

# A frame-based approach to case alternations: the *swarm-class* verbs in Czech

MIRJAM FRIED\*

## *Abstract*

*This paper explores the complex relationship between the meaning of predicates and the morphosyntactic expression of their arguments, as manifested in the swarm-class alternations in Czech. One way of getting at the nature of the alternations is to take a frame-semantic approach, which allows us to introduce the notion of scene as an important factor in linking relationships. It is proposed that linking patterns are organized in a network of generalized scene types, each of which represents a particular role configuration structured in such a way that one of its roles can be singled out as the vantage point from which that event type is conventionally presented in a particular diathesis; the analysis argues for the notion of viewpoint as an event-structuring concept (distinct from discourse-based topicness) that is directly reflected in certain conventionalized linking patterns. The results of the investigation show that what may appear to be hard-to-predict variations in subject selection can be treated as instances of regular linking relations.*

*Keywords:* case alternation; linking; frames; semantic roles; constructions.

## **1. Introduction**

One of the central issues in the study of argument expression has been the predictability in pairing the right semantic role with the right syntactic function, with particular importance attached to the coding of grammatical subjects. There is now extensive literature on this topic, covering a wide range of data and presenting various analyses and theoretical perspectives (e.g., Fillmore 1968; Chafe 1979; Dixon 1979; DeLancey 1981; Williams 1981, 1994; Givón 1984; Foley and Van Valin 1984; Jackendoff 1987; Comrie 1988; Bresnan and Kanerva 1989; Verma and Mohanan

1990; Dowty 1991; Langacker 1991; Legendre et al. 1993; Bresnan 1994; Payne 1994; Lambrecht 1995; Levin and Rappaport 1995; Wechsler 1995; Van Valin and LaPolla 1997; Davis 2001), all seeking to identify the semantic or pragmatic correlate(s) of the privileged syntactic status associated with subjects. The underlying assumption is that subjects correspond to some kind of prominence in one or both of the other domains.

In this respect, regularly occurring alternations in argument expression constitute a particularly challenging task in mapping out the complex relationships between lexical semantics and morphosyntax, also known as linking. The focus of this paper is one such set of variations, partially exemplified by the familiar pairs of English sentences in (1) and (2):

- (1) a. The bees are swarming in the garden. (variant A)
- b. The garden is swarming with bees. (variant B)
- (2) a. The garlic reeked the strongest in the kitchen.
- b. The kitchen reeked of garlic.

The question of how to analyze similar pairs has been raised before (Fillmore 1968, 1977; S. Anderson 1971; Salkoff 1983; Jackendoff 1990; Levin and Rappaport 1995; Dowty 2000; Rowlands 2002) and although valuable observations have been made about the relationship between the A and B variants, they do not amount to a complete and cross-linguistically satisfying account of what motivates either the subject selection or the alternative patterning in general.

The analytic controversy can be summarized roughly as a conflict between two opposing views on the valence associated with these predicates. One view holds that the constituents headed by *bees* and *garden* are each assigned the same semantic role in both variants (Fillmore 1977; Davis 1996), while the other approach insists that each variant must represent a different set of roles (Dowty 2000). Dowty does not formalize his observations in terms of specific roles but does show that the meaning of both the subject and the locative is significantly different in each variant. I will argue that both approaches are correct in that each captures a different aspect of the complex relationship between A and B. By the same token, however, they both fail because neither can give a full account by itself. The main problem is that all these analyses, largely on the basis of English, concentrate on the behavior of a single participant, specifically on the issue of what licenses the subject coding of the locative argument in pattern B and what kinds of meaning shift the subject form manifests.

Salkoff's work stands apart from other proposals in several respects. Instead of centering his analysis on the verbs themselves, he carefully catalogues the semantic and syntactic features of the nominals (e.g., animacy, individuation, abstractness vs. concreteness, bare vs. modified nouns, etc.), the types of prepositions found in the oblique forms, and their combinatorial possibilities with different verbs. Some of Salkoff's findings about the nouns will be brought up in the present study, but I will not be concerned with that level of detail, beyond simply acknowledging that many, though not all, of his observations about English apply to the Czech data as well. However, the nominal-centered approach leads to particular claims about the role of the verbs in the alternations, and that relates more directly to the concerns of this paper. Salkoff shows that the alternations are potentially open-ended, not limited to a fixed list of predicates. That observation relates directly to the thrust of the present analysis, which will treat the alternations as conventionalized grammatical patterns that can accommodate the "use of existing words in syntactic environments where they had not previously entered" (Salkoff 1983: 288), thereby modifying their syntactic and semantic features in systematic ways.

On the basis of data from Czech and echoing Salkoff's approach, only on a more abstract level, I will show that *both* participants and their mutual relationship must be considered if we are to fully account for these alternations. The Czech material is particularly valuable in that the patterning (up to four variants) involves more than the run-of-the-mill problem of contrasting subjects vs. non-subjects or agent-like vs. non-agent-like roles and yet, the variants follow regular grammatical patterns that are motivated independently of the *swarm*-class predicates. In order to account for all four alternations, we must take a more discriminating view of what counts as prominent in argument expression.

My approach is framed by the following question, which is a paraphrase of Fillmore's (1977) formulation: what do speakers need to know about the participants in a particular event in order to know which of them, if any, is to become the grammatical subject? I submit that one of the things we may need to know is which participant, if any, has the status of a vantage point from which the event is presented; for the moment, let it be noted that I understand this notion as compatible with what has been labeled in literature variously as empathy (Kuno 1976, 1987), perspective (Daneš and Hlavsa 1978; Daneš 1985; Langacker 1991, 1993; Taylor 1995), viewpoint (DeLancey 1981; Daneš 1987), or vantage (MacLaury 1995). Viewpoint as an event-structuring concept is argued to be a potential semantic correlate of grammatical subjecthood,

distinct from the discourse category of topic. In this approach, *swarm*-class alternations become reminiscent of voice-like shifts and I will argue for this connection at the end of the paper, in a departure from other analyses of these alternations.

The proposal rests on the assumption that a successful account of linking requires the notion of generalized *scenes*, rather than addressing the linking associations one argument at a time, and that each scene type as a whole is associated with a conventional expression of its participants (cf. also DeLancey 1981, 1990; Fillmore 1982; Langacker 1991; Croft 1991; Kemmer and Verhagen 1994; Goldberg 1995, 2002; Dabrowska 1997; Iwata 2000; Davis 2001; Rappaport Hovav and Levin 2001 for taking event structure as an important factor in argument expression). In this paper, I will not be concerned with the technical details of formal representations, but I envision representing the linking relationships in the form of LINKING CONSTRUCTIONS as developed and applied within certain strands of Construction Grammar (Fillmore and Kay 1995: Ch. 8; Kay and Fillmore 1999; Fried 1999; Fried and Östman 2004). In establishing the scene-based semantic valences, I will use the Frame Semantics approach to lexical meaning (Fillmore 1982; Fillmore and Atkins 1992; Atkins 1994; Iwata 2000; Boas 2003; Atkins et al. 2003; Fillmore et al. 2003), in which linguistically relevant semantic information is structured in interpretive FRAMES.

The data used in this paper include utterances collected randomly from the speech of several Czech speakers, made-up examples, and data from the electronic corpus of present day Czech (Czech National Corpus), specifically from its SYN2000 section, which contains 100,000,000 words and represents a large variety of written texts (mostly current fiction, daily newspapers and other periodicals). The corpus examples I use are marked by their 'CNK' citation number and can be found, along with a large number of additional examples relevant to the topic at hand, at <<http://ucnk.ff.cuni.cz>>. The grammaticality judgments on the non-corpus data reflect both my native speech and that of other native speakers consulted.

The paper is organized as follows. Section 2 introduces the empirical focus of the paper, discussing the alternations found on the *swarm*-class predicates in English and Czech. Section 3 sketches out a network of event patterns with two built-in notions that underlie the proposed analysis: the notion of perspective as one motivator of semantic prominence and the possibility of role underspecification. Section 4 returns to the *swarm*-class alternations in Czech, illustrating the mechanism of valence specification for the purposes of linking. Section 5 concludes with a summary of the analysis developed in this paper.

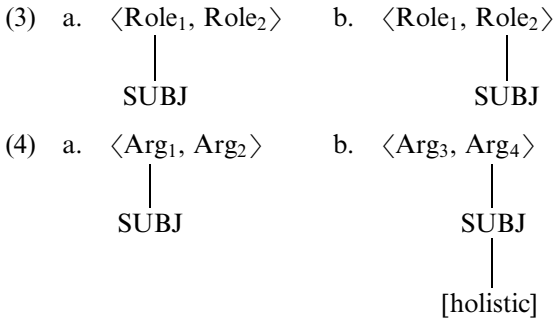
## 2. Case alternations as a linking problem

In the existing analyses of the English *swarm*-class alternations, one approach has been to emphasize role invariance, based on the observation that both A and B variants describe the same basic scene, which always consists of a location (*the garden, the kitchen*) and an entity which does something in that location, whether the doing is more of a physical activity (swarming) or inducing a state (reeking). The drawback of this view is that if the two formal variants are associated with the same set of roles, there is no way to predict the linking differences between A and B. On the face of it, we might be tempted to explain the change in form as shifts in discourse structure, much like the function served by the passive in English. The structural change could be seen as a device to reconfigure the distribution of topic and focus: the constituents *bees* or *garlic* would serve a topic role in the A variant, whereas the B variant would present the location as a topic. Subject selection would, then, correlate with this shift; Fillmore's (1977) analysis in terms of foregrounding seems consistent with such a solution: whichever of the two roles is foregrounded will become the subject. The trouble is that the foregrounding does not necessarily lead to topic-subjects. The possibility of forming both the A patterns above and the examples below shows that subject selection in these alternations cannot be tied directly to the topic function:

- (1) a'. BEES are swarming in the garden.
- (2) a'. GARLIC reeked throughout the house.

The nouns *bees* and *garlic* are not topics in (1a') and (2a'), as indicated by the small caps on the intonation peak associated with focus marking in English. Yet, both constituents are subjects.

Another possibility is to subscribe to the multiple-role analysis, which builds on the intuition that each syntactic variant reflects a difference in meaning that goes beyond shifts in discourse structure but is related to verb semantics. For example, S. Anderson (1971), in the context of transformational grammar, introduces the distinction between partitive and holistic interpretation of the locative element and asserts that a given interpretation is determined by grammatical relations (1971: 396). But since Anderson remains vague on how one can identify those verbs that "allow a holistic interpretation" (1971: 392), which is assigned by their subject but evidently is assumed to depend on verb semantics at least to some degree, it ultimately makes little difference whether we assume a single valence, schematically represented in (3), or two different valences, schematized in (4), as would be necessary for implementing Anderson's proposal:



For one thing, it is not clear what specific roles should fit the Role/Arg slots in either representation. But even if we settled on particular valences drawn from the standard inventory of roles such lists would not be very helpful in formulating any general constraints on subject selection. This is evident in Davis' (1996) HPSG-based proposal, where *swarm*-class alternations are briefly mentioned and quickly dispensed with as a type of locative alternations (more recent versions of his linking theory, in Davis 2001 and Davis and Koenig 2000, do not revisit this phenomenon). Davis formulates linking constraints on the basis of event types (transitive, patient-based, motion, location, containment), organized in inheritance hierarchies of feature-structures that connect specific proto-roles (e.g., actor, undergoer, state-of-affairs, property-bearer, figure, ground; the list varies somewhat in different versions of the theory) with the right syntactic arguments in an ordered argument list, presumably resulting in unique valences. However, the *swarm*-class predicates are assigned the argument structure  $\langle \text{Figure}, \text{Ground} \rangle$  and the difference in argument expression is stipulated in two linking constraints (Davis 1996: 44): one that links the first slot (i.e., subject) in an argument list to Figure and one that links it to Ground. Davis is vague on how these alternations work in general; the statement that “in the case of intransitive verbs of this class [i.e., locative] either the figure or the ground may be realized as the subject” (Davis 1996: 43) is the extent to which any motivation is given for the proposed constraints. It thus remains unclear which verbs of location can or cannot be expected to enter these alternations, how the non-subject argument in each variant gets its form, or in what sense the *swarm*-class predicates are verbs of location in the first place.

Further complications arise when we look beyond English. In the Czech examples below, (5a) and (5b) correspond to the two patterns found in English. But Czech also has a variant in which neither of the two arguments surfaces as a nominative NP (similarly in Serbo-Croatian, German, and Finnish). That variant is shown in (5c), which contains two oblique

constituents and the verb is in the impersonal, neuter form, not agreeing with anything in the sentence but not bearing any special morphology, either (I will ignore the fourth variant for now; it will be taken up in section 4.1).

- (5) a. *V kuchyni voněla*  
 in kitchen:LOC:SG:F give:off:fragrance:PPL:SG:F  
*skořice.* (variant A)  
 cinnamon:NOM:SG:F<sup>1</sup>  
 ‘CINNAMON smelled in the kitchen.’
- b. *Kuchyň voněla*  
 kitchen:NOM:SG:F smell:PPL:SG:F  
*skořicí.* (variant B)  
 cinnamon:INS:SG:F  
 ‘The kitchen smelled of cinnamon.’
- c. *V kuchyni vonělo*  
 in kitchen:LOC:SG:F smell:PPL:SG:N  
*skořicí.* (variant C)  
 cinnamon:INS:SG:F  
 ‘In the kitchen, there was the smell of cinnamon.’

As is generally recognized, each pattern is associated with a distinct interpretation, representing a slightly different construal of reality. For example, (5a) attributes direct causal effect to the cinnamon; the cinnamon has to be present in the house for this sentence to be true. In contrast, (5b) and (5c) do not imply any such directness; they are neutral with respect to this property. The interpretation of the location also varies: while the kitchen might be only partly affected by the smell in (5a) and (5c), the unambiguous implication of (5b) is that the kitchen itself is characterized by the smell. Put differently, (5a) has a distinct flavor of reporting a self-initiated process (cinnamon giving off its fragrance); (5b) resembles attributive statements in that a particular state (smell of cinnamon) is cast as a property of the kitchen; and (5c) has an existential quality in that it simply introduces the presence of a state (smell of cinnamon) in a location (the kitchen).

The C variant poses a challenge for existing treatments.<sup>2</sup> For one, discourse structure is marked positionally in Czech, with sentence-initial topic and sentence-final focus as the neutral configuration (I chose the word order in (5) simply for easier tracking of the case marking on each argument, not because any inherent value of the topic-focus relations in them). The nominative in (5a) is thus unambiguously a focal constituent, further supporting the argument that applies to the English sentences in (1a') and (2a'): the subject coding cannot be a function of topicality. Corpus

examples illustrating this dissociation are in (6a) for pattern A and (6b) for pattern B; the portions in parentheses contain the surrounding context.

- (6) a. (*vozili kočárky mezi zahrádkami,*)  
*v nichž se červenala*  
 in which:LOC:PL RF be:red:PPL:PL:N  
*jablka*  
 apple:NOM:PL:N  
 '(they pushed strollers among the gardens,) in which apples  
 were [showing] red'  
 [CNK 001-p1102s2]
- b. (*Na Malé Straně se dnes po osmé či deváté večer česky skoro  
 nemluví.*)  
*Američany se hemží*  
 American:INS:PL:M RF swarm:PRES:SG  
*přeplněná Malostranská*  
 overflowing:NOM:SG:F Malostranská  
*beseda, (divadélko, klub Rubín ...)* [CNK 001-p150s2]  
 beseda:NOM:SG:F  
 '(In Malá Strana nowadays, after eight or nine in the evening  
 hardly any Czech is spoken.) Swarming with Americans is the  
 overcrowded Malostranská beseda Café, (the theater, the  
 Rubín Club ...)'

The C alternative is even more striking in this respect since it shows that the absence of a nominative NP does not preclude the presence of a contextually bound entity: the sentence-initial obliques (such as *v kuchyni* 'in the kitchen' in 5c) can be topical elements. To further illustrate this point, consider the corpus example in (7), in which the instrumental NP *kandidáty* 'with candidates' is contextually bound and sentence-initial, while the locative PP *na pravé straně* 'on the right-hand side' is the focal element. This discourse structure has no effect on the form of either argument.

- (7) (*v nadcházejících volbách se v boji o hlasy voličů ... střetnou také  
 sdružení ...*)  
*Kandidáty se to hemží především na*  
 candidate:INS:PL:M RF TO swarm:PRES:3SG first:of:all on  
*pravé straně (komunálního politického spektra)* [CNK 094-p6s2]  
 right side:LOC:SG:F<sup>3</sup>  
 '(in the up-coming elections, the competition for voters will include  
 also civic organizations ...) Swarming of candidates occurs  
 especially on the right side (of the local political spectrum)'



The Czech data thus support S. Anderson's claim that there is no inherent connection between the changes in argument expression and shifts in discourse structure. But the Czech alternations also bring out the shortcomings of the holistic-partitive distinction on the locative argument. That distinction does not automatically offer any explanation for variant C. Even though the relationship between the partitive reading of the locative argument and its oblique form may still hold, it has nothing to say about why the remaining argument is not in the nominative, let alone why its case marking should be the same as in the B alternative. The Czech patterning shows that it is not enough to focus on the status and construal of the locative participant only. Instead, we must consider the entire pattern in order to address adequately the alternations, both with and without subjects. This, in turn, forces us to re-examine the role of semantic prominence in argument expression.

### **3. Generalized event patterns**

#### *3.1. Perspective and viewpoint*

One answer to assigning semantic prominence as a predictor of syntactic subjecthood has been to posit a universal role hierarchy, meant to apply across predicate types and across languages (e.g., Jackendoff 1972, 1990; Dik 1978; Foley and van Valin 1984; Nishigauchi 1984; Bresnan and Kaverna 1989; Grimshaw 1990; Dowty 1991; Van Valin and LaPolla 1997). The problem is that linear hierarchies of this kind tend to accord a special status to a particular semantic feature, such as animacy or volitionality, and this unnecessarily complicates the analysis of role combinations in which no obvious candidate for prominence occurs, most notably in various experiential or perception predicates. Given the known difficulties with such hierarchies (cf. Ladusaw and Dowty 1988; Engdahl 1990; Fillmore and Kay 1995; Davis 1996, 2001; Sells 1998; Davis and Koenig 2000), a more plausible alternative is offered by the assumption that semantic prominence may be a predicate-related phenomenon. If we derive the roles from relatively complete scenes, there is no need to spend energy on the ultimately impossible task of setting up a single hierarchy of relative prominence on which each role finds its natural place with respect to all other roles. The proposal developed in this paper is an attempt to flesh out the valence structure of predicates so that the distribution of the semantic privilege follows from a more general principle of organizing event types into an inventory of conventionalized patterns that apply throughout the grammar of a given language.

This is not to suggest that speakers do not attach any significance to specific semantic features and that any hierarchies that single out agentive

or animate or, for that matter, any other roles as prominent should be, therefore, rejected. I pursue the hypothesis that the truth is likely somewhere between the two extremes: while agentivity clearly plays an important role in subject selection in some languages, it cannot be a single, universal source of semantic privilege (cf. also DeLancey 1981). Specifically, I propose the notion of perspective for motivating the special status of certain event roles and suggest that establishing semantic prominence as reflected in morphosyntax is an issue of typological differences among languages. By PERSPECTIVE, I understand the speaker's assessment of the hierarchical relations among participants in an event (distinct from the participant's status in discourse), which leads to a particular construal of that event: one element is typically, although not necessarily, chosen as the most prominent one, while the rest serve as reference points (in a paraphrase of Taylor's 1995: 6 definition of this concept). The resulting construal thus represents a particular perspective, or "vantage", to borrow MacLaury's (1995) term. In fact, MacLaury's Vantage Theory seems particularly appealing in articulating and substantiating the cognitive motivations for alternate routes speakers take in naming the same "objective" piece of reality; but the cognitive salience of this general concept with respect to syntactic alternations has also been argued consistently and for a long time especially in Langacker's work (e.g., 1985, 1993). The notion of perspective as defined in this paper is thus akin to diathetic, or voice-like, phenomena (to be discussed further in sections 4.3 and 4.4): for some event types, there is only one way of configuring the relevant elements, but in others the arrangement may be relatively flexible, allowing speakers to select from several possible perspectives, depending on specific communicative intent. For representational purposes, I will refer to this participant status as VIEWPOINT.<sup>4</sup> To summarize, the terms are to be understood as follows:

- (8) PERSPECTIVE is the speaker's construal of a scene, resulting in a specific hierarchical organization of the scene participants.  
 VIEWPOINT is a perspective-based semantic correlate of morphosyntactic prominence, realized as nominative/subject.

The idea of perspective as an orientational structure has played an important role also in Fillmore's conception of structuring the lexical meanings of predicates. He offers a detailed discussion justifying the view that "messages can be divided into those [parts] that are 'in perspective' and those that are 'out of perspective'" (Fillmore 1977: 61) and explicitly attributes this structure to the domain of semantic roles. Fillmore's account uses the notion of perspective as a tool of lexical semantics: its job is to reduce the full inventory of frame-specific elements that are part of the

lexical meaning of a given predicate class (i.e., “individual roles”, such as buyer, seller, goods, etc.) to a specific subset of more abstract event roles such as agent, patient, etc., which is directly reflected in the syntactic organization of sentences; cf. the definition of ‘core’ elements in Atkins et al. (2003: 267–268), Iwata’s 2000 distinction between L-meaning vs. thematic core in his Frame Semantic analysis of verb meaning, or Goldberg’s (2002: 342) formulation in terms of profiling. This subset of event roles, then, constitutes a semantic VALENCE, which mediates the relationship between the complete background scene, structured by the frame, and the expression of its syntactically relevant participants. The now classic example of this process is the relationship between a COMMERCIAL TRANSACTION frame and the class of predicates, each of which covers—puts into perspective—only a part of the event (*buy* vs. *sell* vs. *pay* vs. *cost*, etc.); the most recent discussion can be found in Fillmore et al. (2003) concerning verbs of attaching.

The perspectivizing process is supposed to obey a Saliency Hierarchy, which operates with concepts such as humanness, change (of state or location), definiteness, and totality (Fillmore 1977: 78), but I will not pursue this aspect of the linking relationship any further. I am concerned with the relationship between the event roles as the intermediate categories and the corresponding morphosyntactic expressions. If, by imposing a perspective, a word idiosyncratically delimits a particular aspect of a larger, more elaborate scene, a similar function can be attributed to the valences as well, only in a more general sense. We can think of the valences as sets of generalized perspectives in that each valence (i) represents a particular configuration of the most salient aspects of a larger scene of a certain *type* and (ii) designates a specific point of view from which a given event type is presented in a specific morphosyntactic pattern (active, passive, or other types of diathesis). Thus, each event pattern, in the form of a semantic valence (enclosed in angle brackets < > in Figure 1), has the potential to single out one role as the viewpoint which, in

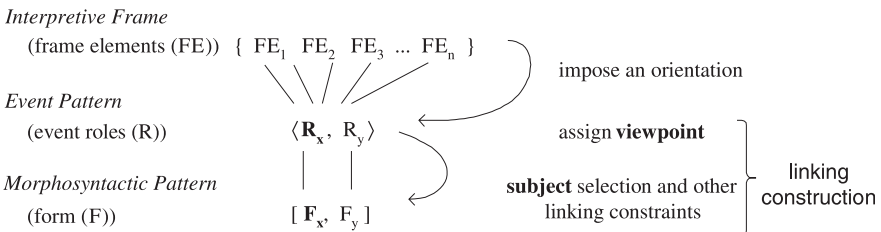


Figure 1. *From lexical meaning to argument expression*

turn, can be taken as a conventionalized correlate of syntactic prominence. Overgeneralizing slightly, the essence of this approach is captured in Figure 1, showing a syntactically two-place predicate as an example. In Construction Grammar, the conventionalized association between event roles (in semantic valences) and their grammatical expression constitutes a linking construction.

Although I will not be concerned with the exact representations of linking constructions in this paper, I will discuss some of their properties in more detail in section 4.3. First I will elaborate on the inventory of event roles and the assignment of the viewpoint status.

### 3.2. *Event roles*

In keeping with approaches that classify event roles into two major sets (Talmy 1985; Culicover and Wilkins 1986; Wilkins 1987; Jackendoff 1987, 1990; Pinker 1989; Croft 1991; Levin and Rappaport 1995; Davis and Koenig 2000), I assume a small inventory of semantic valences representing speakers' conceptualizations of two basic types of events—causal and spatial—which include minimally the valences in (9a–c) and (9d), respectively, as their prototypical representations. The list in (9) is not meant to be exhaustive; it merely sets up a basic and, I assume, universally available inventory of scene types each of which can spawn subtle modifications, be elaborated on or combined in composite event patterns, etc.

- |        |                        |  |
|--------|------------------------|--|
| (9) a. | Action scenes          | <INITIATOR>                              |
| b.     | Befalling scenes       | <PATIENT>                                |
| c.     | Transitive scenes      | <INITIATOR, PATIENT>                     |
| d.     | Motion/Location scenes | <THEME, SOURCE, GOAL,<br>PATH; LOCATION> |

These abstract patterns may correspond directly to particular predicates, constituting part of their conventional lexical meaning. However, the *swarm*-type alternations provide evidence that these patterns may also exist as independent, abstract grammatical entities (i.e. constructions), which can become associated with predicates whose lexical meaning does not represent those event types in a direct way (cf. also Goldberg 1995).

The spatial and causal valences are cross-classified along two dimensions: one involves the transitive/intransitive distinction and the other is based on the notion of directedness. Reference to the former puts into a natural class the intransitively used INITIATOR and PATIENT with the THEME role, which also has two readings—“unergative” THEME vs. “unaccusative” THEME—distinguished, roughly, along intentional involvement: present in the former, absent in the latter. Thus, action, befalling,

and motion/location valences form a natural class of intransitive event patterns in opposition to transitive events. Reference to directedness provides a conceptual connection between transitive and motion/location scenes. The idea of explaining the mapping habits of specific event roles in terms of points along directed causal chains is most prominently associated with the work of Croft (1991, 1994). He has argued forcefully that transitive events can be conceptualized as having a beginning and end, whereby the transmission of force from entity A to entity B parallels the inherent directionality of motion events (change of location from point A to point B). Arguments in favor of establishing such a relationship have been presented in a number of other studies as well, both on the basis of morphosyntactic evidence (J. Anderson 1971, 1977; Fillmore 1977; DeLancey 1981, 1984; Bickel 1999) and language acquisition (Clark and Carpenter 1989).

We can, then, think of the basic valences in (9) as forming an overlapping network in which the relationship between the causal and spatial event types is mediated by a very general pattern which abstracts away from the specifics of causation vs. motion. It represents a semantically underspecified scene in which two entities are in an asymmetrical mutual relation such that one entity (START) precedes the other (END), spatially, temporally, or causally. The two endpoints do not correspond to any traditional semantic roles; they simply provide a conceptual link between the endpoints in the motion and transitive valences: SOURCE and INITIATOR are different construals of a general starting point, while GOAL/PATH/LOCATION and PATIENT are different construals of a general target point. THEME, as an entity that moves or is located, belongs to neither of these clusters: this role is defined relative to one (or both) of the endpoints (SOURCE and/or GOAL), not coinciding with either.

The network is summarized in Figure 2. The underspecified valence is enclosed in the rounded rectangle in the middle, dividing the horizontal plane into the spatial layer at the top and the causal layer at the bottom. The hollow arrows indicate the possible interpretations of START and END in each layer.

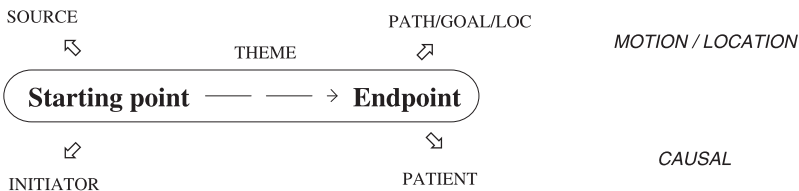


Figure 2. *Conceptual link between the spatial and causal event patterns*

Finally, let us note that the schematized events are internally structured in that not all roles are always essential in order to minimally model a given event type. For example, we can draw a dividing line between INITIATOR, PATIENT, and THEME on the one hand and SOURCE, GOAL/LOCATION, and PATH on the other: the former must be listed in the valence, while the presence of the latter depends on individual predicates. More specifically, an action is impossible without an INITIATOR, a transitive event requires both INITIATOR and PATIENT, a befalling event cannot take place without a PATIENT, and motion or existence presuppose a participant that moves or exists (THEME). The indispensability thus gives an a priori more prominent status to these three roles, making them all good candidates for serving as a conventionalized viewpoint. To some degree, this classification may overlap with Levin and Rappaport's (1995) more specific semantic notion of "immediate cause": it is the INITIATOR, PATIENT, and THEME, but not the SOURCE or GOAL/LOCATION roles, that can be conceptualized as immediate causes, either external or internal.

For the purpose of the *swarm*-class predicates, this preliminary hierarchy is sufficient with respect to the distribution of the viewpoint: we can assume that the special status will fall on one of the three indispensable roles. This rough division does not address directly what should happen in transitive patterns but I prefer to postpone further thoughts on this until section 4.4, after first demonstrating how the proposed network of roles and the viewpoint-based prominence can help in understanding the *swarm*-class alternations. For now, let us note that Czech structures its INITIATOR-PATIENT patterns in the progression from starting points to endpoints.

#### 4. *Swarm*-class alternations in Czech

##### 4.1. *One frame, multiple valences*

In order to justify the event patterns manifested by the *swarm*-alternations, we must first consider the semantics of these predicates. They all can be classified as verbs of appearance in the sense of 'appealing to the perceptual capacity of sentient beings'. In Czech we find verbs such as *vonět* 'smell sweetly', *smrdět* 'stink', *blýskat se* 'flash', *svítit* 'give off light/be lit', *zářít* 'beam', *lesknout se* 'glisten', *ozývat se* 'resonate', *bublat* 'gurgle', or verbs derived from color terms, such as *modrat se* 'give off/be blue', *červenat se* 'give off/be red', etc. The presence or absence of color, light, smell, sound, or the visual effect of a type of movement (*hemžit se*, *rojít* 'swarm')<sup>5</sup> are meaningful only to the extent that they can be perceived as such by somebody, using the perceptual clues they offer (visual,

olfactory, auditory). This classification is consistent with Dowty's (2000: 115–117) observations about *swarm*-class predicates in English and French. His careful explication of the perceptual properties of these predicates applies directly to the Czech data as well, with one exception: Czech does not include verbs that explicitly indicate abundance (the equivalents of *abound*, *be rich/rampant with*). I take it for granted, then, that the *swarm* usage can be described as expressing a 'located sensory effect of a particular kind' and that the basic situation, or the background scene, common to all three formal variants involves the appearance *and* perception of (a kind of) movement, color, smell, light, or sound in a location.

In Frame Semantic terms, the speakers' knowledge of all these semantic details is organized in a network of frames. A frame provides schematized information about the scene associated with a given expression, including the scene's participants, props, and any idiosyncratic semantic features. However, entire classes of lexical items may be inter-related through a more general background scene whose defining properties are profiled, or perspectivized, in various ways by individual linguistic expressions, which simply highlight specific aspects of the general scene.

With respect to the *swarm*-class predicates, it is plausible to assume that their lexical representation makes reference to a background frame that is conventionally associated with perception and experiential predicates in general. This frame, which I will provisionally label SENSORY EXPERIENCE, must contain minimally three elements: a perceiver, an entity that triggers the sensory effect (= stimulus), and a place in which the perception holds. The frame contains other kinds of information as well, such as the perceptual modality, scale, degree of perceptual complexity, etc., but those details are not crucial for the immediate purposes of this paper. I will not present specific arguments to support this analysis, but some discussion of how such a frame can be structured and how different predicate classes encode different subsets and configurations of the frame elements, highlighting different aspects of an experiential event, can be found in Atkins' (1994) analysis of English verbs of perception and Fried's (2004) analysis of special experiential patterns in Czech.

It is an idiosyncratic feature of the *swarm*-class verbs, rather than a property of all Czech verbs of perception, that the perceiver is typically (though not exclusively) the speaker and as such remains unexpressed (cf. Langacker's 1985 discussion of the dual role of speech participants as both observers of a scene and elements participating in that scene, and Fillmore's 1976 notion of contextualization).<sup>6</sup> However, to conclude that the valence associated with these verbs, therefore, consists of, say, SOURCE (as the trigger of perception) and LOCATION would not be enough to identify multiple linking possibilities. In addition to establishing the

general background scene, the two arguments that are in the valence must be configured in terms of particular construals of—or perspectives on—that background scene, which, in turn, is reflected in the case marking.

Drawing on the inventory of basic event types listed in (9), we can easily rule out the transitive pattern as a possibility, on both semantic and syntactic grounds: the *swarm*-class predicates clearly are not transitive semantically (discussed also in Langacker 1987), the case marking does not fit the typical transitive pattern (Nom-Acc), and the predicates do not passivize. But they are not motion predicates either, at least not in any direct sense; Dowty (2000: 114) makes this point explicitly in ascribing to these verbs the semantics of a “space-occupying ‘entailment’” or “movement within”, rather than change in location. But even if we opt for a locational analysis, responding to the static nature of appearance semantics, we still do not have any basis for predicting the three-way case marking alternation and the attendant semantic differences. In fact, none of the basic patterns can provide a straightforward answer: the characteristic flexibility in argument expression of these verbs implies that the semantic specification of each argument must be somewhat vague in order to allow for formal alternations, while simultaneously preserving the semantic relatedness of all attested variants. This points to the possibility that the valence of these verbs is lexically underspecified, marking the place participant only as an END(point) and the stimulus only as a START(ing point). If we then follow the network of event types sketched in Figure 2, we see that the START role can be conceptualized either as SOURCE (in the spatial sense) or as INITIATOR (in the causal sense), while END can alternate between LOCATION and PATIENT. The alignment between the shared frame elements and the distinct scene types captured in the full valences gives us four possible interpretations of the underspecified valence: <SOURCE, LOCATION>, <SOURCE, PATIENT>, <INITIATOR, LOCATION>, and <INITIATOR, PATIENT>; the inherently non-dynamic lexical meaning of the *swarm*-class verbs is incompatible with any GOAL or PATH-like reading of the END role and valences containing those roles are thus automatically excluded.

These relationships are summarized in Figure 3. The rounded rectangle at the frame level indicates which of the frame elements of the background scene are “in perspective” in Fillmore’s (1977) sense; those participants are associated with the single, underspecified valence <START, END> (enclosed in a rectangle) without any inherently fixed viewpoint. The specific construals of the relationship between START and END are filled in when these predicates unify with one of the available linking constructions (four, in this case), whose job it is to (i) fill in the necessary semantic detail for each role, including viewpoint assignment, and (ii) align each role with the corresponding form. Thus patterns (a), (b), and (d) all



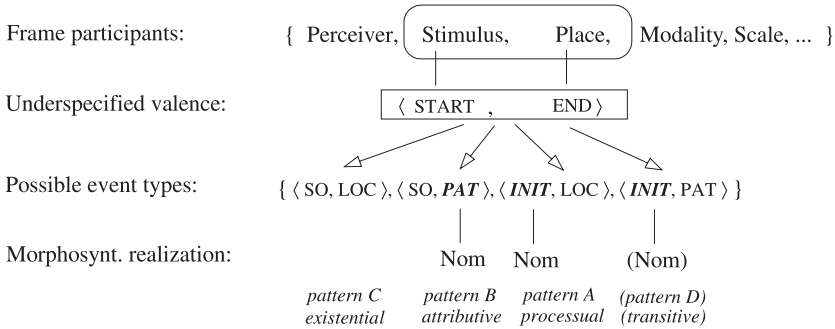


Figure 3. Construals of a shared background frame

contain a viewpoint-marked role (INITIATOR or PATIENT), indicated by the italics, but neither role in pattern (c) can be associated with the special status; recall from section 3.2 that viewpoint in motion/location is normally the THEME role.

The examples in (10) below demonstrate that the four-way alternation available in the network of roles is actually attested in Czech: (10a–c) repeat the three examples initially shown in (5), while (10d) adds an instantiation of the transitive pattern. For now let us just note that variant (d) differs from the other patterns in two respects: it is extremely rare (limited to two verbs of smelling) and it shows obligatory prefixation on the verb, illustrated by the prefix *pro-* in (10d). Patterns (a)–(c) have no such requirement, as indicated by the parentheses around the optional prefix *za-* in (10a–c). More will be said about the prefixation in a moment.

- (10) a. Processual:  
*V kuchyni (za)voněla*  
 In kitchen:LOC:SG:F (PF:)give:off:fragrance:PPL:SG:F  
*skořice.*  
 cinnamon:NOM:SG:F  
 ‘CINNAMON smelled in the kitchen.’
- b. Attributive:  
*Kuchyň (za)voněla*  
 kitchen:NOM:SG:F (PF:)smell:PPL:SG:F  
*skořicí.*  
 cinnamon:INS:SG:F  
 ‘The kitchen smelled of cinnamon.’
- c. Existential:  
*V kuchyni (za)vonělo*  
 in kitchen:LOC:SG:F (PF:)smell:PPL:SG:N

*skořící.*

cinnamon:INS:SG:F

‘In the kitchen, there was the smell of cinnamon.’

d. Transitive:

*Celou*

*kuchyň*

*provoněla*

whole:ACC:SG:F kitchen:ACC:SG:F PF:smell:PPL:SG:F

*skořice.*<sup>7</sup>

cinnamon:NOM:SG:F

‘The whole kitchen was filled with the smell of cinnamon.’ (lit. ‘be–smell’)

The scene-based conception of linking options as distinct construals of causal chains satisfies several goals. First of all, it shows that viewpoint-based prominence can be taken successfully as a semantic correlate of syntactic prominence, accommodating the contributions of both the “role invariance” (all variants have the same valence) and the “role diversity” (each variant has a different valence) hypotheses reviewed at the beginning. The presence of a common background scene in all of the formal patterns is ensured by allowing a single (underspecified) valence to be associated with the entire predicate class, which, in turn, is delimited by the shared frame structure. At the same time, multiple instantiations of the shared valence, each representing a different event type with a concomitant shift in viewpoint, account for the formal variants, including subject selection differences.<sup>8</sup>

Secondly, by relating each variant to a specific event pattern, the linking relationships capture the subtle differences in the overall interpretation of each alternation. The valence <SOURCE, LOCATION>, instantiated in (10c), is semantically the most neutral one in that there is inherently no commitment to either participant as the more prominent one. The result is a distinctly existential reading (pattern c): (10c) simply reports the presence of a sensory effect in a place, without imposing any viewpoint. In contrast, each of the remaining valences presents the two participants from a specific perspective. The valence <INITIATOR, LOCATION> in (10a) takes the view of, and thus gives prominence to, the stimulus participant; the result is a process-like casting of the scene, characteristic of pattern (a). Conversely, the valence <SOURCE, PATIENT> in (10b) gives prominence to the place and creates the effect of a befalling event, which is characteristic for pattern (b): an entity (place) is attributed a distinctive property, namely a sensory effect generated by the stimulus and thoroughly affecting the place.

Note that this patterning is consistent with Salkoff’s observations and also corroborates Dowty’s (2000) description of the English variants A

and B. For one, Dowty demonstrates that the locative in variant B does more than just identify a location in which a perception takes place (this is also compatible with Langacker's 1987 setting-subject analysis whereby an inherent setting, the locative argument, is elevated to the status of a "clausal figure"). Moreover, it is true for both English and Czech that the difference between nominative vs. oblique coding of the stimulus participant captures the difference between an individuated agent (i.e., conceptualized as a direct trigger of the event) in the former vs. an unquantifiable secondary agent (a mere instrument) in the latter. This distinction carries over into the pattern C as well: its existential flavor goes hand in hand with the lack of commitment to present either participant as highly individuated.

Finally, the valence  $\langle \text{INITIATOR, PATIENT} \rangle$  in (10d) implies a semantically transitive event, in which the stimulus is not only the viewpoint, but is also cast as an entity capable of fully affecting another participant (place). It must be stressed that describing (10d) as transitive does not depend on the Nom-Acc marking. A good fit between the transitive (affective) construal and the lexical semantics of the *swarm*-class predicates should be very unlikely, and it is precisely this inherent semantic incompatibility that helps explain both the extremely low incidence of variant D and the morphological marking on the verb. Many of the *swarm*-class predicates actually signal their unavailability for the transitive pattern even formally, being reflexive verbs (*modrat se* 'be blue', *hemžit se* 'swarm', *ozývát se* 'resonate', etc.). I have no good explanation for what makes some verbs of smelling capable of reconciling the clash, but it is no coincidence that even the verbs that do allow the transitive reading cannot do so without changing their morphological shape, through prefixation. The primary function of the Czech verbal prefixes is aspectual: they mark perfectivity, presenting an event as completed, or at least having a distinct boundary. When attached to transitive verbs, they reinforce the sense of full affectedness of the PATIENT. Consequently, a place participant cannot be cast convincingly as a transitive PATIENT (i.e., an entity acted upon by a causer) without the additional help of a perfective reading; alternations of the kind *Californians like to shop Oregon/in Oregon* are not possible without added prefixation on the verb. This behavior is also consistent with the fact that English-like passive targets most naturally perfective verbs: passivization is a semantically restricted process in Czech, applicable only to strongly transitive verbs (cf. *bylo naplněno* '[it] was filled' vs. *\*bylo slyšeno* '[it] was heard'; both *naplnit* 'fill' and *slyšet* 'hear' take transitive case marking in active sentences). However, perfectivity is not a general property of transitive verbs in Czech; the transitive valence in (9c) is equally compatible with imperfective and perfective

stems. The obligatory prefixation in (10d) is an idiosyncratic feature of variant D, which casts an inherently non-transitive event as a manipulative one and the prefix thus functions as a necessary bridge between the event type imposed by the <INITIATOR, PATIENT> valence and the lexical meaning of the predicate.

This analysis is further supported by the choice of a prefix. While all of the prefixes always mark perfectivity, most of them also contribute specific semantics; some, however, can be semantically empty. The prefixes that appear in D must be of the semantic variety; they specify the degree or nature of the effect, always indicating that one entity (place) is affected by the overwhelming presence of another entity (stimulus). The prefix *pro-* in (10d), for example, is associated with a meaning that can be glossed as ‘through, thoroughly’, independently of the *swarm*-class predicates, and it is one of the prefixes that never mark just aspect. This prefix cannot occur in (10a–c). In contrast, the prefix *za-* is one of those that can be semantically empty. Its contribution in (10a–c) is purely aspectual: its presence indicates a one-time occurrence with definite temporal boundaries, while its absence indicates either a process taking place over time or a habitual occurrence.

The marginality of the transitive reading also shows that the unification with a linking construction is constrained by predicate semantics. This should not be wholly surprising, given the fact that linking involves a unification of two kinds of scenes: a specific scene inherent in the verb meaning and an abstract scene *type* represented by the linking construction. There must be enough compatibility between the meaning of the predicate, defined and structured by its frame, and the generalized event type that represents the semantic pole of a given linking construction, otherwise the unification fails (unless it can be propped up by additional morphosyntactic devices, such as the prefixation in 10d). Thus, we can motivate the claim that what is unusual is the fact that some *swarm*-class verbs allow variant D at all, rather than the fact that most do not.

The partitive-holistic contrast does not get lost in this account either. However, instead of treating the distinction as a function of a subject vs. oblique contrast (S. Anderson’s proposal), it is taken as a (possible) consequence of a given semantic valence. This view has a better chance of accommodating the complexities of the material pointed out by Salkoff (1983: 322, Fn. 15). He observes, for example, that the holistic vs. partitive interpretation may often depend on particular referents of either argument, citing instances such as (11). The oblique locative phrase in (11a) cannot be interpreted as delimiting a part of a larger region; instead, its reading is just as holistic as with the corresponding subject form in (11b):

- (11) a. Strange hypotheses swarmed in Max's head.  
b. Max's head swarmed with strange hypotheses.

Salkoff further notices that the interpretation of the oblique locative may be manipulated by the kind of preposition we use. Thus the preposition *on* in (12a) may imply a partitive reading of the oblique phrase, distinct from the nominative in (12b), while *over* removes any meaning difference between (12a) and (12b):

- (12) a. Bugs swarmed on/over the tree.  
b. The tree swarmed with bugs.

Examples of this kind suggest that while the nominative form might have a relatively strong claim to a holistic reading in B,<sup>9</sup> the interpretation of the oblique form is far more open and subject to additional semantic factors, including the meaning contributed by the preposition. In the present proposal, the holistic interpretation is a potential consequence of the event construal in which the place participant is cast as an affected entity (PATIENT in the present terminology) in a befalling event, rather than as a LOCATION in an existential or processual construals. Importantly, when the holistic vs. partitive interpretation is just potentially present in the type of an event role, it follows that the reading in a particular construct can be shifted in either direction, depending on specific lexical items (certain prepositions, nominals, adjectives, etc.) that contribute additional semantic information which may either reinforce the inherent potential for a holistic or partitive reading, or suppress it.

#### 4.2. *Czech case marking*

The Czech alternations evidently involve more than just alternative coding of the locative, and if we focused only on that one participant we would miss important generalizations both about the behavior of the *swarm*-class verbs as such and about their relationship to the rest of the Czech grammar. In particular, case assignment in all four patterns in Czech remains unaddressed in the existing analyses; those were developed almost exclusively on the basis of English, where the role of morphological case is not an issue and the alternations do not extend beyond two variants. Yet, the attested case marking is by no means unpredictable or even idiosyncratic to *swarm*-class verbs but reflects regular linking relationships that hold throughout the Czech grammar. It is an acknowledged fact that case marking in Czech is largely semantic and it is not clear how the existing linking models, whether built on predicate decomposition or role lists, can accommodate the four-way alternations, without having to simply list four different predicates that just happen to

have similar meaning. The approach advocated here motivates the attested patterns in a transparent way. It would be outside the scope of this paper to lay out the alignment patterns in all detail, but it is worth pointing out that the *swarm*-class alternations correspond to role configurations commonly attested elsewhere.

First, LOCATION is generally linked to various prepositional phrases headed by semantically appropriate prepositions. Variant A thus contrasts with D in the way each of them casts the role of the place: a simple location in the former and an affected entity in the latter. Variant D displays the regular Nom-Acc marking of all transitive events, while variant A (Nom-PP) resembles the pattern of action predicates, whose single argument is in the nominative but which can take a location as an adjunct. This similarity goes as far as allowing the place to be optional with some of the *swarm*-class predicates, under certain conditions.<sup>10</sup> The action-like analysis of variant A also offers a simple explanation for the fact that this reading does not allow the addition of a cause-specifying adjunct, in contrast to other, seemingly similar verbs that do. Compare the two examples in (13) below. The verb *zblednout* ‘turn pale’ in (13a) represents a befalling event type, in which the nominative-marked argument is semantically <PATIENT>; in contrast, (13b) shows variant A of the verb *černat se* ‘give off blackness’.

- (13) a. *Pavel*                                    *zbledl*                                    (*zlostí*).  
 Paul:NOM:SG:M    turn:pale:PPL:SG:M    (anger:INS:SG:F)  
 ‘Paul turned pale (with anger).’ (i.e., because he was angry)
- b. *Borůvky*                                    *se na keřiku*  
 blueberry:NOM:PL:F    RF    on    bush:LOC:SG:M  
*černaly*                                    \**zralostí*.  
 black:PPL:PL:F    ripeness:INS:SG:F  
 ‘Blueberries were black on the bush from ripeness.’ (i.e., because they were ripe)

In (13a), a cause of someone’s turning pale can be added, with the case marking of an indirect cause (plain instrumental). A similar adjunct is prohibited in (13b) presumably because the valence associated with A casts the blueberries as the cause of the blackness and cannot, therefore, accommodate yet another cause participant. Note further that animacy is irrelevant here.

The attributive variant B resembles agent-demoting constructions, nominal predicates in copular structures, and verbs of the befalling type exemplified in (13a) above. Consider the set in (14) that shows a periphrastic passive in (14a), a copular construction in (14b), and variant B of two *swarm*-class verbs in (14c) and (14d):

- (14) a. *Muž*                      *byl*                      *přepaden*  
 man:NOM:SG:M    be:PPL:SG:M    assault:PASS:SG:M  
 (*bandou*                      *chuligánů*).  
 (horde:INS:SG:F    hudlum:GEN:PL:M)  
 ‘The man was assaulted (by a gang of hudlums).’
- b. *Místnost*                      *byla*                      *dost*  
 room:NOM:SG:F    be:PPL:SG:F    enough  
*prostorná*.  
 spacious:NOM:SG:F  
 ‘The room was fairly spacious.’
- c. *Místnost*                      *páchla*                      (*cigaretovým*  
 room:NOM:SG:F    stink:PPL:SG:F    (cigarette:ADJ:INS:SG:M  
*kouřem*).  
 smoke:INS:SG:M)  
 ‘The room stank (of cigarette smoke).’
- d. *Keřík*                      *se*                      *úplně*                      *černal*  
 bush:NOM:SG:M    RF    completely    black:PPL:SG:M  
 (*borůvkami*).  
 (blueberry:INS:PL:F)  
 ‘The bush was completely black (with blueberries).’

In all four examples, the nominative marks a patient-like entity, the overall flavor of the sentences is stative, and if a cause of the state is expressed, it is consistently coded in the plain instrumental, which in Czech is the standard form of demoted agents, instruments, or indirect causes.

Variant C is related to a number of nominative-less constructions that report the existence of experiential states. Some of them require just an experiencer in the dative (marking special, indirect affectedness in Czech, discussed in Fried 1999), as shown in (15a); notice also that the event is conceptualized as a kind of (metaphorical) motion toward a passive target. Some predicates may express both the experiencer and a location (15b). The common denominator in all of these examples is the lack of a particular viewpoint, including the *swarm*-class example in (14c).

- (15) a. *Přišlo*                      *mu*                      *nějak*                      *mdlo*.  
 come:PPL:SG:N    3SG:M:DAT    somehow    faintly  
 ‘He felt kind of faint.’ (lit. ‘came to him faintly’)
- b. *Zvonilo*                      *mu*                      *v*                      *uších*.  
 ring:PPL:SG:N    3SG:M:DAT    in    ear:LOC:PL:F  
 ‘There was ringing in his ears.’ (lit. ‘rang to him in ears’)
- c. *v očích*                      *mu*                      *blýskalo*  
 in eye:LOC:PL:F    3SG:M:DAT    flash:PPL:SG:N

*hrdosti*                    *i*        *vzrušením*  
 pride:INS:SG:F    also    excitement:INS:SG:N  
 ‘there were flashes of both pride and excitement in his eyes’  
 [CNK 001-p63s3]

Variant C differs from the other existential constructions only in the presence of the source of the state (which is optional in 15a, b). However, the stimulus participant is not marked as prominent in the existential pattern, hence the use of the instrumental; it is present here for the same reason it is used in variant B.

These relationships and general role configurations are surely just as significant in the grammar of Czech as subject selection principles, and an adequate linking theory must have provisions for all of them. In fact, the view developed in this paper also allows for a meaningful comparison between the way Czech and English choose to express the multiple event structures that are available to both languages. If we accept the hypothesis of an iconic relationship between viewpoint and grammatical subjecthood, the fact that English does not have the literal equivalent of pattern C is simply a function of its particular type of grammar. There is nothing fundamentally unusual either about the nominative-less expression in Czech or about the corresponding nominalization in English, such as in (15c). Each form represents a different strategy for coping with an unstructured valence. In Czech, the absence of a viewpoint need not lead to any further manipulation of the sentence structure. English, on the other hand, requires a syntactically prominent constituent in every sentence, albeit just a formal place-holder, and therefore must use a special construction to supply it in the absence of a viewpoint-marked argument. In this case, the special form is a nominalization of the main verb in an existential *there*-construction. Notice that the English equivalent, awkward as it may be, can occur only with the expletive subject *there*, not with *it* (*\*It flashed of pride and excitement in his eyes*). Rather than being an inexplicable quirk, this restriction is consistent with the presentational (in contrast to identificational) flavor of existential patterns (cf. Lakoff 1987 on English *there*-constructions).

The nominative in Czech is thus semantically more restricted than the English subject (at least in its viewpoint-marking function), as evidenced by predicates that do not assign any inherent viewpoint: the lack of semantically determined nominative does not necessitate the insertion of any semantically empty alternative. Put differently, the use of the nominative as a marker of a purely syntactic relation does not spread to configurations in which there is no viewpoint to be expressed (this applies to all the examples in 15).



#### 4.3. *Diathesis vs. constructional polysemy*

A fundamental feature of the proposed linking is the view that argument expression reflects construal of reality based on speakers' understanding of events. A network of abstract event types provides semantic generalizations that have regular and observable associations with morphosyntactic patterning on the one hand and with conceptual structures reflected in lexical meaning on the other. The proposal argued for in this paper adds two more analytic tools needed in linking. One is the notion of perspective, expressed through the viewpoint status of a particular event role and used as an additional organizational principle that helps in formulating sufficiently general and still semantically motivated linking constraints. The other is the possibility of role underspecification.

The notion of viewpoint offers an experientially grounded and cognitively salient motivation for the commonly accepted observation that agents, themes, and intransitive patients are most strongly correlated with syntactically dominant status; I suggest that it is because they all represent naturally salient viewpoints in the event types in which they play a role (rather than because of their inherent semantics, necessarily). At the same time, it follows from the present model that a viewpoint as a grammatically encoded notion is not universally obligatory. Finally, it is in the nature of a viewpoint that it can be further manipulated for various communicative purposes, resulting in alternative perspectives and linguistically manifested in shifts in diathesis (cf. Babby's 1998 broad conception of diathesis, which has a long tradition in Slavic linguistics).

Role underspecification is based on the hypothesis that the level of semantic detail which individual predicates pass onto morphosyntax may vary, ranging from very narrowly specified valences to relatively broadly defined ones, depending on the predicate. The *swarm*-class verbs represent an extreme case in that both roles in the two-argument valence are underspecified, but the same process could involve one or the other endpoint only, or simply not apply at all. For example, underspecification on *START* might apply to alternations in a subclass of transitive verbs illustrated by the Czech sentences in (16) below, where the first argument of the verb *ovanout* 'to make sb. feel air blowing' alternates between a nominative *chlad* 'coolness' (16a) and an instrumental *chladem* 'by coolness' (16b), expressing the difference between direct and indirect causation, respectively. This suggests the valence  $\langle \text{START}, \text{PATIENT} \rangle$ . Note that the verb morphology and accusative marking on the patient argument remain the same in both sentences: (16b) is not morphologically passive, but does express a different perspective in that no specific viewpoint is taken.

- (16) a. *Alenu najednou ovanul*  
 Alena:ACC:SG:F suddenly PF:blow:PPL:SG:M  
*chlad.*  
 cold:NOM:SG:M  
 ‘Sudden chill gripped Alena.’
- b. *Alenu najednou ovanulo*  
 Alena:ACC:SG:F suddenly PF:blow:PPL:SG:N  
*chladem.*  
 cold:INS:SG:M  
 ‘Alena got gripped by sudden chill.’

I leave it to future research to test this proposal on other sets of case alternations and to determine how much else in argument expression might be accounted for through underspecification. It is not readily apparent, though, how existing linking models would account for such alternations in a straightforward way.

Invoking the notion of construction as a conventionalized association between sets of event roles and their syntactic realizations makes the treatment proposed in this paper reminiscent of Goldberg’s (1995) “argument structure constructions”, which are said to form polysemy networks that account for the interpretation and syntactic behavior of predicates beyond what their lexical semantics would predict. In Goldberg’s view, a predicate is assumed to have its own semantic structure, which is normally realized in a particular expected way, but that semantic structure can be modified, enriched, or extended through unification with a distinctly different argument structure construction; these constructions are independent grammatical entities which either add roles that are not present in the lexical valence of a verb or change the nature of the existing roles (e.g., licensing a ditransitive use of a normally non-ditransitive verb like *kick*).

This approach is amply justified also by the feature that Salkoff (1983: 288) refers to as the “productivity” of the *swarm* alternations. The predicates that enter into these alternations are not necessarily dedicated to the *swarm*-like use; most of them can be also found in contexts in which they do not locate the presence of a stimulus but instead are simple verbs of appearance, exemplified in (17), or (type of) motion (although the “productivity” is generally more restricted in Czech than in English).

- (17) *Slyšíš?— Ozývá se pláč.*  
 hear:PRES:2SG sound:PRES:3SG RF crying:NOM:SG:M  
 ‘Can you hear?—A sound of crying.’

By unifying with the underspecified valence, with all the concomitant linking possibilities, these predicates necessarily modify their meaning

and hence, morphosyntactic behavior, resulting in the alternations studied in this paper. However, imposing a particular constructional meaning on a predicate does not obliterate its inherent semantic properties. As a result, we can expect that different predicates may show slight variations in the way they accommodate the constructional meaning, relative frequencies of each pattern vis-à-vis specific predicates, preferences for certain nominals, ability to acquire metaphorical extensions, etc., all of which still awaits systematic study.

However, the issue of multiple interpretations between patterns A, B, C, and D is a slightly different problem from that of extending the meaning of a verb through unifying it with a distinct grammatical construction. The essentials of Goldberg's constructional polysemy as a mechanism for addressing syntactic alternations can be perhaps applied here as well, but with some caveats. The underspecified valence itself does not constitute a "central sense" in any way within the network, nor does it license any constructs. Even more important, the fully articulated linking constructions do not manipulate the meaning of the predicate in the same way Goldberg's argument structure constructions do. Notice that the *swarm*-class alternations always involve the same two entities. What changes is the perspective from which their mutual relationship is presented, which is not the same as creating a novel use involving semantic extensions from an independent predicate. Finally, it would not be possible, in a non-arbitrary fashion, to designate one of the four variants as more "basic" (or prototypical) and then license the remaining three by superimposing other linking constructions over the one deemed to be lexically specified. It is not clear whether Goldberg's model allows for underspecification, which is understood as a generalization over verb-specific frames and their valences.

If both Goldberg's argument structure constructions and the linking constructions proposed here were to be treated as instances of "constructional polysemy", it has to be with the understanding that the notion of polysemy is being applied in two rather different senses and also in different domains of analysis. Goldberg's constructions address polysemous uses of verbs, in what we normally think of as the domain of lexical semantics. The *swarm*-type alternations are more properly described as changes in the hierarchical structure of sentences, albeit with a semantic twist. A telling detail is the fact that the *swarm*-class predicates resist the shift introduced by the transitive construction. Imposing semantic transitivity on an intrinsically non-transitive predicate constitutes a good example of the kinds of shifts Goldberg's constructions are designed to account for; the extreme marginality of the D variant indicates that semantic extensions of that sort is not what the *swarm*-class alternations are about.

The alternations resemble more closely what are usually labeled as “voice” phenomena, but are more interesting—and challenging analytically—in that the diathetic shifts are not signaled by special morphology on the verb, but solely through case marking on the participants. Consequently, the effect is not just one of redistributing syntactic prominence, as would be the case in the most straightforward examples of active-passive alternations (i.e., re-linking of prespecified event roles), but simultaneously one of subtle manipulation of the event roles and their mutual relationship. This complex web of relationships makes a constructional analysis of these alternations indispensable: neither the hierarchical (diathetic) shifts nor the differences in interpreting the event roles, and hence the meaning of the predicate, can be fully isolated as the only factor in the alternations.

#### 4.4. *Relative semantic prominence*

Let me now return briefly to the issue of viewpoint designation in INITIATOR-PATIENT patterns. In section 3.2: we noted that it is not a priori given which of the two roles, if any, in a transitive event should be established as a viewpoint. For Czech, we appealed to the implicit precedence relationship from the instigator/cause to the affected target as a natural choice of perspective and assumed that Czech canonically attaches the prominent status to the transitive INITIATOR role. This could, presumably, be applied to nominative-accusative marking in general. But we could also adopt Mithun’s (1994: 255–256) argument that “direct involvement” of a participant might be the most salient feature, and thus structure a transitive event from the PATIENT’s perspective, giving canonical prominence to the PATIENT role. Mithun’s analysis, in contrast, concerns ergative-absolutive patterning.

It is possible that we could extend the viewpoint-based event structure as a unifying concept across the general case marking strategies and motivate the familiar case marking typology in terms of conventionalized perspective as the overarching organizing principle: INITIATOR’s perspective in nominative-accusative languages, PATIENT’s perspective in ergative-absolutive, and no conventionalized perspective in split systems. It is beyond the scope and intentions of this paper to substantiate this hypothesis, nor is it meant to invalidate other semantically or functionally motivated accounts of the typology. I merely wish to suggest another potential piece of semantic information that may play a role in structuring valences and that deserves further exploration.

Specifically, I propose that semantic prominence might come from various sources, including the relatively abstract information reflecting a

particular way of structuring complete events through conceptualizing one participant as the conventionalized viewpoint. This kind of prominence may or may not work in unison with pragmatically motivated principles (such as foregrounding, as invoked in Foley and van Valin 1984, or new-information status suggested by Du Bois 1985) in establishing different linking systems. It also may or may not work in unison with semantically motivated subject-selection strategies based on the distinction “more like an agent” vs. “more like a patient” (Dowty 1991), but it is understood as distinct from both of those dimensions. The proposed network of event patterns (and their expression through linking constructions), with the built-in potential for reflecting a conventionalized perspective as well as specific semantic properties unique to each role type, could accommodate naturally these multiple possibilities.

The interaction between several types of prominence is particularly relevant in the study of diathetic alternations. As already mentioned, the *swarm*-class alternations in Czech suggest semantic and functional similarity to voice-like shifts. To take a relatively trivial example, the fact that a transitive patient can become the subject in English-like passives does not follow from the inherent properties of patienthood but reflects a shift in the way a transitive event can be structured: from the point of view of the patient. It is a separate matter whether this shift coincides with topic-focus articulation in a given language, as in English, or remains independent of it, as in Czech. It thus seems that viewpoint-based prominence could also help advance our understanding of the function(s) of a number of otherwise puzzling “voice” patterns, both cross-linguistically and within individual languages, as reported in Legendre et al. (1993), Payne (1994), and especially Sells (1998), who explicitly argues for a distinct, “third” kind of voice system, in contrast to the passive and antipassive of accusative and ergative systems, respectively, to account for the elaborate “voice” patterns of the Philippine languages. More specifically, the use of different “voice” patterns could be explained, at least in part, as a device for manipulating the basic event structure in a language, under the pressure of other semantic or discourse factors that may or may not be strong enough to override the conventionalized perspective (or the lack thereof) associated with the lexically specified predicate valence.

## **5. Conclusions**

This paper is a study of the complex nature of linking as manifested in the *swarm*-class alternations in Czech. It takes a frame-semantic approach to argument expression, which allows us to motivate generally occurring

linking relationships by appealing to the notion of scene, which provides the basis for positing generalized event patterns with direct correlates in morphosyntactic expression. Specifically, the event patterns that form the semantic pole of linking constructions are conceived of as a crystallized configuration of particular roles in particular types of scenes. As a result, a new kind of semantic prominence suggests itself, namely one based on the notion of perspective. It is proposed that each event pattern can be structured in such a way that one of its roles may be singled out as the viewpoint from which that event type is conventionally presented in a particular diathesis. The viewpoint status can be summarized as follows: (i) viewpoint is an event-structuring concept, not inherently associated with any specific semantic properties; (ii) viewpoint-based prominence is not universally obligatory since it is possible to leave an event inherently unstructured, without a designated viewpoint; (iii) the presence of viewpoint-based prominence can be taken as a predictor of syntactic prominence; and, crucially, (iv) as an event-dependent category, viewpoint is distinct from the discourse notions of “point of view” or “empathy”: while empathy is a matter of degree (Kuno 1976, 1987; van Hoek 1995), perspective and viewpoint as defined in this paper clearly are not.

With respect to other approaches to variable linking, the present analysis differs from them at least in the following ways:

- Viewpoint-based subject selection does not require constraint/rule ordering, inherent in Davis (2001) or Levin and Rappaport (1995). An additional complication in the latter is the Default Linking Rule, which designates the subject when all other rules fail; it is not clear what should happen in variant C. Moreover, it is not enough to devise a rule that correctly selects the subject, presumably based on the semantic properties of an argument; patterns A and D both select the stimulus participant and yet, as we have seen, variant D shows idiosyncracies that do not automatically follow from subject selection rules.
- Viewpoint-based choice of subject is motivated by speakers’ understanding and conceptualizations of event patterns, rather than by abstract manipulation of positions in argument structure; the latter is assumed in Van Valin and LaPolla (1997), Davis and Koenig (2000), or Davis (2001). The present proposal at least attempts to address the cognitive dimension of speakers’ linguistic competence.
- Role underspecification provides a natural way to account for regular differences in coding, without having to list each variant as a separate lexical entry and thereby ignore the fact that they share a basic component of meaning and represent a coherent semantic group.

Alternatively, we would be forced to make a completely arbitrary choice about which of the patterns is “basic” so that the rest of them could be derived from it, as in Dowty’s (2000) approach.

To conclude, the analysis developed in this paper leads to differentiation within the notion of semantic prominence by separating out a special status centered around particular event roles (e.g., animacy/intention) from prominence that arises from the internal structure of events (viewpoint). This leaves us, minimally, with three types of information that may all compete for alignment with subjecthood: viewpoint-based prominence and animacy/intention-based prominence, in addition to topic-based prominence. Identification of grammatical subjects in a particular language, then, reflects different alignment possibilities offered by competing prominence hierarchies. And it is likely that other types of prominence will have to be included as well, such as various participant hierarchies as reported for a number of languages and syntactic patterns, most notably obviation (Silverstein 1976; Dixon 1979; Aissen 1997).

*Received 23 December 2002*

*Princeton University*

*Revision received 11 February 04*

## Notes

- \* Author’s Address: Department of Slavic Languages and Literatures, Princeton University, Princeton, NJ 08544, USA. Email: <mfried@princeton.edu>. At various stages of preparing this paper, I benefited from very helpful feedback from Christiane Fellbaum, Charles Fillmore, Knud Lambrecht, and Doris Payne. I also wish to thank two anonymous reviewers for their careful reading of the manuscript, and especially to Arie Verhagen for his thoughtful guidance as the editor overseeing the review process. The shortcomings that still remain are all my own.
- 1. Abbreviations in the glosses: LOC locative, NOM nominative, INS instrumental, GEN genitive, DAT dative, ACC accusative, M/F/N masculine/feminine/neuter, SG/PL singular/plural, PPL past participle, PASS passive participle, RF reflexive, PRES present tense, PF perfective.
- 2. We might note that while the Czech syntactic literature discusses a great number of case alternations, it offers precious little on the *swarm*-class predicates and, to the extent that the phenomenon is mentioned at all, it is always limited to patterns A and B only. In Panevová’s (1997) brief survey, the difference in meaning comes from valence information, although different verbs are assigned, by fiat, different valences in the A pattern, assumed to be “basic”: e.g., Agent-Patient for verbs of smelling and Agent-Instrumental for verbs of swarming. Other linguists treat A and B as semantically equivalent syntactic variants (Štícha 1984: 61; Grepl and Karlík 1998: 143–144; *Mluvnice češtiny* 1987: 174). There is virtually no systematic analysis of these alternations nor the verbs that appear in them.

3. The C variant sometimes appears with the clitic *to*, as is the case in this example. This morpheme is homophonous between the nominative sg. neuter form of the demonstrative pronoun ‘that’ and a discourse particle that is not easy to pin down outside of context (it seems to mark some sort of attitude) but is quite ubiquitous in both spoken and written Czech, including sentences with explicit subject NPs. In our examples it could, possibly, be analyzed as a semantically empty place holder for a “missing subject”, although there is no independent evidence that the Czech grammar requires such an entity here or elsewhere and it is just as plausible to treat it as an emphatic marker. Nothing in this paper hinges on the status of this *to* and I will thus leave the issue of its presence vs. absence unaddressed, reflected in the gloss TO.
4. Viewpoint as defined here overlaps only partially with DeLancey’s category of attention flow, which seems to have a broader application, accounting not only for subject selection in some morphosyntactic patterns but also for relative linear order of non-subject nominals (such as the English pairs *I drove from Bloomington to Philadelphia* vs. *I drove to Philadelphia from Bloomington*). In this respect, viewpoint as understood here is a more narrowly *semantic* category, a feature that participates in predicting linking relationships between arguments and their syntactic coding.
5. It is interesting to note that the two verbs of motion found in these alternations denote a visually very distinctive type of motion: *rojít se* refers to the collective flying out or surfacing of insects that live in large organized groupings (such as bees or ants) and *hemžít se* derives from Old Czech *hemzati* ‘creep, crawl’ (used about insects and reptiles). In Modern Czech, both verbs denote a specific type of busily moving about or appearing on a scene, sometimes implying also the sense of abundance.
6. Marginally, the perceiver may appear as a dative-marked adjunct (dative being the most common expression of experiencers), illustrated in (i) below. The following example shows the B variant, but it works the same way in the remaining patterns:

(*Co se týče tzv. emocionální či meditativní hodnoty vyzářované těmito obrazy,*)

*ta*                                  *čpí*                                  *mnohým*                                  *dnešním*  
 that:NOM:SG:F    reek:PRES:3SG    many:DAT    contemporary:DAT:PL  
*stoupencům*                                  (*tradic tzv. chladné geometrické abstrakce*)

follower:DAT:PL:M

*až příliš*      *literárností*  
 too.much    literariness:INS:SG:F    [CNK 003-p14s2]

‘(As to the so-called emotional or spiritual value emanating from these paintings,) that [= value] reeks all too much of a literary quality to many current followers (of the traditions of the so-called cool geometrical abstraction)’

7. Again, I use this particular word order simply to keep the same roles in the same place for easier reference; it should not be interpreted as a requirement of this construction or of this use of the verb *provonět*. Nor does it indicate any direct relationship between variant D and particular information structure. The reverse order of the two nominals would, of course, be equally possible, without affecting the analysis of this pattern.
8. Herein also lies a fundamental difference between this approach and Davis’ linking theory, where the roles are defined as entailments that are inherently independent of the event types in which they participate. His theory claims to predict syntactic alternations and patterning from the semantics of predicates and yet, the linking hierarchy does not incorporate any reference to the lexical meaning of predicates beyond the abstract level of proto-roles. All of this follows from the theoretical foundation of Davis’ approach, namely the model-theoretic grounding of semantics. The linking patterns are configurations of predetermined abstract categories, disconnected from any cognitive



processes, speakers' conceptualizations, or construal options as possible motivators of the observed patterns, and verb classes are identified solely by their place in the hierarchy of these abstract linking patterns. With some tweaking in various places of the hierarchies, some measure of descriptive accuracy, at least at a very abstract syntactic level, can no doubt be achieved; the question is what explanatory value it offers with respect to the kind of knowledge and understanding speakers actually rely on in matching predicates with linking patterns. In contrast, verb classes in the present approach are defined by the shared background frame and a particular way of expressing an aspect of that frame, manifested in shared morphosyntactic behavior (cf. also Fillmore's, Salkoff's, and Dowty's view of word classes).

9. But we may also note that variant B in Czech often includes, seemingly redundantly, the modifier *celý* 'whole, entire', as if the presumed inherently holistic nominative form were not a sufficient marker of full involvement:

*Celý*                      *dům*                      *smrdí*                      *tím*  
 whole:NOM:SG:M    house:NOM:SG:M    smell:PRES:3SG    that:INS:SG  
*psem.*  
 dog:INS:SG:M  
 'The whole house smells of that dog.' [CNK 001-p509s3]

10. One reviewer suggested that the A variant is not necessarily a two-place pattern at all, while B and C are. Granted, many of the instances of A would tolerate the absence of the non-subject argument better than B, and C tends to require both arguments, but these are not absolutes. For example, the locative is obligatory in the following example of the A pattern:

*v probouzejících*                      *se*                      *pražských*                      *ulicích*  
 in waking:up:LOC:PL    RF    Prague:ADJ:LOC:PL    street:LOC:PL:F  
*hlučely*                      *dějiny*  
 roar:PPL:PL    history:NOM:PL:F  
 'in Prague streets which were just waking up, history was roaring' [CNK 001-p162s2]

On the other hand, the non-subject in B could be left out in (14c) and (14d), and in pattern C, the stimulus could be left out in (15c); many more examples of all these variations can be found in the CNK. Addressing these details is important but must be left for another occasion. It is clear, though, that the variations are not a property of the linking constructions. Rather, they have to do both with the inherent meaning of the verbs (one criterion seems to be the differences in sensory modality, but there are likely to be several factors) and the meaning of the nominals, and all these apparent irregularities are a natural consequence of the fact that the linking has to reconcile the requirements of the constructional meaning vis-à-vis the details of the lexical meaning of the verb.

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