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CHAPTER 6

Phases in verbal semantics

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The following article deals with phasal verbs, i.e., verbs referring to a special phase of an entire event. Thus, for instance, *start* refers to the beginning of an event whereas *stop* and *finish* focus on an event's final phase. After a general introduction, I shall show in Section 1.2 that there is a direct line from medieval thinking about event phases to recent semantic theories as they have been developed since the 1960s or so onward. Three influential modern theories are discussed in the second section, namely: (1) Jackendoff's account of the cognitive mechanism used to delimit events and their initial and final sub-phases; (2) Pustejovsky's theory of the interaction of phasal verbs with their complements; and (3) Partee and Bennett's analysis of phasal verbs within their interval semantics. In the main Section 3 I try to integrate these approaches to the semantics of phasal verbs within a more elaborate and comprehensive model for the semantic description of phasal verbs. The discussion will show that a coherent and descriptively adequate analysis of phasal verbs is possible and that phasal verbs must be recognized as constituting a grammatical class at least in the languages discussed here.

1. Introduction

1.1 Phasal verb research and the phasal verb interface complex

In his chapter on "Aspectual classes of verbs" (Dowty 1979: 37ff),¹ David Dowty introduces a series of grammatical tests supporting Vendler's well known, philosophically inspired verbal classification of states, activities, accomplishments and

1. In the Anglo-American tradition the term "aspect" has been widely used both for aktionsart phenomena and aspectual classes in the narrow sense, the latter referring for example to grammaticalized aspect in aspectual verb pairs, as most evidently realized in the Slavic languages. This terminological ambiguity should, naturally, be avoided (Engerer & Nicolay 1999: 333).

achievements (Vendler 1957). Dowty uses here, in order to arrive at a more precise differentiation between Vendler's four verb classes, among other grammatical evidence, the two English verbs *stop* and *finish* and their extraordinary behavior in connection with verbal complements of different aspectual types (Dowty 1979: 57, 59, 61, 63). Contrasting, for instance, activities with accomplishments, Dowty remarks that the two "aspects" realized in the dependent constituent (*walking* – activity vs. *painting the picture* – accomplishment) trigger different entailments in combining with the syntactically dominating *stop*, as the following two sentences illustrate (examples from Dowty 1979: 57):

- (1) a. *John stopped walking*
 b. *John stopped painting the picture*

The activity complement gives rise to the entailment that John did walk, whereas the accomplishment does not legitimize a parallel conclusion, as the sentence

- (2) *John stopped painting the picture*

does not entail that John painted a/the picture. The verb *finish* behaves even more selectively with regard to the aspectual classes of its complements by taking only accomplishments but not activities, cf.

- (3) *John finished painting a picture! *walking* (see Dowty 1979: 57)

This combinatorial rigidity of *stop* and *finish* shows up with other aspectual classes as well, for example does neither of the verbs join to achievements like sentences as

- (4) **John finished/stopped noticing the painting* (example from Dowty 1979: 59)

demonstrate.

Unlike Dowty, who, like many other linguists working on verbal aspect (for example Pinkster 1983: 281; Pietrandrea 2005: 136; Maisak 1999; Filip 2003: 69, 73), uses phasal verbs exclusively as test units, we will in this paper investigate phasal verbs solely in their own right. Granting phasal verbs the status of a linguistic object of study *per se*, we can, as a first step, state the fact that there is no straightforward way of reformulating the examples above and understanding their exceptional combinatorial behavior in many other languages than English. In German, for instance, the only interval-end denoting (or, alternatively, "terminative") verb

Dowty's, and, by the way, Vendler's "aspectual classes", too, cover, on the background of these "Slavic" inspired distinctions, semantic-temporal aktionsart features, and, in addition, do not comprise, as the term "aspectual class" perhaps suggests, classes of lexical forms, but, in the first place, classes of syntactically analyzable complex expressions.

in German, having no completion implications and – like the English *stop* – allowing infinitival complements, *aufhören*, does not license accomplishments at all, as the following example shows:

- (5) **John hörte auf, das/ein Bild zu malen*
 ‘John PV_{egr} the/a picture to paint’²

Trying, on the other hand, to render the completive-terminative semantic feature of *finish* into German, a similar picture appears. The only two lexicalized completive German phasal verbs, *beenden* and *abschliessen*,³ exclude infinitival arguments and are restricted to nominal objects, being, by the way, very selective in regarding the kind of nominal complement they take (for a more comprehensive account see Engerer 2000b):⁴

- (6) a. *das Bild* ^{??}*beenden*/**abschliessen*
 ‘the picture ...’
 b. *die Verhandlungen beenden/abschliessen*
 ‘the negotiations ...’
 c. *die Beleidigungen seiner Gegner beenden/*abschliessen*
 ‘the insults ...’

2. In the English translinear translations the following symbols for phasal verb categories are used: “PV_{egr}” for egressive (interval-end denoting), “PV_{ingr}” for ingressive (interval-start denoting), and “PV_{cont}” for continuative (interval-mid denoting) verbs. Other abbreviations are “PV_{part}” for verbal particle and more.

3. Unlike the English *finish*, *beenden* is ambiguous in relation to completive and non-completive (“interruptive”) meanings, cf.

- (1) *Er beendete die Diskussion (für eine kleine Pause)*
 ‘He PV_{egr} the discussion (for a little break)’

where the implication of a completed discussion is blocked by the meaning of the adverbial. *Abschliessen* seems more specialized on the completive aspect as the semantic doubtfulness of the sentence concerned

- (2) *Er schloss die Diskussion für eine kleine Pause ab*
 ‘He PV_{egr} the discussion for a little break PV_{par}’

suggests.

4. In German, completion of accomplishment events is usually realized by quite productive verbal compositions with the first component *fertig*- (‘READY’, as opposed to its unbound meaning ‘ready’), adjoining to verbal stems relatively freely and behaving syntactically, in this rather unique completive construction, like other separable verbal particles in German:

- (1) *John malte das Bild fertig / John hat das Bild fertiggemalt*
 ‘John painted the picture READY’ / ‘John has the picture READYpainted’

Observations like these motivate a grammatical field of research in phasal verbs, covering, as a minimum, interval-start (“ingressive”, *begin, start, ...*) interval-middle (“continuative”, e.g., *continue, resume*) and interval-terminative, phasal verbs (“egressive”, like *stop, finish*). This tripartite group is, as I argued elsewhere, constituted by (i) a coherent, unified semantics (Engerer 2002), (ii) their members’ grammatical, purely time-semantic status in relation to fully-fledged meanings of event-denoting verbs (Engerer 2000a), and (iii) a set of characteristic syntactic and semantic restrictions, phasal verbs impose on constituents they take as complements (Engerer 2001, 1999). These uniting grammatical features suggest that phasal verbs can constitute a regular word class, with properties of auxiliaries (Engerer 2010) – at least in some languages.⁵

In this paper, I will begin by discussing approaches addressing the question how semantic and syntactic structure can be thought to interact in order to get a coherent, explicit and intuitively plausible description of the grammatical features of phasal verbs (other lines of research in the field of phasal verbs are sketched in the concluding section). For the semanticist, the main challenge is to account for the rather abstract (“shallow”), grammatical-like meaning of phasal verbs and the significant impact of this grammatical meaning on almost all syntactic constituents in the phrase they occur in (cf. the “Time Condition TCon”, introduced later in Section 3.3). On the other hand, phasal verbs, now from a syntactical point of view, typically occur as finite verbal forms and high-ranking in constituent structure, contrasting with semantic (event) structure where phasal verbs rank low as a consequence of their minor contribution to semantic event-constitution; the latter is solely achieved by the denotational properties of the dependent constituents.

This mismatch in syntactic and semantic hierarchy is not unknown in other grammatical areas, but, as far as the field of phasal verbs is concerned, it is further complicated by a number of puzzling control/raising properties (Engerer 1999: 149–152) and unique semantic patterns coinciding with prepositional complementation and prepositional adjunction structures of a certain type. For example in

- (7) *Fritz beendete den Tag mit einer guten Flasche Wein*
 ‘Fritz PV_{egr} the day with a good bottle wine’

5. The status of phasal verbs as a word class is well-documented, for instance, in Russian (Mulisch 1985: 54–56, 175). For German, a similar characterization has been proposed by Helbig & Buscha (1984: 50), a didactic grammar where phasal verbs are given equal status with for example auxiliaries, modal verbs or copula verbs. Phasal verbs are also recognized as an autonomous grammatical class by Zifonun et al. (1997: 1390f), an up to date German grammar in three volumes; I have argued against the authors’ in my opinion too restricted notion of phasal verbs (German “Phasenverben”) elsewhere (Engerer 2001).

it is neither the standard comitative (Fritz was, in a way, accompanied by the bottle when finishing the day) nor the instrumental reading of *with*-adverbials (it was the bottle that helped him to finish the day), rather the egressive *beenden* clearly picks out a final partial of the larger interval denoted by the accusative object *den Tag*, whereby the interval of wine drinking by Fritz is situated. This constructional meaning is unique for phasal verbs and requires very specific semantic interpolation strategies, recurrent in other phasal verb construction as well, cf.

- (8) *Fritz beendete das Buch*
 ‘Fritz PV_{egr} the book’

where a writing or a reading event (or more) can be interpolated (Engerer 2001). Questions like these, taken together, can be addressed as the “phasal verb interface” complex,⁶ defining phasal verbs’ position in the larger predicate/sentence structures they are embedded in, and explicating, in a compositional manner, how their semantics interact with the semantics of dependent constituents to yield appropriate sentence meanings.⁷

To set the scene for the following, I will in the remainder of this introductory section give a brief survey of phases as an object of study in medieval philosophy and logic and demonstrate the firm ancient roots of research in phases in the Western tradition. This discussion will confirm the traditional relevance of the phase concept, and, more importantly, support the valuable insight that most, if not all major traits in phasal grammar and semantics that can be found in modern linguistic theorizing on phasal concepts had already been anticipated and acknowledged by the ancient grammarians in an astonishingly clear and precise manner over a thousand years ago.

1.2 Classical and medieval reasoning on phasal verbs and its connection with modern theories

Historically, the study of phases originated with Aristotle’s *PHYSICS* (cf. Books 6/8 Aristotle 1957) and influenced medieval logic strongly, as Øhrstrøm & Hasle

6. See Engerer (2004b) and the other contributions in Engerer (2004a) for a more general discussion of the syntax-semantics-interface. The discussion of ancient and modern theoretical conceptions of phasal verbs and phasal meanings will show that this last line of research, dubbed as the phasal verb interface complex, has almost exclusively been in the focus of linguistic and philosophical research. Other major phasal projects, as outlined programmatically in the concluding remarks, have not been in the focus of attention of (ancient and) current research.

7. Some basic prerequisites for this analysis, formulated in a Montague-inspired framework, are found in Engerer (2002, 2000a).

(1995: 52ff) amply point out.⁸ It is, perhaps, not surprising that phasal meanings almost exclusively were exemplified by verbs, rendering, in a way, the “dynamic” character of phases (as opposed to nouns, for example) in the most illustrative way. The two Latin verbs *incipit* (‘it begins’) and *desinit* (‘it ends’) (Kretzmann 1976) stand for this verbal approach, when, for example, the correct interpretation of an “*incipit*-statement” like *Socrates begins to be white* is debated (Øhrstrøm & Hasle 1995: 52). More importantly, the implementation of phases in the lexical category of verbs, and not, let us say, in adverbs or nouns, quite naturally leads to the assumption that phases, just in the same way as verbal valency, subcategorization, and selectional restriction features of verbs, “spread” their phasal features to other constituents of the sentence, they combine with. This property, which, conversely, implies that phase verbs always require semantic “input” from the other constituents of the sentence, has in more recent research attracted attention as the “Time Condition” of phasal verbs (Engerer 2002, 2008c). In the final section of the present article we will discuss this feature in more detail.

In medieval logical reasoning, the Time Condition is clearly at issue, when one and the same *incipit*-verb combines with a state and an activity predicate, respectively, and gives rise to two different semantic explications (examples from Øhrstrøm & Hasle 1995: 52):

- (9) a. *Socrates begins to be white*
 ‘Socrates is white and was not white immediately before’
 b. *Socrates begins to run*
 ‘Socrates does not run, but will run immediately after’

Ignoring differences in the semantic characterization of state and activity predicates in the medieval interpretation of Aristotelian thinking,⁹ leaving out of account, furthermore, the question about intrinsic and extrinsic limits (Kretzmann 1976: 110) and disregarding, for the moment, the unfortunate consequence of having two incoherent lexical representations for one and the same term, this example shows how clear the intuitions of ancient and medieval grammarians were on the

8. But cf. Kretzmann (1976: 104ff) who argues for a less direct impact of Aristotelian thinking on the early medieval logicians. However, the overwhelming influence of Aristotle’s physical ideas cannot be denied.

9. Roughly put, states were conceptualized as “permanent states”, whose parts are “at one and the same time”. Activities have been characterized as “successive states”, whose parts are successive, not at one and the same time (Øhrstrøm & Hasle 1995: 57). Øhrstrøm & Hasle (1995: 64) also draw attention to the fact that the permanent/successive distinction clearly anticipated Vendler’s well-known, four-way verb classification into states, activities, accomplishments and achievements (Vendler 1957; cf. the discussion of Vendler’s categories in Engerer 2003: 30–32).

sensitivity of phasal verbs as regards the aktionsart (“aspectual”) characteristics of their complements.¹⁰ More recent research¹¹ mirrors this awareness in complement sensitivity again (see Engerer 2002; Nedjalkov 1987: 188).

The second prominent feature of current discussion of phases in grammar, which has been anticipated by the medieval grammarians as well, is the auxiliary-like status of phasal verbs in natural language (for auxiliaries in general see Anderson 2005, Anderson 2000, and Heine 1993). The distinction between words with full and complete (lexical) meaning and those without (“grammatical meaning”, cf. Croft 2000) has a long tradition and is already recognized in the medieval dichotomy *categorematic* vs. *syncategorematic* expressions (for a short overview over these terms see Klima 2006). This principal distinction is accompanied by an association of grammatical completeness/incompleteness (Øhrstrøm & Hasle 1995: 54), these two pairs being, naturally, strongly related to each other. It was William of Sherwood who linked phasal verbs to these two dichotomies and argued that *incipit/desinit*, although they can be used both as *categorematic*-complete and *syncategorematic*-incomplete items, are typical cases for the latter (Øhrstrøm & Hasle 1995: 54). Phasal verbs are incomplete in the sense that they require semantic-syntactic material to relate to, and they are poor in meaning (*syncategorematic*), even, as has been said, having an “obscure sense” (“exponible terms”, cf. Øhrstrøm & Hasle 1995). Their semantics is, in more modern terms, abstract, general and notoriously difficult to grasp – just as it is the case with all grammatical material in languages. Both properties, incompleteness and lack of lexical content, are, as we know today, essential prerequisites of grammatical formatives, and this constellation, therefore, gives rise to an elaborate discussion about the auxiliary status of phasal verbs in our times.¹²

10. Disagreements concerning the semantic characterization of the two present situations in the sentences above, Socrates now being white and not running, respectively, conceded; we will take up this ambiguity later on.

11. The dynamic interplay between semantic sentence units has undoubtedly been inspired by computational principles of formal semantics (cf. for example Chierchia & McConnell-Ginet 1990; Cann 1993), a prevalent topic in recent theorizing, first, in the 70s, on composite aspect (Verkuyl 1972, 1993, 1988), and later on generalizing to a broader range of semantic phenomena (Jackendoff 1991a; Pustejovsky 1995; Jackendoff 1986, 1991b; Pustejovsky 1991). The construction of the meaning of syntactic compound units with phasal verbs must certainly take these “dynamic” approaches into account.

12. The modern starting point for this discussion was a provocative paper by Erica García, published in *LANGUAGE*, on the inconsistent analyzes of modals, auxiliaries and phasal verbs by transformational grammarians (García 1967). The perhaps most elaborate plea for phasal verbs as auxiliaries was made by Brinton’s book on English phasal verbs in 1988 (Brinton 1988; see also the review in Dahl 1990). Today most linguists, not only English specialists, but also

Thirdly, there is much current debate what this abstract and “obscure” semantics of phasal verbs consists of. And, again, Øhrstrøm & Hasle (1995) show that medieval logic already had come up with an adequate analysis. The authors transform William of Sherwood’s explication of *incipit/desinit* (‘the thing is at the end of the time in which it was such and such,’ for *desinit*, ‘to cease’) into a more modern design, using p for a proposition, and Cp for a proposition with *desinit* (“C” for ‘to cease’). The same conventions are valid for the incipit-proposition Bp (“B” stands for ‘begin’). Øhrstrøm & Hasle (1995:55) are now ready to give tentative truth conditions for phasal propositions:

- (10) a. Cp is true at the time t only if t is a limit between times at which p is true and times at which p is false.
 b. Bp is true at the time t only if t is a limit between times at which p is false and times at which p is true.

Current research has, surprisingly, not much to add to these early conceptions of a coherent semantics of phasal verbs. We mention here two lines of research into phasal semantics tentatively addressing these sophisticated problems. The first can be located in the formal semantics school in the tradition of Montague, predominantly analyzing English and instantiated in the first place by Dowty’s well known *WORD MEANING AND MONTAGUE GRAMMAR* (Dowty 1979). The other line is constituted by informal, continentally based approaches, working predominantly on the example of German. To conclude this section, I want to sketch very shortly these two approaches to phasal semantics.

Dowty (1979) develops a theory of phasal meaning not for its own sake, but in order to define some few basic sentence operators he needs to implement his fundamental concept of change-of-state (for more details on this topic see Engerer 2008a). He draws heavily on writers in analytical philosophy, particularly Georg Henrik von Wright. With reference to von Wright’s two seminal treatises (Wright 1968, 1963), he presents the following definitions of phasal sub-concepts (Dowty 1979: 75); see also Engerer (2008a: 11):

- (11) a. $\text{Become}(p) \stackrel{\text{def}}{\Leftrightarrow} \neg p \top p$
 b. $\text{End}(p) \stackrel{\text{def}}{\Leftrightarrow} p \top \neg p$
 c. $\text{Remain}(p) \stackrel{\text{def}}{\Leftrightarrow} p \top p$

typologists and general linguists, seem to accept the auxiliary status of phasal verbs and recognize phasal verbs as taking part in various cycles of grammaticalization (Heine 1993: 35, 38, 43–48, 60–66; DeLancey 2004: 1594). In Anderson’s broad typological study of auxiliary constructions, for example, phasal verbs are explicitly mentioned throughout his book, *start, begin, finish, stop, continue, keep*, having equivalents with auxiliary properties in almost all languages (Anderson 2005: 340–346, 369–372, and many other paragraphs).

(“T” means ‘and next’.) Clearly, these definitions parallel the above mentioned reconstructions of medieval phasal truth conditions by Øhrstrøm & Hasle (1995), but lead, according to Dowty’s main project, to a partly integration of phasal semantics into the overall grammatical structure of language. Phase meanings are under these preconditions no longer dependent on specific lexical items as, typically, phasal verbs, they are constituents of the underlying semantic structure of a language and its lexicon (Engerer 2008b). Another move from medieval to current phase research is the addition of the continuative¹³ (*to continue*), as it is reflected in Dowty’s representations of phasal meanings above, but in other studies as well.

The second line of investigation in phasal semantics, continuing the classic analysis of phasal meaning as sketched above, is situated in the continental tradition, among others, in the works of Fabricius-Hansen (1975) and Ballmer & Brennenstuhl (1986).¹⁴ Both investigations pursue Dowty’s aim to generalize phasal meanings in the lexicon, and both include continuative phases (however, to a much lower degree in Ballmer and Brennenstuhl’s study¹⁵). Fabricius-Hansen (1975:90ff) presents an intuitively appealing definition of the three sub-phases ingressive, egressive, and continuative, much resembling the bipartite time axis with opposite truth conditions, as introduced in Øhrstrøm & Hasle (1995) in the above mentioned examples (see the discussion in Engerer 2000a:105f) and elaborated further in the approach of Givón (1972, 1973). In a second step, Fabricius-Hansen makes use of the phasal semantics in constituting the verb class of transformatives, corresponding more or less to change-of-state verbs (Engerer 2008b: 122; Fabricius-Hansen 1975: 18).

I now pass on to two current research directions in verbal semantics and turn to an examination of how phasal semantic traits enter into modern conceptions of verb semantics.

13. The continuative is a phasal sub-category that is not mentioned in the medieval discourse at all. Indeed, the continuative seems to occupy a special place in the phasal triad (Engerer 2002: 62ff; Engerer 2000a: 109), and there is certainly a stronger logical connection between phase-initials (ingressives) and phase-finals (egressives) on the one hand than between continuatives and the two aforementioned on the other hand. But this hierarchical aspect in structuring the category phase is in itself not a sufficient reason to exclude continuatives from phases. This is also supported by the fact that newer conceptions (some of them mentioned below) of phasal semantics tend to involve the continuative, too. The special status of continuative items is reflected in our feature Conceptual Completeness (CC), discussed in the last section, cf. Section 3.2.

14. See also Apresjan (1974:75) who unfolds a decompositional treatment of phasal meaning.

15. Ballmer & Brennenstuhl (1986) is a systematic (and original) study in the verbal lexicon of German. Although in this book a very broad notion of phasal meaning is developed (for a critique see Engerer 2000a: 104) it demonstrates throughout that phasal verbs denotations are abstract enough and finite in number, and are therefore good candidates for generalized lexicon features, that can be transported by many kinds of lexical entities.

2. Modern approaches to phasal verbs

2.1 Phasal verbs and the notion of boundedness (Jackendoff)

Conceptual Semantics (Jun 2006) has a different view of phasal verbs and phases in semantics in general. Whereas in Givón's (1972, 1973) approach, a phasal differentiation in verbal meaning arises from two adjacent time intervals, divided by the phasal verb's time axis and involving two distinct logical relations, in Conceptual Semantics the notion of a *boundary* is the key to an understanding of phases in semantics. Boundaries in Jackendoff's version of Conceptual Semantics and Givón's concept of a time-axis are not, as the semantic relationship between the words boundary and time-axis might suggest, equivalent notions in the phasal semantic "apparatus", but "denote" two completely different "limits" in semantic descriptions. Whereas time-axis is a point of time cutting the stream of time in one past and one future interval, a boundary in Jackendoff's sense is always in relation to *events/individuals* which can either be initially or finally bounded (or, trivially, unbounded). Accordingly, these two terms describe unconnected properties of phases in semantic description. Jackendoff touches on the topic of phases most elaborately in his 1991 article PARTS AND BOUNDARIES (Jackendoff 1991a), although not explicitly using the term "phase". We will mostly draw on this text.¹⁶

A boundary, in Jackendoff's terms, always bounds individuals, characterized in themselves as bounded [+b] and without internal structure [-i], whereas groups [+b, +i], substances [-b, -i] and aggregates (plurals) [-b, +i] do not have inherent shapes, a boundary can be applied to (Jackendoff 1991a:20, 32). In general, Jackendoff claims that in case of bounding all individuals acquire, through schematization, 1-dimensionality, what means that they are represented/thought as lines, and their boundaries, accordingly, as 0-dimensional points.

In order to characterize phases, the concept of a boundary in this form is still too vague. Two conditions have to be fulfilled in order to be able to formulate, as a minimum, beginning and end: Firstly, instead of only one boundary, we need two distinguishable boundaries in order to indicate start and end phases; secondly, and, perhaps more importantly, the bounded entity (and we mean in this context events as [+b, -i] entities in the first place) has to be directed, because only under this precondition can the two phases be distinguished and identified as ingressive and egressive (for a discussion of the directionality feature cf.

16. Jackendoff mentions phases (in quite a different terminology), very sporadically, in two of his most important books (Jackendoff 1986: 198f; 1991b: 31f).

Jackendoff 1991a: 30f). In the formalism at hand, the first precondition is realized by the boundary function $X \text{ BD}^\pm(Y)$ (“an X that bounds Y”) where the superscript + marks the right boundary (egressive, “termination”), and, accordingly, the minus (-) indicates that the left boundary, the beginning (“the event originates”) is referred to. The second precondition for phasal meaning is simply built in by adding the directionality DIR feature into the representation of the bounded entity. A feature matrix for the meaning that an X terminates (+)/originates (-) a Y can now be produced in the following way:¹⁷

$$(12) \left[\begin{array}{l} X \\ +B, I \\ \text{DIM } 0(+\epsilon)D \\ \text{BD}^x \left(\left[\begin{array}{l} X \\ +B, -I \\ \text{DIM } 1D \text{ DIR} \end{array} \right] \right) \end{array} \right] = \text{“an X that terminates (+) or originates (-) Y”}$$

An interesting detail of phases in the approach of Conceptual Semantics, getting visible in the schema above, is that the boundary, although 0-dimensional, has a certain amount of extension, marked by the epsilon notation “(+ ϵ)” (for a more elaborate explanation of the epsilon feature cf. Jackendoff 1991a: 34). This opens for the possibility to positively characterize the reference of the phasal verb (in the sense of “What happened precisely when he was beginning to eat?”) – beyond the, in a way, indirect formulation in form of two adjacent time intervals, as for example Givón (1972, 1973) proposes. I have discussed this point at length with the conclusion that such a “third reference interval” for phasal verbs is necessary (Engerer 2010).

To conclude, one prominent feature of the treatment of phases in Conceptual Semantics is clearly the possibility to build a semantics directly representing the phase – and not just conditions that prevail both before and after an “imaginary” point in time (so it stays unclear what happens at the time of beginning/ending). That Jackendoff regards phases as referential expressions in their own right, is also borne out by his analysis of the phasal syntagm *stop running to the store* (Jackendoff 1991a: 38, Example (50)):¹⁸

17. The following feature-value-structure is Example (43a) of Jackendoff (1991a: 35). It has been reproduced here without corrections. However, the embedded “X” in the bottom must be a “Y”, an obvious typo (both the bounding and the bound entity variable are in the original paper indicated as X, so that the matrix contains no Y).

18. Under the heading “Aspectual functions” (Jackendoff 1991a: 37f) we find a short treatment of the phasal verbs *finish* and *end*. Here the representation is more specific in regard to the categories of the bounding and bounded entities, which are specified as situations.

$$(13) \left[\begin{array}{l} +B, -I \\ DIM 0(+\epsilon)D DIR \\ \\ BD^+ \left(\left[\begin{array}{l} +B \\ \\ COMP \left(\left[\begin{array}{l} -B \\ \\ GR \left(\left[\begin{array}{l} -B \\ RUN TO STORE \end{array} \right] \right) \right) \right) \right) \right) \right) \end{array} \right] \end{array} \right]$$

Leaving the details of the most deeply embedded constituent aside and concentrating on the bounding function BD, picking out the end of the embedded unit, Jackendoff states that “[i]t is this boundary event that is expressed by stop running to the store” (Jackendoff 1991a: 38).

2.2 Explaining polysemy and underspecification in phasal verbs (Pustejovsky)

The second approach to phasal verbs, we want to discuss, is contained in James Pustejovsky’s *THE GENERATIVE LEXICON* (Pustejovsky 1995), where phasal verbs and phasal meaning play a prominent and recurrent role in theory building. This theory addresses two central issues regarding phasal verbs, though to a varying extent (for a more elaborate and formal critique of Pustejovsky’s treatment of phasal verbs cf. Egg 2003). Firstly, taking as its starting point the multiple valency patterns of phasal verbs, the theory seeks to explain the specific interpretations that arise from the semantic of the phasal verb with its complement which often is syntactically underspecified (cf. *Mary began the novel*). Secondly, there is strong focus on the syntactic question whether phasal verbs are raising or control verbs, as both lexical semantic properties and sentence-semantic principles of phasal verb-complement interaction in larger phrases seem to determine whether phasal verbs act as verbs of the former or latter type. Pustejovsky’s theory addresses both problems and offers elegant and convincing solutions which we will try to render here in short. Looking at examples like (Pustejovsky 1995: 32):

- (14) a. *Mary began to read the novel*
 b. *Mary began reading the novel*
 c. *Mary began the novel*

it might seem necessary to be urged to postulate three different lexical entries, one each for the infinitive verb phrase, the gerundive phrase, and a noun phrase (Pustejovsky 1995: 35). Pustejovsky rejects this, grounding his argumentation on the semantically most difficult case of nominal complementation of phasal verbs (see Example (14c) above). Given an adequate semantic characterization of

the nominal object and the phasal verb, and indicating the rules of combination leading to a correct calculation of the interpretation(s), one can avoid multiple entries for lexical items that clearly and basically mean the same. According to Pustejovsky (1995: 78f), one of the most salient interpretations of *Mary began the novel*, ‘Mary began to read the novel’, is due to a lexical feature in the nominal representation of novel, the TELIC feature with the value $\text{read}(y, x)$. TELIC is one of four “sub-features” of a super-feature QUALIA, subsuming four central aspects of word meaning, besides TELIC, the relation between an object and its constituent parts (CONSTITUTIVE), distinguishing an object within a larger domain (FORMAL), and the origin of the object and other factors bringing it about (AGENTIVE) (Pustejovsky 1995: 76, 87ff). On this theoretical background, another reading, for example, ‘Mary began to write the novel’, is instantiated by an AGENTIVE feature, saying, informally, that novels normally are brought about by the process of writing.

All this presupposes that the semantic structure of the phasal verb opens a corresponding slot for the second argument, where this nominal input can be processed semantically. This process of relating very similar complement content, attached to different syntactic forms (to read/reading a book, a book), with a constant verbal meaning is called “coercion”.¹⁹ Coercion takes place, in the case of phasal verbs, when there is a clash between the second argument specification of the phasal verb as an event²⁰ and a non-congruent semantic type delivered by the complement (a NP), so that coercion “[...] ensure[s] that the semantic type of the verb is satisfied [...], regardless of syntactic form” (Pustejovsky 1995: 115). It is, in Pustejovsky’s analysis, in the first place the QUALIA-features TELIC (purpose, function) and AGENT (origin, bringing about) that store the information needed to convert the categorical NP denotation into an event denotation, as demanded by the phasal verb’s lexical semantics (Pustejovsky 1995: 116) (discussed in Engerer 2010; cf. Newmeyer 1975: 42–44 for an early treatment of this phenomenon as “interpolation”).

19. More precisely, we are dealing here with complement-verb coercion, substantiating a sub-case of the more general notion of coercion. This type is dubbed “True Complement Coercion” in Pustejovsky (1995: 115–122). For a criticism of the notion of coercion see Egg (2003). Moens & Steedman (1988) give an application of coercion to temporal information in general. Pustejovsky & Boullion (1995) elaborates in more detail on phasal verbs and coercion.

20. Freed (1979: 25–27) argues elaborately for that the complements of phasal verbs denote events.

The second focus in the Generative Lexicon in regard to phasal verbs is on their ability to enter into both raising and control structures (Pustejovsky 1995:200–207; a general introduction to this topic is Dubinsky & Davies 2006), an issue which remained controversial since the breakthrough of generative grammar.²¹ To illustrate the uses of phasal verbs as control and raising items, consider the following examples (taken from Pustejovsky 1995:200, 204):

- (15) a. *Mary began a book/to read a book*
 b. *The war began to reach into Bosnia*²²

The first sentence exemplifies a control construction, with clear selectional restrictions on the subject and the possibility to embed the phrase as the complement of the verb *force* (originally Perlmutter 1970: 112; discussed in Pustejovsky 1995:202):

- (16) *John forced Mary to begin a book*

The second example of (15) shows the same phasal verb figuring in a raising construction, where the phasal matrix verb does not restrict the semantic class of the overt subject *the war* (it is the embedded infinitive *to reach*, instead, that imposes the relevant selectional restrictions). In addition, the sentence cannot be transformed to a *force*-complement, as it is possible under control conditions, as demonstrated above. A large number of tests have been proposed in the literature (cf. Dubinsky & Davies 2006 for an overview and Engerer 1999 for discussion of control and raising with respect to German phasal verbs).

To illustrate Pustejovsky's solution to the control/raising problem, consider the lexical entry for *begin*, as suggested in Pustejovsky (1995:203):

21. There has been much discussion among the American generative semanticists in the early 1970es (Givón 1973; cf. Perlmutter 1970; Postal 1974; and Ross 1972), followed up by Frederick Newmeyer's analyzes in his book *ENGLISH ASPECTUAL VERBS* (Newmeyer 1975). In the 1980es both subject and object control of phasal verbs have been discussed by Palmer (1987:178), resulting in the claim that "[...] aspectual verbs [i.e., phasal verbs – VE] display contradictory properties of both raising and control" (Lamiroy 1987:294). Lamiroy (1987:294f) opposes at the same time the "reductionist approach" to categorize phasal verbs as either raising (as Postal did) or control verbs, in favor of the second approach, acknowledging the hybrid properties of this group, as already exemplified in Perlmutter. Today, one seems to accept that control *vs.* raising can be language specific, for example has been stated for Czech that all phasal verbs in this language belong to the raising class (Rezac 2005: 109).

22. As an expert in English, Sten Vikner raises doubts about the acceptability of the sentence. I took over the sentence unchanged from Pustejovsky (1995:200), and the argument stays untouched by this.

$$(17) \left[\begin{array}{l} \textit{begin} \\ \text{EVENTSTR} = \left[\begin{array}{l} E_1 = E_1:\text{PROCESS} \\ E_2 = E_2:\text{EVENT} \\ E_3 = < 0_a \end{array} \right] \\ \text{ARGSTR} = \left[\begin{array}{l} \text{ARG1} = \text{X:HUMANG} \\ \text{ARG2} = \text{EF}_1 = \langle \text{X}, \langle E_2, \text{T} \rangle \rangle: \text{EVENT-FUNCTION} \end{array} \right] \\ \text{QUALIA} = \left[\begin{array}{l} \text{FORMAL} = p(E_2, x) \\ \text{AGENTIVE} = \text{BEGIN_ACT}(E_1, \text{X}, \text{EF}_1) \end{array} \right] \end{array} \right]$$

Firstly, the event structure (EVENTSTR) of phasal verbs like *begin* consists of an initial process E_1 and a culminating event E_2 , where E_1 and E_2 basically are simultaneous, with the only precondition that E_1 starts before E_2 .²³ Subevents showing exhaustive ordered overlap generally exhibit a causative relation, where a causing process (E_1) results in a final event (E_2) (cf. Pustejovsky 1995:71). Applied to the phasal verb *begin*, this means that E denotes the causing process that leads to the event that the event-function EF_1 in ARG2 begins (E_2).

This difference in head-marking is being projected from the event structure EVENTSTR to the QUALIA-feature *via* the event variables E_1 and E_2 , the former connecting to the AGENTIVE feature, the latter to FORMAL. As the QUALIA feature determines the semantics of a verb, and the projections from the event structure only constrain QUALIA information (Pustejovsky 1995:68), the semantic contrast between a control and raising construction can be made explicit in a rather elegant way by changing focus on the FORMAL and the AGENTIVE feature, respectively. If the final event is E_2 , and if, more indirectly, the FORMAL role has focus, a raising construction results: “[...] what is asserted is simply the initiation of an event, without explicit reference to causal preconditions of the event” (Pustejovsky 1995:204). If, on the other hand, the initial causal event E_1 is the head, and, therefore the focus is on the AGENTIVE quale, a control construction arises together with all its typical causal implications. The above will hopefully suffice to illustrate the basic idea behind this explanation of control and raising phenomena in phasal verbs, so that it will not be necessary to go into the more technical details of Pustejovsky’s formal apparatus. Pustejovsky’s theory of the Generative Lexicon clearly addresses the dynamic semantic properties of phasal verbs unfolding in larger constituents, typically with their arguments. The objects of this theory are not isolated, purely lexical phasal semantic units as they emerge in Givón’s (1972, 1973) approach assuming two lexically represented adjacent time intervals divided by the phasal verb’s “time-axis” and, correspondingly, two different semantic operations relating to those intervals (presupposition and

23. Cf. ordering restriction RESTR specified as “exhaustive ordered overlap”, Pustejovsky (cf. 1995:70f) and, more specifically, Pustejovsky (1991) on event structure.

implication). The only lexical residue of a phasal semantics is Pustejovsky's analysis of phasal events as complexes consisting of sequentially-ordered pairs of initial processual and final culminating part events (which overlap, though, to a great extent). On the other hand, this construction as complex events does not mirror phasal verb meaning, as E_1 (the causing process) and E_2 (the result) do not refer to phases as we characterized them before (start and end). It seems a clear setback in this theory that phasal meaning is not further decomposed, but indicated in a compact form in the unanalyzed feature **begin_act** in the lexical entry (Pustejovsky 1995:203). Theories that analyze this feature further are clearly more informative in this respect.

Pustejovsky's theory focuses, just as Conceptual Semantics, on the sentence-semantic aspect of phasal verbs as a consequence of their compositional character. In a parallel way, lexical features of phasal meanings are covered by Jackendoff, too, but here with emphasis on the concept of a boundary. Boundaries (Jackendoff) and time intervals/sequentially related events (Givón) are complementary notions in phasal semantics: intervals have to be bounded and, vice versa, boundaries have to apply to time intervals.

2.3 Interval semantics and phasal verbs (Partee & Bennett)

I will wrap up this section by discussing an approach that extensively uses intervals as in analyzing phasal meanings. As stated in length by Dowty, the original idea of an "interval semantics" stems from an, at that time, unpublished paper by Michael Bennett and Barbara H. Partee from 1972 with the title TOWARD THE LOGIC OF TENSE AND ASPECT IN ENGLISH (see Dowty 1979: 138 and the references there; see, furthermore, Tichý 1985 for a sharp criticism of interval semantics). For the purpose of the present article, I will rely on Bennett & Partee (2004), which is a reprint of the original article.

Bennett and Partee's article is one of the first, if not the first, studies of phasal verbs within the framework of formal semantics, or, more precisely, Montague Grammar, which at that time was the standard theory for many formally oriented linguists. According to Bennett & Partee (2004), the group of verbs which denote the mid-interval and, up till now, have been called "continuatives" in this article has to be split up into two semantic distinct subgroups, namely resumption verbs (*resume*, *recommence*, ...) and continuation verbs (*continue*, *keep*, *go on*, *remain*, ...) (Bennett & Partee 2004: 74). The former group presupposes a period of interruption before *Xing* in, for example, *resume Xing*; the latter does not bear this presupposition. The authors' precise formulation of truth conditions for resumption and continuation verbs brings out this semantic difference very clearly; cf. Bennett & Partee (2004: 76f).

Bennett & Partee (2004: 75) call attention to the fact that phasal verbs semantically depend upon the aktionsart class of their complements. We have met this observation already in the previous discussion, but Bennett and Partee's treatment is extraordinary by applying a very fine-grained and precise logical apparatus. An ingressive verb, occurring in construction with a state-denoting phrase,²⁴ like in

(18) *John begins to love Mary*

is true in an interval of time I if the corresponding phase-less “kernel sentence” (for this operation cf. Engerer 2010) *John loves Mary* is true at every moment of time in I ; cf. Bennett & Partee (2004: 75). If

1. the kernel sentence is true at every moment of time in I ,
2. and t is either an initial point or (initial) bound for I ,²⁵
3. and there exists a moment of time t' such that $t' < t$,²⁶
4. and if, finally, the kernel sentence is false for all moments of time in (t', t) ,²⁷

then there exists an initial subinterval²⁸ I' of I at which the phase sentence (18) containing the phase verb *begins* is true; cf. Bennett & Partee (2004: 75f).

Ingressives with an activity rather than a state complements are not evaluated at moments of time but directly in intervals; cf. (19).

(19) *John begins to walk*

If *John begins to walk* is true at interval I , then the kernel sentence *John walks* is true at I . If, furthermore, the kernel sentence is true at I , and

24. The terminology from temporal semantics used by Bennett & Partee (2004) differs significantly from current linguistic vocabulary in this area. I have therefore tried to “modernize” some of the most idiosyncratic terms with all the dangers connected with this. Their nomenclature used for verbs and phases, however, – i.e., the term “initiation verbs” for ingressives, “cessation verbs” for egressives, and “resumption”/“continuation verbs” for continuatives – is, in principle, unproblematic. It is only for reasons of consistency that I stick to the terminology used earlier in my paper.

25. An initial point t for an interval I is in I and there do not exist predecessor moments t' for t , which also are in I . t is an initial bound for an interval I if t is not in I and there are no successor moments t' for t which are not in I ; cf. Bennett & Partee (2004: 70) for the complete definitions.

26. The symbol “ $<$ ” indicates the order of time. For some more formal explications see Bennett & Partee (2004: 69f).

27. “ (t', t) ” denotes the open interval bounded by the two moments of time t' and t , none of them part of the interval itself; for the definition of other sorts of intervals cf. Bennett & Partee (2004: 70).

28. I' is an initial subinterval of I if I' is a subinterval of I and there are no moments of time in I' which precede I ; for a more formal account cf. Bennett & Partee (2004: 70).

1. either (i) there is a moment t which is an initial bound for I ,
2. and the kernel sentence is false at t ;
3. or (ii) there is a moment t being an initial point for I , and
4. there is no moment t' before t where the kernel sentence is true at the interval (t', t) ,

then there exists an initial subinterval of I' of I , such that the phase contenting sentence is true at I' .

Resumption verbs (such as, e.g., *resume*) can also be given a straightforward analysis in the interval-based framework developed by Bennett & Partee (2004). If a non-phasal sentence (here an accomplishment) like

(20) *John builds a house*

is true at the union of three temporally ordered intervals $I_0 < I_1 < I_2$, then the according resumptive sentence

(21) *John resumes to build a house*²⁹

is true at some initial subinterval of I_1 (Bennett & Partee 2004: 76f). Pure continuation like in one reading of

(22) *John continues to love Mary*

can also be expressed very concisely in terms of intervals. A continuative sentence is true at I if there exists a superinterval I' of I which, however, does not include I as an initial subinterval such that the phase-less kernel sentence (*John loves Mary*) is true at every moment in I' (Bennett & Partee 2004: 77).

The last category in the group of phasal verbs are egressives (“cessation verbs” in Bennett and Partee’s terminology). If the phase-less kernel sentence (*John loves Mary*) of an according egressive sentence (*John finishes loving Mary*) is true at every moment in interval I ,

1. t is either a final point or bound for I , and
2. there exists a moment t' with $t < t'$, and
3. the kernel sentence is false for all moments in (t, t') ,

then there is a final subinterval I' of I at which the cessation sentence is true (Bennett & Partee 2004: 77).

Bennett and Partee show again that the truth conditions vary with the aktions-art characteristics of the complements – activities or accomplishments, see Bennett & Partee (2004: 77f). Obviously, the interval approach permits an accurate account

29. Here, too, can be doubt about the acceptability of this sentence, originally dubbed in Bennett & Partee (2004: 77). The British National Corpus Online (<http://corpus.byu.edu/bnc/>) does not come up with convincing and realistic usage examples for this collocation. Thanks to Sten Vikner who drew my attention to this fact.

of the semantics of simple phase verb constructions (hence of that what I shall describe as “Simple Phase Semantics” in the following section). Basically it concentrates on the shift of truth values along the time axis: from true to false for egressives and from false to true for ingressives verbs. Pustejovsky hides, as we have seen, the phasal semantics in the unanalyzed block **begin_act** whereas in the semantic framework discussed here these characteristic shifts are explicitly described and even the the notoriously problematic group of continuatives (and resumptive verbs) are captured.

Although I have only been able to mention a very small fraction of linguistic research into phasal verbs, I have tried to make sure that the studies discussed in this section nevertheless represent some major and influential ideas in phasal verb research. I had to skip, for example, some promising attempts to connect a universal event structure in the verbal lexicon to, as well universal, phasal categories, as exemplified in the work of Ramchand (2008).³⁰ The interesting relationship between phasal meanings and word formation is studied by Lieber (Engerer 2008b; cf. Lieber 2004; also Engerer 2009)³¹ and another original approach in Löbner (1990) treats phasal verbs, like all aspectual phenomena in his framework, including aktionsarten, as quantificational phenomena (Löbner 1990: 89).³² Although I have not been able to do justice to these (and other) interesting approaches within the field of phasal grammar, I believe that I gave a realistic picture of current phasal research with the three theories discussed.

30. Ramchand identifies a subevental structure composed of three verbal subevents, a representation of the processual meaning component PROCP (“processual phrase”), being the heart of the dynamic predicate and denoting change in time, and two representations INITP and RESP, temporally preceding and, respectively, following PROCP, and semantically characterizing the causative (INTP) and, accordingly, the resultative (RESP) relation to the core component PROCP: “The INITP exists when the verb expresses a causal or inital state that leads to the process. The RESP only exists when there is a result state explicitly expressed by the lexical predicate” (Ramchand 2008: 40). This verbal theoretic approach, inspired by Pustejovsky’s extensive utilization of subevental structure, connects pure, time defined phases (before X, X, and after X) with a coherent semantic characteristics in terms of cause and result.

31. Lieber introduces in her analysis of English morphological processes the feature [IEPS] (“Inferable eventual Position or State”) “[...] to capture some of the major aspectual classes of verbs” (Lieber 2004: 29). With help of [IEPS] initial, final and intermediate states (locations) in an event are distinguished which, in our perspective, can be interpreted as phasal meanings. Lieber’s feature based approach to phasal meaning is clearly influenced by Jackendoff’s model of a feature based compositional semantics.

32. Löbner makes extensive use of duality groups, where, often, several elements of the same duality group are lexicalized. Through duality groups, quantifying expressions can easily be detected, according to Löbner (1990: 68). Phasal verbs appear, in this framework, as aspectual duality groups (Löbner 1990: 88–91).

3. A model for the description of phasal verbs

In this section a model for the description of phasal verbs is introduced (Engerer 2008c) providing a systematic background for the different theoretical approaches to phasal verbs discussed in the preceding section. This will, as I hope, give a more coherent picture of phasal grammar. The overall grammar of phasal verbs can be schematized as displayed in Figure 1 below. It is assumed there that definitional (“def.”) features, which are obligatory, have to be distinguished from optional (“opt.”) ones, which are derived, coincidental and language-specific. This distinction opens for the possibility of accounting for expectable feature variation in different languages. As a consequence, some of the features discussed above have to be regarded as constant across languages, they define, as one might say, a universal class of phasal expressions whereas other features vary without necessarily dissolving the universal linguistic concept of “phasal verb”. As shown in Figure 1, the model comprises five components dealing with groups of related features of phasal verbs.

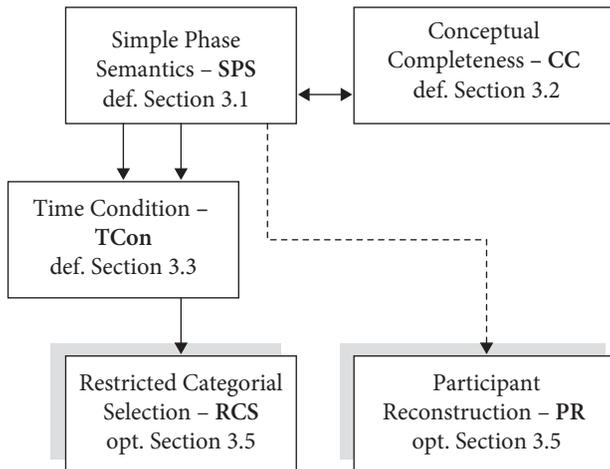


Figure 1. The five groups of semantic features for the semantics of phasal verbs. Three of them are groups of definitional/obligatory features (represented by the plain boxes), and two of them contain optional/derived ones (represented by the shaded boxes in the bottom)

3.1 Simple phase semantics: SPS

The first component of the model concerns the main property of phasal expression, namely that they constitute a simple and coherent semantic domain which can be described by a small set of basic logical tools (implication, presupposition, negation) plus some basic notions from temporal semantics (reference point, possibly time intervals and the relation of temporal order). The semantics of the three phases and the respective phasal verb subcategories – start (ingressive), middle (continuative) and terminative (alternatively called “egressive”) – are rendered in a rather elegant way by systematically exhausting the combinatorial possibilities of the negation operator³³ connecting to the proposition denoted by the embedded constituent in implicated and presupposed statements. This concept of phasal semantics largely follows Givón’s (1973) ideas concerning the time-axis of phasal verbs but it also integrates elements from Partee and Bennett’s analysis, see Section 2.3, for example the “kernel sentence”, and, on the whole, is based on ancient reasoning on phasal verbs. Last but not least, it integrates elements from analyses of German in Fabricius-Hansen (1975), Ballmer & Brennenstuhl (1986), and ideas from the author of the present paper (Engerer 2002; see Engerer 2000a). In Figure 1, this model component is called “Simple Phase Semantics” (SPS). A semantic solution like that of SPS allows in quite a simple way to differentiate between the three subgroups of the phasal verb category while at the same time it preserves its unity.

In order to demonstrate how SPS works,³⁴ I start with verbal phrases VP consisting of a finite phasal verb PV in the past tense, e.g., *began*, and an infinitival complement C as, for example, *to write*. The structural representation for the phasal VP may then be represented by the rewrite-rule (23), which should be interpreted, for the moment, as *not* fixing constituent order.

$$(23) \text{ VP} \rightarrow \text{PV C}$$

To obtain sentences, a dummy symbol “X” is introduced at the subject position, and indexed brackets are added to mark constituent hierarchy:

$$(24) \text{ S} \rightarrow \text{X [PV C]}_{\text{VP}}$$

Now a simple sub-categorization of the PV class into ingressesives (*ingr*), egressives (*egr*) and continuatives (*cont*) is needed:

33. Actually, the possibilities offered by the model are not completely exhausted – at least not by the languages I know.

34. The following is largely based on the newest version of SPS as developed in Engerer (2010).

- (25) a. $PV_{\text{ingr}} = \{\textit{began, started, ...}\}$
 b. $PV_{\text{egr}} = \{\textit{finished, stopped, ...}\}$
 c. $PV_{\text{cont}} = \{\textit{continued, resumed, ...}\}$

The syntactical apparatus used here licenses the projection of the phasal features [ing], [egr] and [cont] up to the higher constituents VP and S; cf. (26)

- (26) a. $(VP \rightarrow PV_{\text{ing/egr/cont}} C) \stackrel{\text{def}}{=} (VP_{\text{ing/egr/cont}} \rightarrow PV C)$
 b. $(S \rightarrow X[PV C]_{VP_{\text{ing/egr/cont}}}) \stackrel{\text{def}}{=} (S_{\text{ing/egr/cont}} \rightarrow X [PV C]_{VP})$

It is now possible to derive systematically variants without phasal verbs from phasal sentences $S_{\text{ing/egr/cont}}$ built in accordance with the syntactical rules above. The syntactical processes that are necessary to render the “normalized” version without phasal verb (referred to as the “kernel sentence”), for example

- (27) *He wrote*

from phasal marked sentences like

- (28) *He began to write*

– including the correct transfer from the PV subject position, *he* in (28), to the subject position of the kernel sentence, again *he* in (27), – are described in more detail in Engerer (2010: 155). For convenience, I refer in the following to the kernel sentence by “SK” and, accordingly, to its negative counterpart by “S \neg K”. This will make the formulation of the truth conditions very simple. The final ingredients for SPS are a linearly ordered discrete set of points of time with the central moment t_e of evaluation, its predecessor t_{e-1} , and its successor t_{e+1} .

- (29) A sentence S_{ingr} with an ingressive PV (for example *He started to prepare himself for the exam*) is true at moment t_e when
 a. S_{ingr} implies the positive kernel sentence SK (*He prepared himself for the exam*) at t_{e+1} ; and
 b. S_{ingr} presupposes the negative kernel sentence S \neg K (*He did not prepare himself for the exam*) at t_{e-1} .

In a parallel way the other two PV classes are defined. Egressives show the inverted truth conditions: (S \neg K is implied at t_{e+1} , SK is presupposed at t_{e-1}) whereas continuatives both imply and presuppose the positive kernel sentence SK; cf. Engerer (2010: 155f).

Simple Phase Semantics (SPS) is a constitutive component of the semantic description of phasal verbs in all languages. It is meant to be a solid guide and an important reference point when looking at the phasal verb systems of other languages in comparative and typological studies. SPS is, perhaps more importantly,

the theoretical (and methodological) premise for the study of phasal meanings in their own right, without necessarily relating them to systematic formal correlates (here, verbs) or, even, without relating them to phonetic substance at all. This view of phasal meaning falls into another line of research proposed in the concluding section. Although Simple Phase Semantics (SPS) is a powerful tool for the semantic description of phasal verbs, it does not include the formal and theoretical devices to model the semantic impact of phasal verbs on other constituents in the syntactic phrase (cf. the feature Time Condition, discussed in Section 3.3). Nevertheless, these translexical effects of phasal verbs must already be motivated in (be derivable from) SPS; cf. Engerer (2001, 2002). The connection between lexical content of phasal verbs and other constituents they combine with, together with the syntactical construction rules, including their semantic counterparts, has been made most explicit in Pustejovsky's idea of the spreading of a lexical element's semantics to other elements in the sentence; cf. Section 2.2 above.

Another theoretical question arising in connection with Simple Phase Semantics (SPS) is the proper formulation of truth conditions with respect to intervals rather than moments. SPS operates with three points of time, an evaluation point t_e together with its predecessor t_{e-1} and its successor t_{e+1} , where t_e functions as the "point of beginning" *par excellence*. However, both t_{e-1} and t_{e+1} can be seen as characterizing intervals to which they belong – quite in the style of Bennett & Partee (2004) or Givón (1972, 1973). In the interval before t_e , the presupposition that Peter did not read must hold, whereas in the interval after t_e , the implication that Peter did read must be fulfilled (cf. the time-axis theory of Givón 1972, 1973). In order to understand the functioning of SPS, it is crucial to formulate determinate truth conditions indexed with respect to moments and intervals and to develop a solid evaluation procedure for sentences with phasal verbs. It does not suffice to connect two part-intervals to one larger evaluation interval, rather one has to integrate the point of evaluation t_e (or the evaluation interval I of phase semantics) in order to suit our intuition about "point/interval of beginning (ending, continuing)" and to render, in a way, the aktionsart status of phasal verbs as (punctual) achievements (Dowty 1979: 68).³⁵ This task can be referred to as the "Interval and Evaluation Problem". As we have seen, the early treatment of phasal verbs in Bennett & Partee (2004) is a major step in this direction just as Jackendoff's positive characterization of the point/interval I as the point/interval of beginning makes this cognitively salient entity accessible for a "positive" semantics as well.

35. Continuatives like *keep* and *continue* are, following Dowty (1979), activities. This special status of continuatives in relation to ingressives and egressives is supported by independent semantic properties, for example, an inherent ambiguity, which will be discussed in the main text.

The last main topic that has to be addressed in the framework of Simple Phase Semantics (SPS) is the special status of continuatives. There are a number of indications supporting the assumption that the phasal verb category does not form a homogeneous group with equal members but that the subcategories of ingressive and egressive verbs are grammatically more closely connected with each other than each of them is with the subcategory of continuative verbs. As we have seen, the medieval logicians did not mention continuatives at all. Only in more recent time continuatives have become an object of linguistic investigation; cf., e.g., Fabricius-Hansen (1975) and Dowty (1979). The special status of continuatives manifests itself in three respects. (1st) Aktionsart-characteristics: Continuatives are regarded as activities (Dowty 1979:68) whereas ingressives and egressives are represented by achievement verbs. (2nd) Their logico-semantic behavior in the domain of SPS: Whereas continuatives evaluate the same positive proposition before and after t_e ³⁶ (but compare Bennett & Partee's 2004 distinction between resumptive and continuative verbs), ingressives and egressives are described by shifting values and by a simple alternation of the negation in the propositions before and after t_e (represented by the alternation SK/S \neg K) with the effect that different propositions have to be evaluated. (3rd) Systematic ambiguity: Only continuatives show a systematic ambiguity between two interpretations, one with an interruption (resumptive) and one with a continuity component (cf. the interruptive interpretation in *John continued to write* – “when his headache grew better/he found his favorite pen” – vs. the continuing interpretation triggered by a continuation like “although he almost couldn't hold the pen”). This ambiguity has already been acknowledged and described by Bennett & Partee (2004:76f), as we have seen in a foregoing section.

These three grammatical characteristics of continuatives are certainly connected to each other. The first property of continuatives (their activity aktionsart) seems to be founded in the second one as the evaluation of two identical subevents can be thought to promote an activity aktionsart. If P is an activity predicate and the proposition $P(a)$ is true in interval I , then $P(a)$ is also true in every subinterval of I (Lohnstein 1996:231). Property (3), the ambiguity feature, also seems dependent upon the second property. All this indicates that the special status of continuatives is ultimately due to property (2). This has to be spelled out in a more sophisticated semantics which deals with the fundamental difference between

36. And do not, as the ingressive-egressive-group does, exploit the logical possibilities, as two negative propositions in the presupposition and the implication is not realized in any of the languages that I am familiar with.

ingressives and egressives on the one hand and continuatives on the other in an explanatory more satisfactory manner; cf. Engerer (2002: 62ff) for a preliminary proposal in this direction.

3.2 Conceptual completeness: CC

The second component of our model for the grammar of phasal verbs captures the hypothesis that there are, as already mentioned above, exactly three semantically motivated subcategories of phasal verbs. Phasal verbs refer to one of three subintervals of an event's entire time span – the start, middle, or final subinterval. These subintervals constitute an exhaustive partition of the entire interval and seem to be well-founded in cognition. There are no languages I am familiar with which employ another partition. Start, middle and end seem to be basic categories and constitute as such a conceptual maximum. On the other hand, this does not necessarily exclude the existence of two-member phasal verb systems, grammaticalizing focus on, for instance, start and final intervals only. If such languages exist, the theoretically interesting question arises whether an implicational hierarchy can be established cross-linguistically. Such an implicational hypothesis could, e.g., draw on the aforementioned special status of continuatives and state that any language with continuatives will also have ingressives and/or egressives as well there such that there are no languages with only continuatives. Since the hypothesis postulates that the above mentioned three phases exhaust the possibilities of phasal verbs for setting focus on a part of the entire interval of some given event, the second criterion is labeled “Conceptual Completeness” (CC). CC has the status of a definitional feature, but is clearly related to Simple Phase Semantics (SPS) as the latter can be seen as the logical mirror of a more fundamental conceptual restriction; cf. the configuration of the two top boxes in Figure 1 on p. 246.

3.3 Time condition: TC

The third component of our model is again related to semantics. However, unlike Simple Phase Semantics (SPS), which is concerned with lexical semantics, the third component concerns the semantic rules for the interpretation of sentences. Phasal verbs have the special selectional restriction that they impose time structure on all arguments in their syntactical environment. This restriction holds for both infinitival, cf. (30a) below, and nominal arguments, cf. (30b). Furthermore, it is valid independently of syntactic position; even subjects have to deliver time structure to the phasal verb as (30c) illustrates; Engerer (2002: 57).

- (30) a. *Peter* [*beginnt* [*eine Rede zu halten*]_C]
 ‘Peter begins a speech to hold’
 b. *Peter* [*beginnt* [*die Rede*]_C]
 ‘Peter begins the speech’
 c. [[*Die Rede*]_C *beginnt*]
 ‘The speech begins’

The “Time Condition” (TC), as this component of the model will be called, is a semantic, phase specific subcategorizing relationship between a phasal verb and its complements C – infinitival phrases, nominal objects and subjects, see the examples, cf. (30). It imposes a minimum of temporal structure upon the complement items c with which the phasal verb combines; for the following cf. Engerer (2002: 57–59). “Good” input for phasal verbs are constituted by durative events, more specific activities which can both be non-telic (31a) and telic (31b). More restricted are states; in the case of states one finds completely acceptable complements (31c) besides semantically deviating ones such as in (31d) and (31e). In connection with complements referring to “punctual” events, phasal verbs enforce a habitual or iterative reinterpretation if this is allowed by the denoted event; cf. (31f). This coercion-like process produces a kind of secondary durativity that suits the Time Condition (TC) of the phasal verb. Entities lacking temporal structure require more elaborated reinterpretation/coercion processes when they occur as the subject of a phasal verb. In the case of expressions referring to persons, reconstruction strategies have to be applied which are based on general background knowledge and/or knowledge of context. In (31g), e.g., the elliptic utterance of *Peter beginnt* (‘Peter begins’) must be supplemented by an appropriate verbal event (*to talk, to laugh, ...*). Finally, concepts like, e.g., SCHOOL are to be considered. In themselves they do not suggest any temporal structure but they are related to a complex cluster of more specific sub-concepts like, in our example, SCHOOL AS AN INSTITUTION, SCHOOL BUILDING or SCHOOL AS A BUNDLE OF DAILY ACTIVITIES. In such a case, the phasal verb selects that concept from the cluster which offers a suitable temporal structure. In our sample case, this will probably be SCHOOL AS A BUNDLE OF DAILY ACTIVITIES; cf. (31h). The spatial concept SCHOOL BUILDING, however, is acceptable as a partner of a phasal verb as well. But this is mainly due to the well-attested reinterpretation of spatial concepts into temporal ones found in many other areas of grammar and cognition.

- (31) a. *Peter* *beginnt* [*zu sprechen*]_C
 ‘Peter begins to speak’
 b. *Peter* *beginnt* [*eine Sonate zu spielen*]_C
 ‘Peter begins to play a sonata’

- c. *Peter beginnt* [*an Geister zu glauben*]_C
 ‘Peter begins believe in ghosts’
- d. [?]*Peter beginnt* [*krank zu sein*]_C
 ‘Peter begins to be ill’
- e. ^{??}*Peter beginnt* [*Deutsch zu können*]_C
 ‘Peter begins to can German’
- f. *Peter beginnt* [*nach dem Hund zu treten*]_C
 ‘Peter begins spark after the dog’
- g. *Peter beginnt* ([*zu sprechen, zu lachen, ...*])_C
 ‘Peter begins (to talk, to laugh, ...)’
- h. [*Die Schule*]_C *beginnt*
 ‘The school begins’

The Time Condition (TC) concerns obligatory features in the semantics of phasal verbs which are ultimately grounded in Simple Phase Semantics (SPS). The semantic evaluation processes triggered by the lexical entries of phasal verbs as they are captured by SPS require on the level of TC external input supplied with temporal structure in order to provide sentences with their semantic interpretation. This theoretical connection between the two components TC and SPS is displayed by the top and center box on the left hand side of Figure 1 on p. 246.

3.4 Restricted categorial selection: RCS

RCS (Restricted Categorial Selection), the fourth component of our model, generalizes the empirical observation suggested, e.g., by German and Danish that phasal verbs subcategorize for infinitive and nominal phrases rather than for sentential complements. In German, they even have a strong preference for nominal complementation. Again, it seems that the subcategorization frames of phasal verbs interact with their Simple Phase Semantics (SPS). Compare, for example, the group of completive-egressive German verbs resembling the English *finish* (*beenden, abschliessen*, etc.) with the only German non-completive egressive verb *aufhören* (cf. English *stop*). Whereas the verbs of the former type exclude infinitive complements, the latter verb excludes – as already mentioned in the Introduction; cf. Section 1.1 – nominal arguments. If it could be shown that subcategorization mirrors phase semantic subgroups (nominal complementation = completive egressive, infinitival complementation = egressive without a completive signal), this would strongly support the design of Simple Phase Semantics proposed above and would be a strong argument for a functional, semantics-based analysis.

In general, it seems that the pattern of categorial selection of phasal verbs follows semantic principles and is based upon a kind of division of labor in which

the whole phasal verb group covers the range of constructions mentioned in order to utilize the denotational resources given in Simple Phase Semantics (SPS). RCS, which subsumes the above mentioned selectional restrictions of phasal verbs, encodes also the perhaps unexpected reluctance of phasal verbs to combine with (finite) sentences. This avoidance of sentential complements undoubtedly calls for an explanation since sentence-like phrases, finite complement sentences and infinitive phrases should, in accordance with the Time Condition, be able to deliver the necessary temporal structure needed as an input for the phasal verb. In English, as in all languages I am familiar with, phasal verbs categorically do not combine with finite sentential complements:

- (32) a. **Peter began (started, ...) that he read the book*
b. **Peter stopped (finished, ...) that he read the book*
c. **Peter continued (resumed, ...) that he read the book*

If the avoidance of sentential complements really occurs as a recurrent feature in the phasal verb systems of otherwise unrelated languages, the explanation for this has to be found in the Time Condition (TC) and in Simple Phase Semantics (SPS). Therefore Restricted Categorical Selection (RCS) is not a defining component of our model, but possibly has to be derived from the two definitional components TC and SPS as suggested by the two arrows in the left branch of Figure 1 on p. 246.

3.5 Participant reconstruction: PR

The fifth and last component of our model is labeled “Participant Reconstruction” (PR). As all finite verbs ordinarily do, phasal verbs take a syntactic subject. But as we know from default role assignment, the subject participant does not enter into the argument structure of the phasal verb. The reason for this is to be sought in SPS (Simple Phase Semantics) according to which phasal verbs do not refer to events together with their participants but only denote simple time relations between propositions which are, in principle, independent of phasal verb semantics. According to the θ -criterion (Williams 1994), which says that all arguments have to be assigned a role, the subject participant of the phasal verb gets its role from the embedded structure. If the phasal verb embeds an infinitive complement, the phrase can be analyzed as a classical control construction,³⁷ but see the discussion p. 240 above.

37. Note some raising effects, too, as described in Engerer (1999).

A rather unique feature for phasal verbs is that the θ -criterion applies in transitive phasal verb constructions with nominal complements as well, cf. the German example

- (33) *Peter beginnt ein Buch*
 ‘Peter begins a book’

Here, the subject argument of the phasal verb, *Peter*, gets assigned a role by a reconstructed event. For this reconstruction the entity referred to by the syntactic object *book* delivers the “theme” object upon which the “actor” Peter referred to by the subject of the phasal verb acts. Hence the actor and the theme are explicitly realized in linguistic structure whereas the hearer has to rely upon his general knowledge of things and relations in the world and his specific knowledge of the communication situation at issue in order to interpolate the relation connecting actor and theme (is it reading, writing, or perhaps coloring?); cf. the QUALIA-features in Pustejovsky’s analysis. The necessary reconstruction processes can be completely controlled by the grammatical features of the sentence. This is, for example, the case when the embedded noun of the phasal verb is a transparent derivation from an intransitive verb:

- (34) *Peter beginnt einen Streit*
 ‘Peter begins a row’

In this case the embedded event must be describable by the German *streiten* (‘to row’, ‘to argue’) which is morphologically related to the noun *Streit* (‘row’, ‘argument’). The subject participant of the phasal verb is the first argument in the reconstructed event description *Peter streitet*. The most original explanation is found in Newmeyer (1975: 43f) whose account is further discussed in Engerer (2010).

Again, we make the plausible assumption that syntactic and semantic control as well as Participant Reconstruction (PR) are in general based upon SPS, which forms the basis for the rather “impoverished” semantics of phasal verbs, which is also the ultimate reason for their inability to present an event on their own. At the same time, PR is subject to language-specific variation as languages differ in the way how they mark syntactic relations and roles as well as with respect to other relevant features as, for example, subject prominence. Therefore PR is an optional feature of phasal verbs, directly derived from SPS, and, obviously, not influenced by CC, TCon or RCS. In Figure 1 on p. 246 this relationship is symbolized by the arrow with the dashed shaft which connects the top box on the left with the bottom box on the right.

4. Conclusion and perspectives

The grammatical validity of a unified, typologically based category of ‘phase’ in verb semantics is not obvious at all and descriptive studies of languages usually seem to get along without referring to this category. Nevertheless, there are, as I have shown in the present paper, a number of arguments that ‘phase’ is an important factor in natural language semantics. This result is further confirmed by the fact that semantic research often makes use of phasal concepts without always making them fully explicit or calling them by their name. Admittedly, one of the main problems in this area is that the phasal concepts are scattered all over the different grammatical layers which in turn gives rise to a confusing variation and uncertainty in terminology – with the effect that the unity of the concepts easily escapes one’s notice.

The ubiquity of phasal notions on all layers of grammar motivates, on the other hand, a wider perspective in the investigation of phasal structure. This will lead us beyond the phasal verb complex, which has been the exclusive focus of research from medieval analyses of phasal structure up to the accounts of modern linguistics. The aim of such a broader perspective would be to reach at a more general account of “phasal structures” and their representation by “phasal meanings”. At least three domains should be mentioned here where phasal meanings can be detected and analyzed. Firstly, phasal meanings may occur as operators in the lexical meanings of verbs (and, as it seems, other word classes as well) modifying other, more idiosyncratic meaning components. Such phasal operators relate lexical units to each other and contribute thus to a more economic overall structure of the lexicon. They are involved for example in the semantics of the German verb *aufbrechen* (‘set off’; Engerer see 2000a: 103) and many other verbs as the thorough investigation of the German verbal vocabulary in Ballmer & Brennenstuhl (1986: 63) clearly shows (see also Engerer 2009). This line of research is decompositional in theory and method.³⁸

Secondly, phasal meanings figure in the semantic analysis of certain syntactic constructions as, for example, temporal clauses containing certain verbs of moving, cf. (35).

- (35) *Bevor er ging, legte er die Pistole auf den Tisch*
 ‘Before he went (left) put he the gun on the table’

In (35) the temporal conjunction *bevor* (‘before’) indicates that the endpoint of the accomplishment in the main clause (‘he put the gun on the table’) is marked by the

38. Also represented in Ballmer & Brennenstuhl (1986), partially Fabricius-Hansen (1975) and, perhaps most influential, in Dowty (1979).

punctual ingressive phase of the going/leaving activity ('he went/left'). An explanation for the fact that the conjunction puts focus upon the initial phase of the leaving event and thus triggers an "ingressive reading" of the subordinate clause could be that the leaving event itself, viewed as a "pure activity", lacks clearly demarcated boundaries and is therefore not able to bound another event. However, much more research has to be done here.

The third and last layer where phasal meanings can be identified covers textual, pragmatic and discourse related phenomena. Not very much is known about this as, to my knowledge, there is no standard theory allowing to coherently describe and explain phasal meaning phenomena in units transcending the sentence. One interesting attempt is ter Meulen (1995), but all theoretical approaches taking linguistic and non-linguistic context into account have to be considered, too, including Discourse Representation Theory (cf. Kamp & Reyle 1993) or Situation Semantics (cf. Barwise & Perry 1984).

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