



## Verbal particles / prefixes and situation aspect.

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## **Verbal particles and prefixes and situation aspect.**

Prepositions and particles are notoriously polysemous and multifunctional across languages. In many Indo-European languages, realized as pre-verbal prefixes or as detachable adpositions, they can have various lexical and /or grammatical functions, one of which is to mark so-called (a)telic aspect at the VP level, and that often goes together with valency-changing effects. The presence of prepositional phrases/particles/prefixes has long been held as one of the factors involved in what is called “*aspect shift*”, i.e. change of membership from one aspectual class to another, along with the properties of the noun phrase (bare NPs or not) and the presence of time (frame or durative) adverbials. At the sentential level, they may serve another purpose, which is to derive a perfective verb from an imperfective verb: it is the case in Russian. So it appears that particles / prefixes figure prominently among formal markers of aspect.

I propose to explore the interaction in this paper. In section 1, I present the data in order to give an idea of the cross-linguistic variation in the use of particles or prefixes across some familiar European languages, mainly English and Russian. In section 2, I review some of the most influential theories of semantic (lexical) or *situation aspect* (Smith 1991). Finally, in section 3, I select the two theories (Tenny’s MOC and Levin and T. Rapoport’s lexical subordination) that can best account for the general phenomena of verb type-shifting induced by particle verbs (*pvs*) and prefixes, among other elements.

### **1- The data**

Let us begin with English, which has many constructions involving prepositional phrases and particles (intransitive prepositions).

#### *1.1. English particle verb (pv) constructions.*

- 1) *He ran across (the square)*
- 2) *He took the garbage out.*
- 3) *He wiped the table down.*
- 4) *He wiped the table clean.*
- 5) *He ran up a lot of debts.*
- 6) *Billy bashed away at the piano.*
- 7) *He worked off his debts.*
- 8) *He sat out the storm.*
- 9) *He slept the afternoon away.*
- 10) *I'm all coffeed out.*

In 1), *across* can be realized either as a preposition taking a NP complement or as a particle; in 2), *out* is a directional particle: its meaning is transparent, the structure is highly productive and predictable; it is arguably from uses like these that other, non-spatial, uses of postpositions emerged. There is a close semantic and functional parallelism between structures 2) and 3), and 4), which is a so-called resultative structure: all three are cases of syntactic secondary predication, with the locational adverbial (*out*), the particle (*down*) and the adjective (*clean*) providing a secondary predicate to the main semantic predicate (*took* in 2, *wiped* in 3 and 4). In all three cases, the referent of the postverbal argument undergoes a change of state. The meaning of *down* in 3) is difficult to pin down; it is certainly not directional: the table does not end up “down” as a result of wiping. 5) is even more problematic: although the particle *up* appears to have the “maximalizing effect on the direct argument” that the literature typically (and rather vaguely) ascribes to it (McIntyre 2002), its *Aktionsart* contribution in 5) is next to nil: the debts do not end up being “up”, neither do they get “run”, for that matter. We seem to be dealing with a completely unpredictable “verbe + particle” combination. In 6), *away*, followed by the conative *at*-construction, is also an aspectual particle but unlike the particles from 1) to 5), it makes the whole verbal predicate atelic. Apart from the resultative construal that we already noticed, one further effect of the particle in 7) and 8) is its valency-changing effect on the main verb: the particle constructions make the intransitive verbs *work* and *sit* transitive. Finally, 9) and 10) are interesting cases of semi-productive formations (Jackendoff, McIntyre, 2002): one part of the schema is fixed (Verb time-*away*; *be* Verb-*ed out*), the other (the verb and the temporal phrase in 9, the verb in 10) is partially open, and again the sentence has a resultative, change-of-state flavor.

Russian offers the same variation but with two noticeable differences: 1) the prepositional element is realized as a non-detachable prefix; 2) the prefix is one of the means whereby a

perfective verb is derived out of an imperfective verb stem. To a certain extent, prefixes in Hungarian fulfil the same function, but unlike their Russian counterparts, they are detachable.

### 1.2. Russian (and Hungarian) prefixes

Let us look at the data for Russian first.

- 11) *On dobežal do doma i vbežal v kuxnju*: He ran to the house and ran into the kitchen.  
He *do*-ran *do* house and *v*-ran *v* kitchen
- 12) *Dopisav pis'mo, on zagovoril s nej.*  
*do*- write letter, he *za*-talk to her  
“Having finished writing the letter, he started to talk to her.”
- 13) *On vyterel stol*: he wiped down the table.  
He *vy*-wiped table
- 14) *On otrabotal svoj dolg*: He worked his debts off.  
He *ot*-worked his debts
- 15) *Budil, budil, no ne mog dobudit'sja eë.*  
woke, woke-*imp*, but could not *do*-wake-*refl*  
“He was trying hard to wake her, but didn't succeed in waking her up.”
- 16) *Ona igrala, a sestra eë podpevala*: She played, and her sister sang along.  
She played-*imp*, but sister her *pod*-sang-*yva*
- 17) *On pogрузil drova na baržu*: He loaded timber onto the barge.  
He *po*-loaded timber.*acc* on barge.*acc*
- 18) *On zagрузil baržu drovami*: He loaded the barge with timber.  
He *za*-loaded barge.*acc* timber.*instr*
- 19) *Ona vypila stakan vodki i postavila ego na stol.*  
She *vy*-drank-*perf* glass of vodka and *po*-stood-*perf* it on table  
“She drank the glass of vodka and put it on the table.”
- 20a) *On pročital \*(knigu)*: he read/has read the book.  
He *pro*-read-*perf* \*(book)
- 20b) *On čital (knigu)*: he read/was reading the book.  
He read-*imp* (book)
- 21a) *On napisal \*(pis'mo)*: he wrote/has written a letter.  
He *na*-wrote-*perf* \*(letter)
- 21b) *On pisal (pis'mo)*: he wrote/was writing a letter.  
He wrote-*imp* (letter)

11) illustrates the prepositional nature of prefixes: in most cases the prefix is synchronically also a spatial preposition; *v-* in *vbežal* implies that he actually changed locations (namely, *entered* the kitchen running), and *do-* in *dobežal* that he *reached* the house running. In 12), that same prefix *do-* assumes an *Aktionsart* meaning: it signals an action that reached its completion; other such *Aktionsart* particles are *za-* (ingression), *ot-* (termination), etc. 13) and 14) recall the resultative structures of English above, with the difference that the secondary (resultative) predicate is realized as a non-detachable prefix *vy-*, which means that the action leads to “exhaustion, emptying”. In 14), the intransitive verb *rabotat’* (“work”), together with the prefix *ot* (“off, from”), selects a result predicate as complement.

15) and 16) illustrate another type of combination making use of a prefix and the reflexive postfix *-sja*, “self”: the compound is not the mere addition of the meaning of the terminative prefix *do-* and the reflexive postfix *-sja*, but it is a morpheme which obligatorily comes in two pieces (*do-Verb-sja*) for which the verb position is open provided it denotes somebody to be reached; it is semi-productive : *doždat’sja*, “wait till someone actually shows up”, *dokričat’sja*, “shout till someone responds”, *dostučat’sja*, “knock on a door till someone opens it”, etc. But the pattern, which in theory could be unlimited, is not : there are many ways in which one can end up getting some response from someone by doing something peculiar in the way of getting their attention; for example, the verb *\*dosmotret’sja*, which theoretically could exist (“end up getting a response from someone by *looking* at them intently”), does not. J. Fontaine notes somewhat paradoxically (1983, 40) that this mode of composition is particularly productive for metaphorical formations. 16) is a further example of a two-morpheme verb; it is a formation which uses the two modes of verbal composition of Russian: prefixation (*pod-*) and suffixation (*-va*) applied on a simplex verbal stem (*pet’*: sing); here again we have a split morpheme, the presence of one being conditioned by the presence of the other; taken separately, the formations *\*podpet’* and *?pevat’* either do not exist at all or are out of use (*pevat’* is now archaic).

17) and 18) show the valency-changing effect of certain prefixes: in 18) the prefix *za-* which attaches to the simplex verb *gruzit’* (“load”) contributes the meaning of a place / a surface totally covered with something (the holistic interpretation in the *load*-alternation, Anderson 1975, Veyrenc 1980) and triggers a change in the case of the argument NPs in its

wake: from *pogruzit'* in 17) (*po-* being a “neutral” prefix<sup>1</sup>) + theme (accusative) + location (accusative directional), we get *zagruzit'* + location (accusative) + theme (instrumental).

But where Russian radically departs from English and other Germanic languages is that at one point in the history of the verb phrase it gave up the inflectional temporal paradigms it had inherited from common Slavic (aorist, perfect, imperfect) and developed the category of grammatical aspect by reanalyzing the already existing material (i.e., prefixal formations and suffixed verbs). In all the cases discussed above, the mere adjunction of the prefix renders the verb perfective. In 19), the verbs *vypit'* (‘drink’) and *postavit'* (‘put in vertical position’) are the perfective members for the simplex imperfective verbs *pit'* and *stavit'*; as the prefix seems to simply serve a grammatical function, the literature recognizes somewhat paradoxically that a purely derivational morpheme (*vy-*, *na-*...) fulfils an inflectional function. The choice of the prefix is not totally arbitrary, however; when it is not neutral (like *po-*), very often it is redundant or pleonastic in relation to the meaning of the verb: *vy-* is the prefix (one of the few, incidentally, which does not exist as a preposition) that indicates exhaustion, an emptying process; in 21a) *na-* is the preposition meaning “contact with a surface” (“on, onto”); *pro-* in 20a) implies a process of scanning, of “going over” something (exactly what one’s eyes do when they are reading). One important point is this: in spite of what the morphology temptingly suggests (*vy-pit'* = “drink out of / up”; *pro-citat'* = “read through”), *vypit'* does not necessarily mean that the contents of the glass were completely drunk; it is perfectly natural to say something like *On vypil čutok stakana*: “He drank part of the glass”, with no commitment as to the completion of the drinking process leading to exhaustion of the liquid. However, one systematic effect that perfective prefixed transitive verbs (and all perfective transitive verbs, for that matter, whether prefixed or un-prefixed) do have is that, as 20a) and 21a) illustrate, they cannot occur without a direct object.

One further striking aspectual effect that Russian prefixes do not have, but that Hungarian prefixes do show, is that, when some of them are detached from the verb, they give an imperfective progressive interpretation to the verb phrase; not only do they mark *situation aspect* (SA), they also express *viewpoint aspect* (VA, Smith 1991):

22) <i>Peter atment</i>	<i>a hid-on:</i>	Peter crossed the bridge.
Peter through-past	the bridge	

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<sup>1</sup> The notion of a “neutral prefix” is a long-standing tradition in Russian aspectual research; they are prefixes which merely make an imperfective verb stem perfective, without adding any meaning nuances whatsoever; among those, *po-* is the generalized neutral perfective marker, semantically empty, and one of the “criteria that go most towards making a systematic set of aspectual oppositions” (Comrie, 1976, writing about Slavic *po-*).

23) *Peter went at a hid-on:* Peter was crossing the bridge (when...)  
*Peter go-past through the bridge*

The data has shown the deep correlations between situation/viewpoint aspect and the use of verbal prefixes/prepositional constructions/particles. In this paper I will explore the aspectual contribution of verbal prefixes/particles only at the level of SA, leaving the assessment of their contribution to VA for a later paper. But first, I need to clarify the notion of SA: I have been using the terms “(a)telicity”, “perfectivity” indiscriminately. I will draw on existing theories of situation aspect, see how these apply in assessing particle/prefix constructions, and show how this affects the structural make-up of verbs.

## 2. Different versions of Situation Aspect

I insisted that the notion of SA should not be confused with that of VA. Although these two components utilize the same ingredients, they do not operate at the same level and make different contributions: SA operates at the VP level, basically transforming a spatial entity into a temporal one, whereas VA provides instruction concerning the interpretation of the whole sentence into the discourse world of the speaker/utterer. Some authors have suggested calling VA “presentational aspect”, which avoids the vagueness and possible confusion inherent in the term “viewpoint”; “presentational” refers to the temporal function of grammatical aspect, which is basically to mediate the relationship between utterance time and the time of the event denoted by the verb.. However, I will continue using the term V(iewpoint) A(spect).

### 2.1. The origins of Situation Aspect

That prefixes / particles should be so enmeshed with aspect should not surprise us: aspect, whether situation (VP-level) or viewpoint (sentence-level), is the means whereby strictly spatial eventualities (*write a letter* is a “local” event) become temporal ones. Prepositions are very good candidates: their spatial origin predisposes them to do that. But what exactly does the term SA cover? I need to make an excursion into the vast literature on the subject, and

clarify the notions of telicity, quantisation, culmination, etc, and then proceed to assess the relevance of prepositional/particle constructions to aspectual construals of sentences.

It did not all start with Vendler, of course, but I will take him as a starting point. Vendler insisted that the time element is crucial in classifying verbs, or rather VPs. He popularized a certain number of syntactic tests (*be V-ing*, the *in* and *for* adverbials) designed to make the temporal (later dubbed “aspectual”) properties of VPs emerge. The first distinction concerns the so-called *activity terms* and the *state terms*: activities like *run* are made up of a certain number of dynamic sub-phases whereas states lack internal structure. The progressive helps tell the two classes apart. Then, among dynamic processes, a further distinction has to be made between those activities that are inscribed homogeneously in time and do not include a natural completion point (*run*), and those activities, dubbed *accomplishments*, that have both a phasal part and an endpoint beyond which the event will have reached completion (*run two miles*). Activities have the sub-interval property: at every moment of an event of John running, John can be said to be running; on the contrary, at a given moment of John running two miles one cannot assert that *John ran two miles* is true. In function of their theoretical frameworks, subsequent authors have given to this semantic opposition the names of atelic vs. telic (the term “telic” originates with Garey 1957), cumulative vs. quantised (Krifka), non-culminated vs. culminated (Moens and Steedman), etc. Finally, there is another “genus” of verbs that share some properties with both accomplishments and states: they are the *achievement terms*; like the states, they do not have the interval property, and they naturally do not take the progressive (*He is reaching the top* can only mean that he is in the approach phase of reaching the top); like accomplishments, they do include a terminal point beyond which the event will be over (*he has reached the top*).

The next step was to formalize the notion that aspectuality of the VP is derivable from the composition of other constituents, namely, V + NP; the first author to do that explicitly was Verkuyl (1972):

“The durative and non-durative aspects in [these] sentences appear to be composed of a verbal sub-category on the one hand and a configuration of categories of a nominal nature on the other.” (1972, page iv, quoted by Dowty, 64)

In more recent work, Verkuyl has repeatedly spoken out against a narrow view of the telicity of the VP, denying that verbs can be classified as to whether they express “a specific inherent goal”; for him, NPs like *three miles* in *John walked three miles* or *the letter* in *Peter wrote the letter*



“... restrict the progress expressed by the verbs *walk* and *write* rather than providing culmination or telos: the internal argument leaves no room for further walking or writing, so to say.” (Verkuyl 2000:29)

He concludes that telicity/quantisation/culmination is an *epiphenomenon*: what matters is the trajectory, the measuring scale denoted by the association verb-NP. That telicity is not lexically marked is obvious in the work of many other authors: if it was so, the abundant discussion of aspect shift could not have happened.

## 2.2. *Aspect shift and change of state*

Vendler himself recognized that very often English verbs change classes. This phenomenon has been termed “aspect shift” or ‘type-shifting’ (Zucchi 2001 and others) in the literature, and one of the three phenomena that can induce it is the presence of PP complements or particles or prefixal modification for Russian (the other two are: properties of the object NP, presence of a frame or a durative adverbial). Dowty, who developed an aspect calculus from each of the Vendlerian classes, proposed the following formula for a canonical accomplishment: “(the) coming about (CAUSE) of a particular state of affairs (BECOME)”.

Thus, the logic of a change of state was introduced: *John ran two miles* is not best described as telic or resultative in the ontological meaning of the term (the event contains no specific inherent goal leading up to a climax after which the event is over and done with), but the sentence denotes a particular *state of affairs* about John that is the outcome of a dynamic event which can be called running (the verb *run* has a predicative as well as an “appellative” function). This might sound an unnecessary refinement, but it is precisely this that the notion of aspect shift captures. Starting from Vendler’s accomplishments and achievements, Dowty sought to refine the classification, and had many followers: he drew a distinction between single changes of state and complex changes of state. The difference lies in the punctual or intervallic nature of the transition (the term “transition” was adopted by Pustejovsky<sup>2</sup> 1991, 1995) between the initial state and the final state denoted by the VP: *notice* and *kill* are single changes of states, *build a house* and *walk from x to y* are complex change-of-state VPs.

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<sup>2</sup> Pustejovsky developed a theory of generative or compositional model of lexical semantics, quite different from Verkuyl’s or Dowty’s “exhaustive” approaches, which assume “a set of primitives and then operate within this set to capture the meanings of all the words in the language.” (38) For our purposes here, we need not enter this level of distinction.

Pustejovsky takes the notion of event / aspectual change further. For him, there are three components to event structure:

- “- the primitive event type of the lexical item;
- The rules of event composition;
- The mapping rules to lexical structure.” (Pustejovsky 1991:39)

There are three primitive event types: States, which are evaluated relative to no other event (*love, know, resemble*); Processes, “a sequence of events identifying the same semantic expression” (*run, push, drag*), and Transitions, “an event identifying a semantic expression, which is evaluated relative to its opposition.” (*give, open, build, destroy*). (*ibid.*:40) In Pustejovsky’s trees for those primitive types, we find Dowty’s BECOME and CAUSE primitive predicates, but operating at different levels of event structure (*ibid.*: 41).

Figuring prominently among the rules of event composition we find prepositional/particle constructions: a verb whose primitive event type is Process (P) like *run*, type-shifts to a Transition when it is followed by a phrase like *to the store*; to the store “projects its own event structure”, much in the spirit of D. Davidson’s (1967) recognition that prepositions contribute eventual structure as much as the verb. For this type-shift from Process to Transition, Pustejovsky introduces the notation <P,T>. He gives the following logical form for the sentence: “Cause(act(m), become(at(m, the-store)) BY run”. The main verb (*run*) “is actually treated as an argument to <P,T>, ... hence creating a “BY manner expression.” The matrix verb is type-shifted to a subordinated predicate. The same principles of event composition concern resultative constructions like:

- 24) *Mary hammered the metal flat.*
- 25) *The men drank the pot dry.*

The adjective is type-shifted to an event interpretation which makes a state out of it, a state “that can be changed by being acted upon”. The particle constructions exemplified in 3), 4), 5) above also contribute to type-shifting. Spencer and Zaretskaya (1998) adopt the same analysis as Pustejovsky; they adapt the notion of “lexical subordination” from Levin and Rapoport (1988): in 25),

“The syntactic secondary predicator (*dry*) is semantically primary [it is the] “core predicate”; ... the main verb is then subordinated as a manner or means clause [it is the] ‘subordinated’ predicate.” (Spencer and Zaretskaya 1998:5)

They give the following “template”, which is the same as Pustejovsky’s, for these resultative structures:

26) CAUSE [ACT (x)], BECOME (y) by [V(x)]]

This works well for resultative constructions: the *y* variable can be filled directly by the adjective (*dry, clean*); they extend the analysis to particle constructions, which are closely related to resultatives; the problem arises for particles like *up* or *down*, whose meaning contribution is rather vague. Although the sentence *he wiped the table down* gives us a strong sense that the table was brought into a new state as a result of wiping (its surface was completely wiped), *down* cannot as such stand for the *y* variable in the formula proposed above. McIntyre (2002) has a nice explanation: having looked at an important data sample, he noted that *down* as in *wipe down* does not occur randomly, but systematically with verbs from a same semantic class, namely verbs that indicate that a whole surface was affected by whatever the verb denotes in the way of cleaning (*brush, clean, rub, soap, sponge*, etc, *down*). He defends the notion of a “construction-specific” meaning, “a meaning which is idiosyncratically confined to the *pv* construction’ (McIntyre 2002: 98). It is actually the structural template proposed above *and* the independent meaning of both verb and particle that ensures the proper interpretation.

It has appeared that the notion of *change of state* is crucial in the discussion: we need an aspectual theory more sophisticated than the telicity/atelicity distinction that can capture the strong sense that the syntactic “template” V + NP + particle goes hand in hand with an aspectual change of state reading.

### 2.3. Tenny and the MOC

Tenny’s *Aspectual Interface Hypothesis* permits one to do just that: she endeavors to uncover the principles whereby aspectual distinctions are mapped onto the syntax. She makes the aspect calculus of VPs one of the linking principles between thematic structure and the syntactic projections of arguments:

“The universal principles of mapping between thematic structure and syntactic argument structure are governed by aspectual properties. Constraints on the aspectual properties associated with direct internal arguments, indirect internal arguments, and

external arguments in syntactic structure constrain the kinds of event participants that can occupy these positions.” (Tenny 1994: 2)

She then formulates her Measuring-Out Constraint (MOC) on Direct Internal Arguments:

“(i) The direct internal argument of a simple verb is constrained so that it undergoes no necessary internal motion or change, unless it is motion or change which ‘measures out the event’ over time (where ‘measuring out’ entails that the direct argument plays a particular role in delimiting the event).

(ii) Direct internal arguments are the only overt arguments which can ‘measure out the event’.

(iii) There can be no more than one measuring-out for any event described by a verb. (*ibid.*:11)

“Measuring-Out contains two ingredients: a measuring scale associated with an argument, and a temporal bound or delimitedness.” (*ibid.*:15)

The MOC is evident in two types of verbs: verbs that take an incremental theme (Dowty 1991) (*eat an apple, build a house*) and verbs of change of state (henceforth abbreviated COS) (*ripen, break*). Each increment of the apple that is consumed measures progression in the action expressed by the verb; a verb like *eat* has the capacity of translating the spatial delimitation of the apple (which is an object in space) in a temporal delimitation. I believe the whole point of aspect is there: how to ensure the necessary homomorphism between space and time for inscription in time. The important insight of Tenny is that this aspectual role corresponds to *a specific mapping to the syntax*.

Canonical examples of “measuring-out” verbs include, apart from consumption and COS verbs, prepositional constructions and phrasal verbs which are the real “delimiters”, the non-ambiguous markers of a change of state :

27) *Mary built a house*

28) *The lake froze*

29) *Thomas ate an apple up*

We can easily capture the aspectual type-shifting effect of prepositional constructions in the following sentences, using the time-honored adverbial tests:

30a) *Anne-Marie polished the countertop for ten minutes*

30a) *Anne-Marie polished the countertop in ten minutes.*

31a) *Anne-Marie polished the countertop to a shine / smooth / polished up the countertop ?for an hour*

31b) *Anne-Marie polished the countertop to a shine / smooth / polished up the countertop in an hour*<sup>3</sup>,

32a) *He wiped the table for / in an hour.*

32b) *He wiped down the table in an hour.*

30a) implies that Anne-Marie spent ten minutes polishing it, then moved on to another task, while 30a) focuses measures the change of state: it took her 10 minutes to get the countertop polished. 31a) is odd because the *for*-phrase would measure not the semantic expression of the main verb, but that denoted by the prepositional/adjectival/particle construction: the state of cleanliness would have lasted only for an hour; *in an hour* in 31b) measures the time it took for the change of state to occur. The verb *polish* in 31b) becomes lexically subordinated (Levin and Rapoport 1988), providing only the manner in which the change of state obtains. The same analysis holds for 32a/b).

It follows that apart from a small class of real lexically specified transitions, among which we find canonical achievements (*die, kill, break*), many consumption, creation and even COS verbs do not lexically include an in-built inherent endpoint: a verb like *polish, bake, even eat*, are both Transitions and Processes. Thus I come to the conclusion that telicity as implying the existence of an inherent specific goal (a *telos*) together with a totality entailment is not central for classifying verb phrases: what counts for a classification of VPs is the measuring effect of either the direct object by itself (a real Measure), provided the verb also potentially expresses a change of state, or of the combination of an NP object with a particle/prepositional construction (a Path and Terminus, in Tenny's terminology).

Interestingly, Tenny's theory predicts that a certain number of apparently non-aspectual alternations are in fact explained by the aspectual role of measuring-out. It is particularly the case with "unselected" or "fake" objects, like the (real or fake) reflexive or the *one's way* object:

33) *He washed for an hour.*

34) *He washed himself ??for / in an hour.*

35) *He laughed himself silly / to sleep in two minutes.*

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<sup>3</sup> These examples are taken from R. Smollett's 2005 article "Quantized direct objects don't delimit after all", in Verkuyl, H., de Swart, H., van Hout, A. (eds), *Perspectives on Aspect*, Dordrecht, Springer, p. 41-59.

According to Tenny, *himself* in 34) provides the argument which serves to measure out the change, which the corresponding reflexive-less construction does not necessarily entail (in 33). Pustejovsky comes to the same conclusion for 35): “the false reflexive NP serves the function of representing the predicate opposition in the transition (Pustejovsky 1991: 56)”. The whole question is whether this fake object is actually an argument: using data from Russian, Spencer and Zaretskaya contend that it is (see below). Strikingly, it is the structural template in 26) above that ensures that “the argument of the BECOME predicate is mapped to an argument position, irrespective of whether it is also an argument of the subordinated predicate”.( Spencer and Zaretskaya 1998:12) In a way, the structural template forces the interpretation of the postverbal NP as an argument of the main verb.

Tenny provides other constructions which are best explained by her aspectual role:

36) *John insulted his boss for five minutes/in five minutes.*

37) *John insulted his way across the room ?for five minutes / in five minutes.*

Similarly, concerning psych verbs, a resultative PP expression can measure out the change of state for a verb like *frighten*, but not its near synonym *fear* :

38) *The movie frightened the children to death.*

39) *\*The children feared the movie to death.*

Jackendoff (2002) discusses a whole class of semi-idiomatic expressions using PP or verb+particle expressions; some of them (*over* in 41) are telic particles (in the sense of Tenny), capable of measuring out the event:

40) *He cooked the food in an hour / for an hour.*

41) *He cooked the food over in an hour / ?for an hour.*

Others, like *away* or *on*, have striking properties: they denote atelic eventualities and, in that interpretation, never occur in the template; on the contrary, they have the property of disallowing direct objects:

42) *Dave drank / danced away.*

43) *Bill drank / read on.*

44) *\*Dave drank scotch away / \*danced waltzes away.*

45) *\* Bill drank scotch on / \*read newspapers on.*

After all, 44) and 45) would be logically possible with the meaning that he kept on drinking scotch, reading newspapers, etc. Jackendoff then discusses another construction which does use *away* and takes a postverbal temporal NP:

46) *Bill slept the afternoon away.*

47) *Bill frittered the evening away sleeping.*

Here, unlike in the sentences above, quite unexpectedly, *away* does lend the whole construction a delimited interpretation: 46) could be paraphrased as: “Bill heedlessly used up the afternoon sleeping”; the transition/measuring-out effect is clear: the time is literally used up by the subject doing sth. Of course Bill has not changed in a trivial manner once the event has occurred, but the sentence states that he entered a new state, that of having used up his whole time sleeping, and that counts as a change of state. Again, the template forces this interpretation. We find all the ingredients for measuring-out: the template (Verb + NP + particle) and the consequent “measure” induced by the association between the unselected (fake) NP *the afternoon* or *the evening* (fake in the sense that you cannot “sleep an afternoon”) the semantics of *away*, and the construction-specific meaning of this *pv* construction. This fake NP has all the attributes of a real NP: it cannot be separated from the verb by an adverbial of manner (see 49), whereas the canonical intransitive sentence does not show this behavior:

48) *Sue drank Tuesday night calmly away.*

49) \**Sue drank calmly Tuesday night away.*

50) *Sue drank all Tuesday night calmly.*

51) *Sue drank calmly all Tuesday night.*

I suggest that the argument-blocking effect in sentences 44-45, and the argument “un-blocking” effect in 46-47, are directly the consequence of the *aspectual principle of measuring-out* as expressed by the template. (or, alternatively, we can adopt Pustejovsky’s <P,T> type-shifting principle, which captures the same intuition). The crucial notion in measuring out, I repeat, is the denotation of a change in the state of affairs that ends up being different from what it started out as.

However limited, this study of the behavior of *pv* constructions lends support to Tenny’s MOC: it is the direct object NP that is the crucial element in measuring out; it is so strong a

constraint that fake or unselected NPs must be inserted into the template when the verb naturally lacks one.

### 3. Russian prefixes, the *load* alternation and “time slices”

Spencer and Zaretskaya extend their conclusions to Russian prefixes: a whole class of prefixes constitute the core predicate, and the main verb is the subordinate predicator, just like in English, as in:

52) *Ona vyterla stol*: she wiped / scrubbed the table down.

She *vy-*scrubbed table

53) *Ona ispisala svoju ručku*: her pen has run out of ink. (lit.: “she out-wrote her pen”)

She *is-*wrote pen

Apart from the fact that adjunction of the prefix makes the simplex verb (*teret'*, *pisat'*) perfective, the most obvious difference with English is that the complex lexeme that denotes a change of state is a lexical entry that is distinct from that of the simplex verb. Some prefixes, however, do not have that function:

54) *Ona poterla sebe glaza*: she rubbed her eyes.

She *po-*rubbed herself eyes

55) *Ona napisala pis'mo moej ručkoy*: she wrote a letter using my pen.

She *na-*wrote letter my pen.*instr*

Here, *po-* and *na-* are so-called empty, or pleonastic, prefixes, whose only function is to make the verb perfective: they contribute the exact same meaning than their imperfective prefixless counterparts, they have no valency-changing effect, they do not by themselves induce a change of state, no more no less than the corresponding imperfectives:

56) *Ona terla sebe glaza*: she rubbed / was rubbing her eyes.

57) *Ona pisala pis'mo moej ručkoy*: she wrote / was writing a letter using my pen.

Before I explain this dual behavior of prefixes, I would like to focus on one particular aspect of this phenomenon which I will connect with the aspectual principles discussed above: the cases where the prefix has a clear valency-changing effect *and* an aspectual measure role, the former being the effect of the latter; it is the Russian equivalents of the *load/spray* alternation.



### 3.1. Valency-changing effects

The *spray/load* alternation is well-known in English: it concerns three-argument verbs, for which two of the internal arguments can alternate: the direct object is either a theme (58) or a location (59).

58) *He loaded hay onto the cart.*

59) *He loaded the cart with hay.*

English shows no surface change: the verb *load* in 59) has no surface marker for the *y* variable in the BECOME predicate; however, the same aspectual principles (“measuring-out”) and the same structural component (“CAUSE the cart to BECOME full of hay BY loading”, on the model of CAUSE the table to BECOME “down” - completely wiped - BY wiping it) seem to apply. Tenny suggests that aspectual principles regulate this alternation; in particular, the theme must be a material that is incrementally homomorphic to the progression expressed by the verb (*viz.*, in 58 the volume of hay increases as it gets loaded), and the location must be a container that gets filled as the event progresses. In fact, both arguments must be able to mutually measure out the event. The alternation does not occur if either of these conditions is not met:

60a) *Push the car to the garage.*

60b) *\*Push the garage with the car.*

61a) *Send a letter to your sister*

61b) *\*Send your sister with a letter.*

The garage in 60b) is not an entity that can get incrementally filled as the car goes into it; neither does the sister in 61b) “progressively” receive the letter. Clause (iii) of the MOC says that there can only be one measure for an event. It is either the theme or the location argument that measures out the event (that contributes to <P,T>).

In other languages, especially Russian, the difference is very often formally marked on the main verb by special prefixes<sup>4</sup>. In Russian, there is a whole class of prefixes whose function is

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<sup>4</sup> It is also the case in Dutch, which uses the prefix *be-*:

... *dat Jan het hooi op de wagen laadt.*

...that Jan the hay on the cart loads

... *dat Jan de wagen met hooi belaadt.*

precisely to do that : Veyrenc (1980) calls them « strong prefixes, ... with a syntactic effect (à effet syntaxique) », those prefixes that affect a verb's valency. There are several of them; *za-* is very common, it is used for various semantic classes of verbs and induces a meaning of covering and filling the whole of an entity<sup>5</sup>:

62a) *Pogruzit' drova na baržu* : load timber onto the barge.  
*po-load timber.acc on barge.acc*

62b) *Zagruzit' baržu drovami* : load the barge with timber.  
*za-load barge.acc timber.instr*

63a) *Posadila cvety v sadu*: plant flowers in the garden.  
*po-plant flowers.acc in garden.loc*

63b) *Zasadil sad cvetami* : plant the (whole garden) with flowers.  
*za-plant garden.acc flowers.instr*

64a) *Postroit' doma na pole*: build houses on the field.  
*po-build houses.acc on field.loc*

64b) *Zastroit' pole domami*: cover the field with houses.  
*za-build field.acc houses.instr*

*Za-* explicitly contributes the holistic meaning inherent in these constructions with the location as direct object: every parcel of the barge, the garden and the field is saturated with the entity marked by the theme. The principle behind these constructions is no different from the one applying in *vyteret' stol* (*wipe the table down*), except for the extra argument. The only surface difference in English is the change in word order and the *with*-phrase. In the a) constructions, however, the *po-* prefix is merely the perfective aspect marker.

The prefixes *u-* and *o-/-ob* are two other candidates for the expression of “holistic” themes; *u-* contributes a meaning of excess; *o- / ob-* selects an animate NP that is entirely affected by the action:

65a) *Povesit' kartiny na stenu*: hang paintings on the wall.  
*po-hang paintings.acc on wall.acc*

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... that Jan the cart with hay *be*-loads

<sup>5</sup> Veyrenc sees in the a) examples a structure based on a *be* diathesis (“diathèse d’être”), whereas the b) sentences reveal a *have* diathesis (“diathèse d’avoir”): 7a) is captured by the structural template ‘somebody CAUSE the timber to BE on the barge, BY loading’, 7b) gives: “somebody CAUSE the barge to HAVE the timber, BY loading”. The proposal, formulated in the 1970s, bears strong resemblances to the one discussed here. This componential analysis allows Veyrenc to conclude that the a) examples are the basic structures for this alternation.

- 65b) *Uvesit' stenu kartinami*: hang the wall with paintings.  
*u*-hang wall.*acc* paintings.*instr*
- 66a) *Podarit' podarki druž'jam* : offer presents to friends.  
*po*-offer presents.*acc* to-friends.*dat*
- 66b) *Odarit' družej podarkami* : lavish presents on friends.  
*o*-offer friends.*acc* presents.*instr*
- 67a) *On podnës vino gostjam*: he brought wine to the guests.  
 He *pod*-carried wine.*acc* guests.*dat*
- 67b) *On obnës gostej vinom*: he served wine to all the guests.  
 He *ob*-carried guests.*acc* wine.*instr*

These examples reveal the semantics and syntax of those particular “strong” prefixes in Russian: not only do they aspectually type-shift the main verb, they vary according to the object that they target and make visible the event (re-)composition that obtains. In those examples, it is the prefix that subcategorizes the location/container NP object in the b) examples, but the accusative case is licensed by the verb; we have:

Conceptual structure: *za-* [“totally cover”] subcategorizes: *pole* (“field”), *stol* (“table”), etc.

Syntactic structure: [*za*-V] governs accusative case.

This allows Spencer and Zaretskaya to consider the postverbal NP in the b) examples as a real argument and not as a fake one; that argument is similar in behavior to all other arguments; it can appear in the genitive in negative contexts, it can passivize, it can be the notional logical object of a middle-type reflexive construction, etc (p. 24):

- 68) *On ne odaril ni odnogo iz svoix družej*.  
 He *neg o*-offered not one.*gen* of his friends  
 “He did not offer any present to any of his friends.”
- 69) *Pole bylo zastroeno*: the field was all built up.  
 field was *za*-built
- 70) *Takije barži zagružajutsja ne tak legko*: these barges do not get loaded very easily.  
 such barges *za*-load-*refl* not very easily

Russian does not differ radically from English: it simply makes the same operations visible in its surface syntax.

Up to now, I have been focussing almost exclusively on the NP + particle predicate (the “core predicate”); however, the role of the subordinated predicate (the main verb) is also

essential in licensing verb-particle constructions: not all verbs can do that. The Vendlerian temporal schemata have to come back into the picture.

### 3.2. Restrictions, or how time comes back in

Other authors (Hoekstra 1991, Hoekstra and Guéron 1995) have stressed the importance of the inherent *time schema* of the matrix verb (the subordinated verb in lexical conceptual structure), in the spirit of Vendler. Achievements, for example, do not enter into resultative constructions because they already include change in their denotation. Guéron and Hoekstra have demonstrated the necessity for the matrix verb of having at least a “temporal slice” from which to predicate of it a result PP. The following sentences, which would logically be possible, are ungrammatical:

- 71) \**The psychopath killed the village into a ghost town.*
- 72) \**The rejected lover hated his girlfriend dead.*
- 73) \**Medusa saw the hero into stone.*

The notion of temporal slices or *event restructuring* is an essential element for understanding the verb’s behavior, in particular whether it allows particle or PP combinations: *write a letter* has a descriptive content, it is an activity verb that has an internal structure made up of different “time slices”<sup>6</sup> (t1, t2, ...tn); each of these slices is matched by each of the increments of the letter. Things are straightforward in *write a letter*. What about a VP like *lock the dog out*? The descriptive content of *lock* (“to shut using a key”) does not naturally apply to a dog (a dog has no lock); but *lock* can be decomposed into temporal slices or subevents; it is an eventuality that takes time (*lock* = t1, t2 ... tn); what makes *lock the dog out* possible is that one of the locking subevent (concretely, one - or several - of the phases of someone locking a door) can lead to the situation resulting in [*the dog out*]; there is a double predication, captured by Hoekstra and Guéron in the form of a SC complement; the real

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<sup>6</sup> Hoekstra (*Aspect and Theta theory*, 1991) suggests that the semantic complexity of accomplishment predicates (they include a phasal part and an endpoint) “be mirrored by a syntactic complexity” (14). He proposes the following structure for *John ate a cake*:

V +dyn [SC NP PRED],

which comes down to saying that accomplishment predicates have a resultative configuration; PRED is an abstract predicate much like a particle (*up* in the case of *eat*). This complex syntactic structure nicely accounts for the aspectual difference between an activity predicate (*John teased his sister*) and an accomplishment (*John ate a cake*), which have the same surface structure (S+V+NPcount). See also Mulder (1992).

situation that is described is that a dog has found itself out (of the house), and that situation is predicated of an individual who was instrumental in doing that by his locking (sub)activity. The notion of lexical subordination nicely accounts for that.

Interestingly, state verbs seldom tolerate particle formations:

74) \**Hate up*, ?*love up*, \**know off*, \**remember up*, \**understand down*, etc.

75) \**love sb out*

Again, *love sb out* would be logically possible (“stop loving someone”), on the model of, e.g., *tire sb out*. But states do not have an internal structure: they project no *t* “slice” of which to predicate the core predicate. Achievements can take particles, however, because they do have an element of dynamism:

76) *Freeze up*

*Dry up/off/out*

*Kill off*

*Break up/off/out...*

The verb itself already inherently denotes a change, which is lexically in-built, so to speak, and those verbs are necessarily transitive or unaccusative (i.e., they take a deep object realized as a surface subject); the particle has at best an intensifying effect, it can express spatial modification or highlight a different NP subcategorization, but it is not aspectual in the sense that it forces a measuring-out that was not already present in the verb itself: the temporal slices are virtually non-existent, there is only one, which is precisely the one that already measures the change, and that is expressed by the main verb ; thus we predict that lexical subordination is much less evident in achievements, which means that achievements cannot have “real” fake objects, whereas canonical activities and transitive accomplishments (*dig*, *wipe*, *read*, *lock*, *write*) may or may not have unselected objects:

77) \**Freeze himself to death*

\**Arrive up*, *down*.

\**Break*, \**shatter one’s way (out, off...)*

*Break the door down*

*Eat*, *push*, *work*, *laugh*, etc, *one’s way (up, into NP, through...)*

*Write the car off*

*Lock dog out*

*Dig the bone up*

As Spencer and Zaretskaya remark, you can write off a car or dig up a bone without ever doing any writing or digging (just as you carry out no locking on the dog if you lock it out); however, if you break a door down or break off from someone, there is, however metaphorically, a breaking event involved. In other words, the main achievement verb is not a BY-clause. Furthermore, achievements cannot enter into the time-*away* construction:

- 78) \**He froze the night away.*  
 \**He broke glasses the afternoon away,*

in spite of the fact that these are all logically possible, e.g. “he (recklessly) spent the whole afternoon breaking glasses (to vent his anger)”.

Further research is needed to verify the claim made here. But the connection between the principles regulating situation aspect and the contribution of prepositional/particle constructions has been amply demonstrated.

## **Conclusion**

This study of situation aspect and particles (for English) / prefixes (for Russian) has revealed a deep intricacy between the syntax and semantics of particle / prefixal constructions: the lexical properties of the verb, i.e. their temporal make-up, constrain the structures they can enter into; if the conditions are met, they trigger in turn a phenomenon of lexical subordination of the main verb. A strong aspectual theory was needed to account for the mapping to syntax of verb-particle structures: Tenny’s aspectual role of measuring-out has proved able to fulfil that function; not only can the direct internal argument of a canonical accomplishment “measure out” the event denoted by the verb, the unselected NP of a verb-particle template can also function as a real argument which can then measure out the event together with the result PP/particle complement. The important notion here is that of change of state rather than telicity understood as the “climax” of the verbal event. The study also confirmed Davidson’s important insight that prepositions contribute structure to the event just like the verb.

What emerges as a more general conclusion of this paper is a new way of considering verbs: the structural template proposed by Pustejovsky, Spencer and Zaretskaya, puts on its head our

usual representation of *what the verb exactly predicates over*. In the cases of lexical subordination discussed here, the verb is a mere BY-clause, expressing cause or manner. Hoekstra and Mulder<sup>7</sup> have demonstrated that one of the roles of prepositional complements (we can extend the remark to verb-particle combinations) is precisely to change the focus of predication. The sentence *John ran* predicates of an individual in an event of running, whereas *John ran across the square* is three-way ambiguous: 1) either it predicates over an individual John as in the act of running, and that event goes on across (over) the square; 2) or it predicates over an individual John ending up at the other side of the square, as a result of an event of running; 3) but there is a third possibility: it predicates of the state of John across the square being characterised as a state of running. I note the same “predication shift” in, for example, the time-away construction as opposed to the simple time construction: *Bill slept the whole afternoon* predicates of an individual, Bill, as sleeping over a whole period of time, whereas *Bill slept the afternoon away* predicates over a situation where the afternoon was heedlessly wasted by an individual who slept through it. As Hoekstra and Mulder conclude, “verbs can be used in a rather flexible way, depending on a number of inherent aspectual properties,” (1989: 25) and, if I may add, of elements like preposition/particle elements that also contribute eventual structure.

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<sup>7</sup> “Unergatives as copular verbs” (1989).

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