on each constituent and on the pattern as a whole.

Similar processes can be detected at the level of complex morphological patterns (morphological constructions), as well, where the shifts in form-meaning relations concern strings of morphemes rather than words and where the morphosemantic features interact with a larger syntactic environment, leading to a functional shift associated with the morphological construction. An example of this kind, concerning the nature of transpositional morphology, is briefly summarized by Nesset (this issue).

3.3. Quantitative Methods and Constructions

The widely acknowledged need to provide linguistic theorizing with a strong and reliable empirical basis has motivated new ways of working with linguistic data, which, of course, goes hand in hand with technological advances in data gathering and the availability of increasingly larger and more sophisticated corpora. The use of quantitative methods is the focus of another contribution to this volume (Divjak, Sharoff, and Erjavec), but as there is also a natural intersection between certain corpus methods and constructional analysis, I will comment on some illustrative examples and their place in Slavic linguistics. A quick glance at the fast expanding literature suggests at least three general topic areas: metaphoric language, aspectual meanings, and general questions of word meaning with special focus on synonymy.

The theoretical questions surrounding metaphoric language have been a major preoccupation of cognitive linguistics from its beginning, leading early on to the development of the conceptual metaphor theory, first outlined in Lakoff and Johnson (1980), which made it possible to start working out systematic mappings between linguistic expressions and metaphoric meanings. But this is currently an actively debated issue in constructional research as well, zeroing in specifically on the role of constructions and semantic frames in evoking complete conceptual metaphors (cf. esp. Sullivan 2009, 2013), thus helping account for metaphoric interpretations of larger syntactic patterns. The interaction between metaphor and constructions (albeit more in the vein of the Langackerian conception of constructions) in Slavic has been taken up for example by Sokolova and her co-workers in the context of Slavic aspect and prefixation issues (e.g., Sokolova and Lewandowski 2010), drawing on Janda's work with the concept of constructional profiles (Janda and Solovyev 2009; Janda and Lyashevskaya 2011).

Thus, for example, Sokolova (2013) explores the hypothesis that it is at the constructional level where metaphoric and nonmetaphoric content each find a different expression. The hypothesis is supported by two empirical case studies of the Russian locative alternation verbs—i.e., verbs that allow two different ways of expressing their patient and goal arguments, alternating between assigning the direct object function to the patient (16) or to the goal argument (17); the examples come from Sokolova (2013: 8):

(16) Ne toropites' sypat' pesok v korobku.
not hurry throw sand$_{ACC}$ into box$_{ACC}$
'Don't hurry with pouring the sand into the box.'

(17) On sodrogalsja, slušaja o tom, kak gruzili
he$_{NOM}$ shuddered hearing about that$_{LOC}$ how loaded
vagony detskimi trupami.
wagons$_{ACC}$ children's corpses$_{INS}$
'He shuddered [upon] hearing about how they loaded the wagons with children's corpses.'

The case studies are based on data from the *Russian National Corpus* and focus on the unprefixed verb *sypat'* 'strew' (which does not have an aspectual partner) and the unprefixed verb *gruzit'* 'load' together with its three perfective partners with the prefixes *na-*, *za-*, and *po-*. It is argued that metaphorical extensions of these locative alternation verbs have a strong relationship with elaborations (interactions between different constructions) on the one hand, and reduction (locative alternation constructions with a reduced or omitted participant) on the other. The results indicate differences in metaphorical behavior of different prefixes (even when they are used to form perfective partner verbs) and different constructions (some constructions are more often instantiated as metaphorical extensions than others), thus relating metaphoric meanings to concomitant structural changes. This general conclusion that words attract, in a fairly systematic way, certain constructions (i.e., have specific constructional profiles) is noteworthy on several levels. Not only does the analysis give us a more accurate picture of the Russian facts and contributes to our understanding of the relationship between lexicon and grammar, but it also opens up some broader questions concerning the relationship between meaning and form.

The verb *sypat'* 'strew' is particularly interesting in this respect, as the distribution of metaphoric vs. nonmetaphoric meanings across its different forms (prefixed and unprefixed) suggests also a correlation between the two basic constructions on the one hand and a hybrid construction on the other. In brief, the basic structures are both syntactically transitive, as would be expected with a verb of transfer, and differ only in the coding of the argument roles patient and goal. One pattern gives greater syntactic prominence to the patient role [NOM$_{Agt}$—ACC$_{Pat}$—(LOC$_{Goal}$)], exemplified in (16) above, the other to the goal [NOM$_{Agt}$—ACC$_{Goal}$—(INS$_{Pat}$)], shown in (17) above. And both of these are apparently used overwhelmingly in the literal sense of strewing/pouring. In contrast, the metaphoric meanings prefer, by a huge margin, a construction that is essentially a special intransitive combination (hence, a hybrid) of these two in that it maintains the syntactic form of the oblique complements in coding the goal and patient arguments (LOC$_{Goal}$ and INS$_{Pat}$). A nonmetaphoric use is shown in (18a), a metaphoric one is in (18b), both are taken from Sokolova (2013: 11–12). These forms are difficult to render directly

in English—the translations (M.F.) are to be taken as an attempt to capture their intransitive nature, without sounding too literal:

(18) a. … veter … syplet snegom v okna
wind$_{NOM}$ strews snow$_{INS}$ in windows$_{ACC}$
'the wind sweeps at the windows with snow'

b. … sypat' citatami v sobesednika
strew quatations$_{INS}$ in speaker$_{ACC}$
'to swipe at the speaker with [lots of] quotations'

We could summarize these findings schematically as follows. Diagram 7 captures the prototypical character of the basic pattern [NOM$_{Agt}$—ACC$_{Pat}$—(LOC$_{Goal}$)], which the authors show to be the only form favored by the bare verb *sypat'* 'strew' and is overwhelmingly interpreted literally. Diagram 8 sketches the minimum requirements of the hybrid pattern [NOM$_{Agt}$—INS$_{Pat}$—(LOC$_{Goal}$)]. The full constructional representations would have to also include information about preferences concerning prefixation (or prohibition thereof) when the empirical evidence warrants specific constraints.

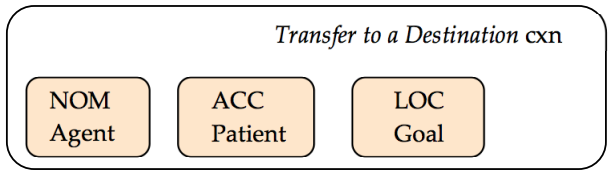

Diagram 7. Transfer to a Destination construction

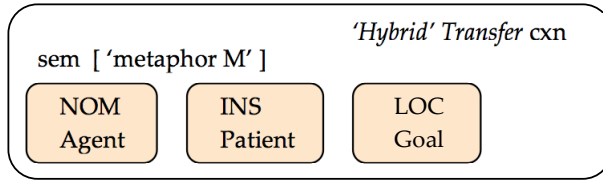

Diagram 8. Metaphoric Hybrid Transfer construction

The pictures only make explicit the finding that speakers inherently integrate particular kinds of metaphor in the structure of the hybrid construction (the metaphoric meaning is represented as part of the constructional semantics of the pattern), unlike with the basic structures, here represented in one of the forms in Diagram 7, which are not constrained in this way. What mechanisms are involved in the integration process is precisely one of the theoretical questions that is currently debated among the constructionists noted above.

A similarly conceived statistical analysis has been developed also in the study of Slavic aspect, tracking the grammatical profiles of Old Church Slavonic verbs, with the aim to assess the perennially controversial status of the aspectual distinction perfective-imperfective in OCS (Eckhoff and Janda 2013). The authors work with the hypothesis that a "statistical analysis of grammatical profiles should make it possible to sort verbs in a way that is relevant to aspect" (Eckhoff and Janda 2013: 5). Unlike the metaphor data, which work with argument structure constructions, the issue of aspect is focused on morphological constructions (inflectional forms), which so far have drawn much less focused attention among construction grammarians, with Slavic and non-Slavic data alike, and so the analysis makes a contribution even from this broader theoretical perspective pertaining to the scope of CxG. With respect to its value specifically for the Slavic facts, the approach tested by the authors introduces a replicable and verifiable method, which, as is shown quite convincingly, can be used to settle long-standing controversies by applying a statistical analysis. In this particular case, this new method corroborates the proposals of a purely qualitative analysis (Dostál 1954).

To summarize, the concept of constructional profiles constitutes a promising line of research in frequency distribution patterning, and there is continuing work that explores its potential in Slavic, cf. Sokolova and Lewandowski 2010 on Russian and Polish or Alexandrova and Sokolova 2015 on Russian. It would be nice to see the approach applied to other Slavic languages as well.

Finally, an area rich in issues and material that can benefit from using quantitative methods in sorting out the relationship between word meaning and constructions is the domain of synonymy and word meaning in general. In a corpus-oriented, usage-based approach, the studies that explore this semantic area examine the relationship between word meaning and the constructions in which a given word occurs, and exemplify an approach known as collostructional analysis (Stefanowitsch and Gries 2003, 2005). This approach provides a technique and conceptual framing for examining the degrees to which lexical items and constructional patterns attract or repel each other, hence predicting combinatorial properties of words and constructions as well as providing a deeper insight into the ways in which word meaning and constructional properties interact in actual, attested usage. Collostructional analysis focuses on the meaning of constructions (i.e., takes constructions as the point of departure) and examines how lexical profiles of concrete word tokens fit or do not fit a given construction, investigating the range and frequency of words that appear in the construction. This approach is taken, for example, in Divjak's work on Russian verbs (e.g., Divjak and Gries 2006; Divjak 2006).

Janda and Solovyev (2009) elaborate on this general idea by taking the meaning of words as the starting point and examine their (mis)matches with constructional profiles, defined as frequency distributions of a construction associated with a given word. This work thus addresses the question of how

common (frequent) a particular construction is for a given lexical item on the assumption (supported by psycholinguistic data) that each word is associated with a set of constructions, some of them preferentially so, some, on the other hand, exceptionally. Janda and Solovyev test this approach on the sets of lexical items used for expressing two particular concepts in Russian, sadness and happiness. Their study thus offers a quantificational validation ("empirical verification") of traditional lexicographers' classification of these synonyms and their relative groupings, but also advances the claim that the method focused on calculating distributional patterns can be taken as a measure of word meaning(s). I would suggest, though, that the most important contribution is the opening for an even broader consideration: the notion of constructional profile also sets up the question of why there is the specific attraction between individual synonyms and a particular set of constructions—what is it about the constructions that attract those items, and does their combination go even beyond a simple addition, resulting in metaphoric shifts or other semantic extensions? These possibilities are hinted at in Janda and Solovyev's conclusions.

In sum, the concept of constructional profiles as a tool for investigating the behavior of synonyms (and antonyms) has proven quite useful and revealing: it helps advance our understanding of the nature of collocability and provides a more sophisticated view of lexical relations in general, neither of which can be achieved by looking solely at the meaning of words. It is the company words keep that uncovers crucial patterns in the way native speakers understand and use words. This general approach also relates to Rakhilina's work commented on in section 3.1.1. (e.g., Rakhilina 2000; Rakhilina and Tribushinina 2011) in her focus on establishing the nature of the relationship between the inherent meaning of nouns and the constructions in which they appear.

3.4. Slavic Data in Fluid Construction Grammar

The fact that Slavic languages offer serious challenges that ought to be—and increasingly are—of interest to general linguists is only underscored by turning to Slavic data in testing artificial intelligence experimental models, which are designed to simulate the emergence of novel grammatical systems through computational simulations and, more specifically, through the use of routinized language games. The issue of emergence represents a major topic in present-day theorizing in general and it is certainly interesting to see how Slavic data can contribute in this research domain. The experimental program is based on fluid construction grammar (FCG; e.g., Steels 2011, 2012a, 2012b), which is a particular computational take on the basic tenets of CxG (and frame semantics), relying on constructions of various functional kinds as the basic grammatical unit for very complex multilayered mappings between form and

meaning. The program is driven by the interest in exploring the nature of meaning in grammar/grammatical categories and their emergence in the process of communication.

One of the topics that has been explored in this line of research is Russian aspect, which provides a particularly well-suited test case for several reasons: it is well known and thoroughly described; aspect in Slavic is encoded by affixes as part of the morphological structure of verbs and is thus marked obligatorily (unlike in, say, English or French); and the prefixation system is also sufficiently rich in encoding a number of Actionsarten. Using the FCG methodology, Gerasymova (2012) and Gerasymova et al. (2012) take the Russian aspectual system as a model for designing language evolution experiments that are supposed to model the ways in which language is created and evolves through interaction. Their experiments focus on simple pairs consisting of imperfective forms turning into perfective forms through prefixation, with the goal "to study communicative significance and expressive power" (Gerasymova et al. 2012) of this system. The experimental process consists of several steps necessary for operationalizing the system before using its components for the actual simulations. First, the actual, naturally occurring system is deconstructed into its constituent elements, which leads toward isolating the features that are necessary for learning, decoding (parsing), and producing such a system. Robotic experiments are then designed in order to simulate how such a system might arise from scratch through self-organization, which is driven by the desire of participating agents ("speakers") to successfully communicate in a cooperative interaction.

Without getting into the complicated technical details of the computations, the aspectual experiments can be roughly summarized as follows. The initial step involves a successful implementation of a Q&A game in which specific aspectual scenes are correctly conceptualized as encoding one or the other aspect. Subsequently, experiments are designed to test the learning and formation of a given aspectual form-meaning combination for agents (communicative partners) who do not posses a preprogrammed knowledge of the game in step one, and therefore have to figure out the system through sequences of trial and error. Overall, the simulation tries to mimic what is argued for in child acquisition literature (e.g., Tomasello 1995, 2003), namely, that learners proceed from concrete lexical items and lexically filled combinations to more schematic and generalized patterns until they arrive at a fully generalized schematic structure—in this case an appropriate morphological construction that encodes aspectual information.

Another topic that has attracted attention within FCG research is agreement in Polish (Höfer 2012), which involves a highly complex grammatical category with layers of irregularity at the morphological level. As noted earlier, construction grammarians have so far mostly shied away from dealing with morphological issues, the framework being originally designed for address-

ing the intricacies of syntactic patterning. However, complicated morphological systems, too, have to be learned by speakers, and morphological forms have to be adequately produced and interpreted in communication. It is, therefore, relevant to study such systems in detail and with the help of aiming for an efficient formalism that can unify a vast and often opaque grammatical territory. Höfer's goal in taking on the operationalization of the Polish declension system (plus the issue of the genitive of negation) is thus quite ambitious, but regardless of whether one is focused on computational issues as a goal in itself, the analysis that leads toward the formalism is useful and informative even outside of this particular program, as it can help in pointing out the general challenges for a constructional treatment of complex and highly irregular inflectional systems. The character of the Polish data serves as a great testing ground for devising a unified account of a system that not only requires the integration of morphological, syntactic, and semantic features (i.e., calls for a constructional approach), but also presents the complexities inherent in case syncretism and morphophonemic alternations in the stems, all of which is an integral part of the speaker's knowledge and, as such, must be fully accounted for.

4. Conclusions and Outlook

It is fair to say that it took a bit longer for CxG to turn up in the work of Slavic linguists—the original explorations having been motivated first by an interest in developing the framework beyond the focus on English and, to that end, using Slavic data as test cases (e.g., Dancygier 1997; Fried 1990, 1999, 2004). But a productive and growing crosspollination between this framework and Slavic linguistics is now a fact, as this article amply illustrates. It has been shown that CxG offers useful analytic tools for exploring the complexities of the relationship between form and meaning and a solid theoretical grounding for such explorations. In this respect, Slavic linguistics is being fruitfully enriched by new methodologies, by well-developed applications of theoretical frameworks based on new, cognitively informed conceptualizations of grammatical organization, and by the use of well-structured large repositories of linguistic data. All of this allows, among other things, a more focused and systematic investigation in areas that were traditionally just about impossible to study properly; this concerns especially the rich domain of spoken language and its own linguistic features.

However, the enrichment holds in the opposite direction as well: the constructional approach draws a number of relevant insights not just from Slavic data but also from the long and respected tradition of careful analysis which is in many ways compatible with the conceptual tenets of CxG. This connection is particularly visible in the diachronic analysis: examining patterns and paths of grammaticalization and constructionalization, i.e., phenomena which

involve processes of increased schematization, categorial shifts, or loss of autonomy of erstwhile lexical items, brings up questions that still await solutions. But the same affinity is increasingly manifesting itself in synchronic studies, in which construction grammarians can keep refining the framework by zeroing in on the linguistic details observed in Slavic languages.

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Charles University, Prague and Czech Academy of Sciences
Faculty of Arts
nám. J. Palacha 2
116 38 Praha 1
Czech Republic
fried@ff.cuni.cz