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PROPERTIES OF THE DUAL MODEL OF INNER ASPECT AND TELICITY

Properties of a dual model of event semantics and its syntactic interface are discussed in respect of the mereological power that they yield. It is argued that the model reconciles the decompositional and quantificational approaches to eventualities. The model is shown to derive phenomena that are usually stipulated in terms of variable binding and distribution. Variable binding is analyzed into a relation between a predicate and a structure that it c-commands and is applicable to. A predicate is applicable to a structure if the structure does not specify a predicate of the same kind. At least some instances of distributive readings are triggered by this type of binding by quantifying predicates. This also reduces some effects of nonspecificity, such as semantic incorporation, to binding effects: an expression is nonspecific if it lacks certain predicates in its structure, and can therefore be bound by the structure in which it is embedded.

Keywords: inner aspect, event semantics, VP syntax, distribution, referential properties, mereology

1. Introduction

This annual publication has two volumes this year. Celebrating the retirement of two distinguished professors of this department, they can be seen as twins. Accordingly, this paper is a twin, and a second part of the paper published in the twin volume to the current one. The current paper discusses some finer details about the model presented in its twin paper titled *A dual model of aspect and telicity*.

In section 2, the model proposed is discussed in respect of its mereological power. It is a natural continuation of the section 3 of the paper *A dual model of aspect and telicity*; the paper introduces a division, where inner aspect corresponds to the availability of quantification over the eventuality, and telicity corresponds to the level of mass division. I propose a structural representation for these two aspects of VP semantics that is parallel to that of nominal expressions. Section 3 discusses the concord nature of the lexicalization of quantification over the eventuality on its arguments and the default values taken in its absence. Section 4 concludes.

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2. Into more detail: quantificational properties of the dual model of inner aspect

2.1. More on quantification

So far we have been dealing with two theses. One is that inner aspect directly depends on the quantification over the eventuality, i.e. that the presence of a quantificational predicate corresponds to a non-homogeneous value for inner aspect. The other thesis is that this quantification can bind non-quantified nonspecific participants inside the eventuality. I argue that there is a very direct relation between the quantification over the eventuality and the decompositional domain to which I have attributed the derivation of telicity (taking telicity in the decompositional sense). More precisely, I argue that the telic template is a full counterpart of the nominal category of grammatical number/classifier. Both these categories have the effect of defining a unit of counting in the predicate in which they appear. While this is clear for the nominal domain, in this subsection I show that it is also true of the domain of eventualities.

Eventualities involving mass and bare plural participants (especially Undergoers) are usually treated as one class with respect to inner aspect. This is due to the fact that, as (25) shows, they behave in the same way in the so-called telicity tests. In the model introduced here, I relate the test results of the type in (25a, b) to the homogeneity (i.e. combination of divisiveness and cumulativity) of the eventuality, which is not the same property as atelicity. The behavior in (25c, d) is in this view due to non-homogeneity, which should not be confused with telicity. Telicity and atelicity are reserved for complex and simple eventualities, respectively, a sense in which all the examples in (25) are telic (eating requires the theme to seize to physically exist).

(25) a. John ate sugar for ten minutes/?in ten minutes.
b. John ate sandwiches for ten minutes/?in ten minutes.
c. John ate the sandwich in ten minutes/?for ten minutes.
d. John ate three/many/less than five/some sandwiches in ten minutes/?for ten minutes.

I want to point out, however, that the two types of eventualities, those involving a relevant participant with a mass interpretation and those involving one in bare plural, are not really the same. The major difference between them lies in the fact that eventualities with a bare plural participant, as in (25b), have an additional interpretation, referred to as the iterative reading, in which there is an unspecified quantity of singular instances of the telic eventuality of eating one sandwich, or an unspecified number of sandwiches. Eventualities with mass participants may be imposed iterative readings, but they are less prominent, and have to be forced by the context. In the present model, this means that the eventualities with bare plural participants overtly specify a structure in which the predicate of the eventuality has a bare plural interpretation and that this predicate may or may not bind the nonspecific participant *sandwich*, depending on whether this nominal is base generated as a mass noun or as a bare plural. The meaning derived is that there was some countable quantity of the eventuality; it could be exactly one, or twenty three such eventualities, or only a part of one

instance of such an eventuality, or three whole instances and two thirds. This reading is more or less parallel to the possible (though dispreferred) reading of (25c) (with the *for*-phrase), in which *the sandwich* is taken as denoting a special type of sandwiches and eating one nonspecific sandwich of this special type appeared a number of times. This reading is more obvious in (26), where the same race can naturally be run more than once (although each time a different token, i.e. a different instantiation, of the race is involved).

(26) John ran that race for ten years.

Iterative readings, like that in (26), are normally ignored when eventualities are tested for inner aspect. This is due to the fact that iterativity is traditionally assumed to be related to some higher structure than inner aspect (RAMCHAND 2002 relates it to outer aspect). Therefore, iterative meanings set aside, an eventuality as in (26) would be assigned degraded acceptability in combination with the *for*-phrase, and therefore be non-homogeneous. If on the other hand, as in (25b), an eventuality involves a bare plural, the availability of basically the same iterative type of reading (an unspecified number of instances of the eventuality) is considered part of the paradigm of inner aspect. This suggests that the proper and principled way of looking at inner aspect is to consider all iterative readings part of the inner aspect paradigm.

Recall now that, in the present model, the property that is indicated by the tests for inner aspect is the presence or absence of the projection of a quantificational predicate over the eventuality. In the case of the iterative readings, which I have argued correspond to nominal bare plurals, the QP is absent and no quantification is specified. Just as with bare plurals, the iterative reading is homogeneous and can therefore combine with the *for*-phrase, and not with the *in*-phrase. In all the other tests as well, iterative readings display homogeneity.

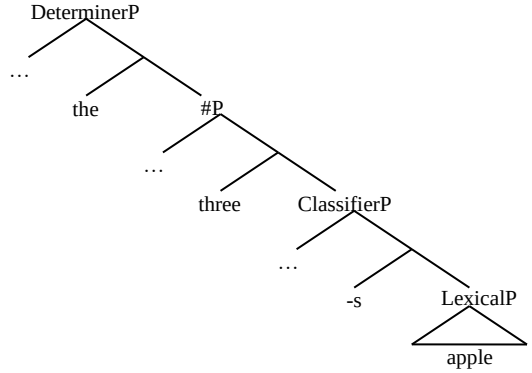
Under the model of quantification over eventualities that is argued for in this section, the only difference between the two sentences in (25b) and (26) is that in the former, the relevant participant (*sandwich-es*) is originally generated as mass and nonspecific. This allows the bare plural of the eventuality to bind this participant. The NP that represents this participant hosts the morphological reflex of the bare plural of the eventuality (an instance of concord). In (26), the Undergoer is originally generated as definite and can therefore not be bound by the predicate of the eventuality. The parallel between these two structures is represented in (27).

(27) a. John ate sandwiches. = $\text{bare\_plural}_{\text{count}}$(John ate [$\text{var}_{\text{count}}$(sandwich)]).
b. John ran that race. (iter.) = $\underline{\text{bare\_}}\text{plural}_{\text{count}}$(John ran that race).

For the QP, I adopt the structure and interpretational properties of the quantifying predicates in the nominal domain, as presented in BORER (2005a). Borer proposes that nominal expressions have a structure that roughly corresponds to (28).[1]

[1] This is a somewhat rough representation of Borer's structure. E.g., Borer does not have any morphological material in the heads of the functional projections; instead, the heads always have open values of the particular kind corresponding to the projection, which are then assigned range by the material in their specifiers or adjuncts. The simplification serves syntactic uniformity.

(28) Borer's syntactic structure of a NP



Observe the examples in (29).

(29) a. There was dog all over the floor.
b. There were dogs on the floor.
c. There were five dogs on the floor.
d. The five dogs were on the floor.

They illustrate, respectively a nominal expression consisting only of a LexP (29a), one that, in addition, also has a ClassifierP (ClP) (29b), one with the LexP, ClP and the #P (29c), where #P realizes the quantifying predicate, and one with the full structure, including definiteness (29d). Their interpretational properties are as follows.

The meaning contributed by the Lexical Phrase (LexP) is interpreted as completely unstructured and unbound, i.e. with the properties of a mass. This is why bare nouns in English, appearing without any functional material (without even a plural ending or an indefinite determiner), as in (29a), have a mass interpretation.

The Classifier Phrase (ClP) introduces the aggregate set of possible divisions to this mass. Most properties of the mass interpretation are preserved: it is still unbounded and homogeneous; the difference is: it is no longer completely unstructured. ClP may further specify a default unit of division, hence a unit of counting.

In English, this component corresponds to grammatical number, i.e. the specification of a plural vs. singular interpretation. One type of nominal expression that is derived without projecting the structure higher than the ClP is the bare plural, see (29b). In some languages, such as for instance Chinese, the material generated in ClPs is overtly realized though classifiers, glossed as *Cl* in the example in (30).

(30) yi-feng xin *Chinese*
one-Cl letter
'one/a letter' Leo Wong (p.c.)

Classifiers specify the unit of division, still deriving a denotation that involves an infinite number of possible divisions, but now all based on one particular unit. The word *feng* in (30) denotes an envelope-like container, a result of sealing something, or packing it in paper. The example in (30) also shows that the numeral operates directly over the classifier (phrase). This fits nicely with the structural representation in (28).

The next projection, #P, introduces the possibility of specifying particular divisions. It is lexicalized through a quantifier (in the broad sense – including also numerals).

Quantifiers select from the infinite set of possible divisions offered by the ClP, by specifying a bounded subset. If the structure of a nominal expression is not projected further than #P, it denotes a set of divisions over the mass contributed by the LexP. Such is the case in (29c), repeated here as (31), with any object involving five whole units of dogs as a possible referent.

(31) There were five dogs on the floor.

Borer observes that only a very small number of quantifiers can directly quantify over a mass meaning. These are quantifiers such as much and little. All other quantifiers require a division, i.e. they can appear in the #P only if it projects over the ClP and not directly over the LexP. It is not possible to impose a quantifier such as many, seven, most or even one to a nominal expression without already having available certain divisions of its denotation. I refer to quantifiers that operate over a mass as mass quantifiers and to those that operate over a mass division as count quantifiers. In English, and other languages with grammatical number instead of classifiers, there is at least one strong direct link between the two projections: countable quantifiers in the #P require the presence of a number marker in the ClP.

Finally, the determiner projection (DP), as in (32), introduces (specificity and) definiteness. These notions are less important for the discussion at this point.

(32) The five dogs were on the floor.

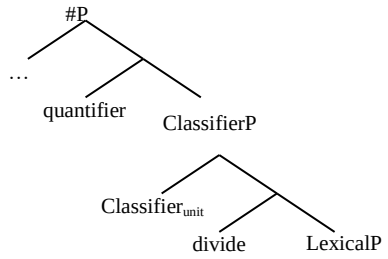
Borer's theory is much more complex than presented here. Without committing to all its contents, I use its major aspects to establish a parallel between the structure of a nominal expression and that of an eventuality.

Eventualities, in the present model, appear to display exactly the same behavior as NPs, except that in English and most other languages, they have no lexical material to realize grammatical number or quantification (nothing parallel to the plural -s or to proper quantifiers).

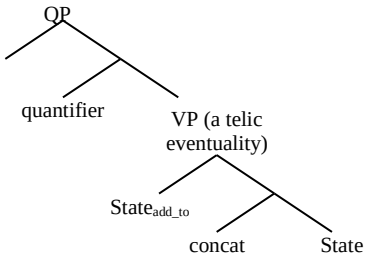
In what follows, I draw a parallel between the effects of the nominal ClP and the concatenation in the telic template, arguing that the concatenation of two SEvs into one eventuality defines the unit of counting and division, just as bare plurals do for nominal expressions. The parallel is represented in (33). Both these phrases introduce the component of a prototypical unit of counting (henceforth canonical singulars) into the predicate which is otherwise mass. The ClP in (33a) introduces mass division into the lexical meaning of its complement. This means that it imposes the infinite set of all the possible divisions on the predicate denoted by the LexP. The set of divisions imposed can be reduced by a classifier, or by the #P. Concatenation in (33b) also derives a divided predicate, as opposed to mass interpretations of the two SEvs that are concatenated. Adjacency between the two SEvs, i.e. the point of transition involved, is a countable object, which defines a canonical singular. If a bare telic template is taken to have an iterative reading, as in the present model, it involves units that are not specified for 'size' (i.e. they can have temporal intervals of different lengths) or cardinality (i.e. the iteration is unbounded). I further argue that these units can

even involve incomplete parts of a single instance of the telic eventuality. This makes the parallel between telic eventualities and bare plurals complete.[2]

(33) a. Borer's ClP, under the #P



b. The parallel: a VP with a QP



In addition, classifiers, in languages that have them, are often similar or identical to certain nouns, the difference mainly being the functional nature of their use. The property that licenses their functional use is the semantic component specifying a unit as a base for counting. In a similar way, the SEv in the specifier of the VP is an eventuality. However, in order to appear in the specifier of the VP, it must also involve the functional predicate of dynamicity (add_to), which is a necessary ingredient in establishing the meaning of change in the telic template, and thus also in defining a phase transition.

Both the ClP and the VP derive a predicate that involves mass division. Although they do it in different ways, the parallel is still strong, as represented in (33). The concatenation in fact directly acts as a unit of division: a grid of any possible number of single concatenations can be imposed over the two mass eventualities. Most importantly for the current discussion, in both cases, the division is unspecified, unbounded, and the single effect that it has is that a canonical singular unit is defined. Additional functional material, i.e. most directly the QP, can further specify this division, making it non-homogeneous.

So far, we can conclude as in (34).

(34) Atelic predicates correspond to eventualities represented as single SEv and therefore have a default mass interpretation.

Telic predicates involve a concatenation of two SEvs, which defines a canonical singular, and derives a divided interpretation.

The parallel between the nominal bare plural and iterative eventualities is now complete. According to this view, the non-iterative, and therefore non-homogeneous, interpretations of telic eventualities (those that combine with the in-phrase) involve singulars or other bounded quantities of the respective eventualities.

There are two ways in which the effects of the telic template, in paticular the division component, can be marked on eventualities. One is through the presence of the participants and other elements that can only be derived in telic eventualities, such as Goals, resultatives

[2] Observe for instance that while with the prototypical nouns like *apple* or *dog*, properties like size, shape, structure or different aspects of function determine the canonical singular component in the meaning of the noun; thus, *five apples* are five units of the mass of apple that have the prototypical shape, size and structure of apples. With deverbal nouns however, when derived from telic eventualities, the canonical singular is determined by the point of transition: *three killings*, *three murders* or *three deaths* involve three points of transition from the state of living to the state of being dead. See ARSENIJEVIĆ (2006) for a detailed discussion of this question.

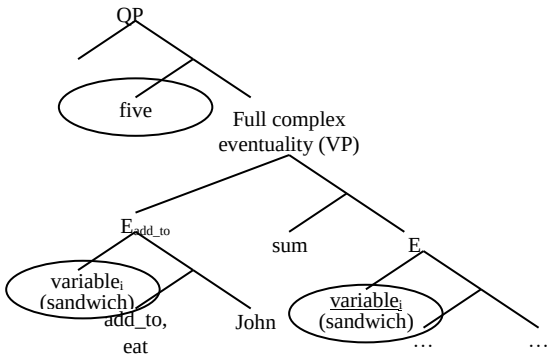
or verb particles. The other is through the bare plural morphology on a nonspecific argument specifying a participant of the eventuality.

Some telic eventualities with a singular nonspecific Undergoer are slightly odd under iterative readings, but this is due to the pragmatic tendency to have the same referent for the Undergoer in each iteration of the eventuality. Observe the sentence in (35), where for ten years, John kept eating different sandwiches in an unbounded number of instances of the eventuality, but always one per eventuality. Here the context has to provide a set of relevant reference times, or other referents, to referentially bind both the eventuality and its nonspecific argument in singular.

(35) John ate one sandwich for ten years, and then he started getting himself two.

As already shown, an analogous reflex on a nonspecific participant can be triggered by a proper quantifying predicate over the eventuality, which is projected over the VP as the QP. This is once more illustrated in (36). For the reading with five eventualities in which John eats a different nonspecific sandwich, the quantifier that originates in the QP (as well as the plural marker triggered by the VP level) is lexically realized on the nonspecific Undergoer.

(36) 'John ate <u>five sandwiches</u>.'



Eventualities involving a mass interpretation for the relevant participant differ in this respect. The mass interpretation of the participant reflects not only the lack of structure and of functional predicates on the NP itself, but also the lack of possible binders which are specified for predicates of the relevant type. A mass participant can surface in an eventuality only if the eventuality is atelic (so mass as well), or if it for some reason does not manage to bind the participant. That the latter option has to be considered as well is shown by examples such as (37b), where the meaning of the eventuality requires a telic template to be represented: some sugar has to end up being consumed in order for the sentence to be true. However, this telic template fails to trigger a reflex on the nonspecific mass NP realizing the Undergoer.

(37) a. John loves sugar.
b. John ate sugar for ten minutes.

Leaving aside this problem, which is discussed in the next section, the model seems to successfully establish a relation between the decomposition of eventuality (i.e. telicity and

the initiating-result component) and mereological aspects of its interpretation (including the values of inner aspect). Telicity corresponds to grammatical number and forms a necessary requirement for any count quantification. Functional predicates of the eventuality can bind NPs in argument positions which lack these predicates. These functional predicates are not overtly lexicalized in the VP domain, but they can be reflected on the nonspecific participants that they bind.

This all suits the data presented in (38). Observe that, as predicted, e.g. for (38c), also the reading in which there is an unspecified quantity (iterative) of the eventuality of John eating many sandwiches is available. This reading corresponds to the derivation in which the nonspecific participant is generated as quantified, many sandwiches, and the eventuality is a bare VP (bare plural). This reading is different from the one in which the participant is bound by the QP (there are many instances of the eventuality of John eating sandwiches) or by both the QP and the VP (there are many instances of the eventuality of John eating a single nonspecific sandwich). This reading is also different from the one in which there is a singular eventuality of eating many sandwiches. In this reading, and in general where the canonical singular of the eventuality involves a quantified nonspecific participant, the singular over the eventuality has no overt reflex and counts as the default interpretation.

(38) a. John ate sandwiches for ten minutes/in ten minutes.
b. John ate the sandwich in ten minutes/for ten years.
c. John ate (less than) three/many/some sandwiches in ten minutes/for ten years.
d. John ran the race for ten years/in ten minutes.
e. John ate a sandwich in ten minutes/for ten years. (*a sandwich* is nonspecific)

2.2. Mass participants in non-mass eventualities?

Let me first briefly summarize the view exposed so far in this section. I presented a model of eventualities with counterparts of the nominal categories of grammatical number and quantification. The counterpart of the grammatical number is the telic template, and the same quantificational predicates appear in both domains, in projections labeled differently for purely technical reasons, (#P) in the nominal and (QP) in the verbal domain. Parallel to nominal expressions, eventualities can be mass (atelic, a bare state or process), bare plural (telic iterative, a bare telic template) or quantified (telic quantified, a QP on top of a VP). If one or more of the participants of the eventuality is nonspecific and unspecified for quantification, and if the eventuality is quantified, the quantifier over the eventuality binds this participant, and it is overtly phonologically reflected in the NP expressing the participant. Similarly, if the participant is unspecified for grammatical number (i.e. if it is originally generated as a mass noun), and if it appears in a telic template, it is bound by the VP for grammatical number and surfaces as a bare plural. If a nonspecific participant independently generates one or both of the properties discussed (grammatical number and quantification), its full meaning undergoes the relevant binding, leading to what is known as a collective reading. For a bare VP that involves, e.g., a quantified nonspecific Goal, this results in an iterative reading where the canonical singular of the eventuality involves a Goal with the specified quantity. In cases like this, when none of the arguments is base generated

as non-specific and mass, there is no reflex of the predicates from the domain of eventualities on the participants. Therefore, unless this predicate is lexically marked (like telicity can be marked by verb particles or Goal phrases), or it is a default interpretation (like singular is), it will not be surface in the interpretation of the sentence.

A problem for this approach is, as briefly mentioned in the preceding subsection, that eventualities involving the telic template can still appear with nonspecific arguments lexicalized as mass nouns. The present model excludes this case, since any NP that is generated without a predicate of division and quantification is automatically bound by the corresponding predicates in the eventuality in which it appears. Every telic eventuality has a divided denotation, derived at the level of the VP, and therefore binds every non-divided NP in its domain. This means that no NP argument of a telic eventuality should surface as a mass noun. However, this is empirically incorrect, as illustrated in (39).

(39) John ate sugar for ten minutes/?in ten minutes.

Furthermore, this eventuality appears to combine with the *for*-phrase, but not with the *in*-phrase, which means that it is homogeneous. This points to an easy solution for the problem: the lack of a singular reading can be interpreted as a sign that the eventuality is in fact not telic at all, but rather represents a process of eating. Processes are atelic, they belong to the broad class of SEvs, simple eventualities, and therefore receive a mass interpretation. If that is the case, there is nothing to bind the mass NP and it can surface as a mass.

This is further supported by the fact that the verbs that tend to only appear in expressions that represent telic eventualities, such as *to kill* or *to break*, cannot really combine with mass nouns in argument positions. This is shown in (40), where under an episodic reading, the sentences are ungrammatical (habitual readings have a special structure that I avoid discussing in this paper).

(40) a. #/?John killed cattle.
b. #/?John broke ice.

Whether these sentences are to be treated as grammatically or pragmatically odd, depends on one's view on the lexicon. For a radically non-lexicalist view such as BORER (2005a, b), this is a case of pragmatic unacceptability, while for the approaches that allow for structure in the lexicon, the sentences are grammatically ill-formed.

2.3. Mass Undergoers in Serbo-Croatian

However, I present some data from Serbo-Croatian (S-C), where mass nouns appear in clearly telic eventualities, seeming at first sight to contradict the predictions of the present model. The discussion will show that in fact, not all these NPs are mass nouns, and that those that are mass are all generated in partitive phrases, which isolates them from the predicates of the VP level that have the potential to bind them.

Let us observe a type of eventualities that has at least one mass participant. In most Slavic languages, mass direct objects do not surface (only) in the accusative case, like other direct objects, but (also) in genitive. Partitive meanings are typical for the Slavic genitive

case, and the intuition is that exactly partitive meanings figure in the examples where the direct object is in the genitive, as in (41a, c).

(41) a. Jovan je (po-)pio vod-e. S-C
Jovan AUX over-drank water.GEN
'Jovan drank water.' 'Jovan drank up some water.'

b. Jovan je (u-)sipao vod-e u bure.
Jovan AUX in-poured water.GEN into barrel
'Jovan poured water into the barrel.'
'Jovan poured in some water into the barrel.'

c. Jovan je (po-)jeo jabuk-a.
Jovan AUX over-eaten apples.GEN
'Jovan ate apples' or 'Jovan ate up some apples'

d. Jovan je (na-)bacao jabuk-a na sto.
Jovan AUX on-thrown apples.GEN onto table
'Jovan threw apples into the basket.'
'Jovan threw some apples onto the table.'

At least one type of Slavic verb prefix always derives a telic eventuality and, as has been claimed convincingly by Žaucer 2002 and Gehrke 2005a, b, these prefixes represent stative predicates of the result subevent. These are the so-called internal prefixes, given in brackets in (41). They are included here to demonstrate that the telic structure in Slavic languages can take genitive mass NPs. English translations are always given in the following order: the first one corresponds to the sentence with a non-prefixed verb and the second to the sentence with the prefix.

This type of verb prefix in Slavic languages normally triggers a specific interpretation for the Undergoer of the eventuality. Krifka (1998) and Borer (2005b) use this regularity to illustrate the relation between the eventuality and its participants. However, when the NP realizing the affected participant bears genitive, no specificity is enforced and the NP is ambiguous between a specific and a nonspecific interpretation. Observe the contrast in (42).

(42) a. Jovan je po-pio vod-e. S-C
Jovan AUX over-drank water.GEN
'Jovan drank up some water.'

b. Jovan je po-pio vod-u.
Jovan AUX over-drank water.ACC
'Jovan drank up the water.

c. Jovan je po-pio malo/čašu vod-e.
Jovan AUX over-drank little/glass.ACC water.GEN
'Jovan drank up the/a little/glass of water.'

In the sentence in (42a), the affected participant is interpreted as part of some amount of water, which can be both specific and non-specific.

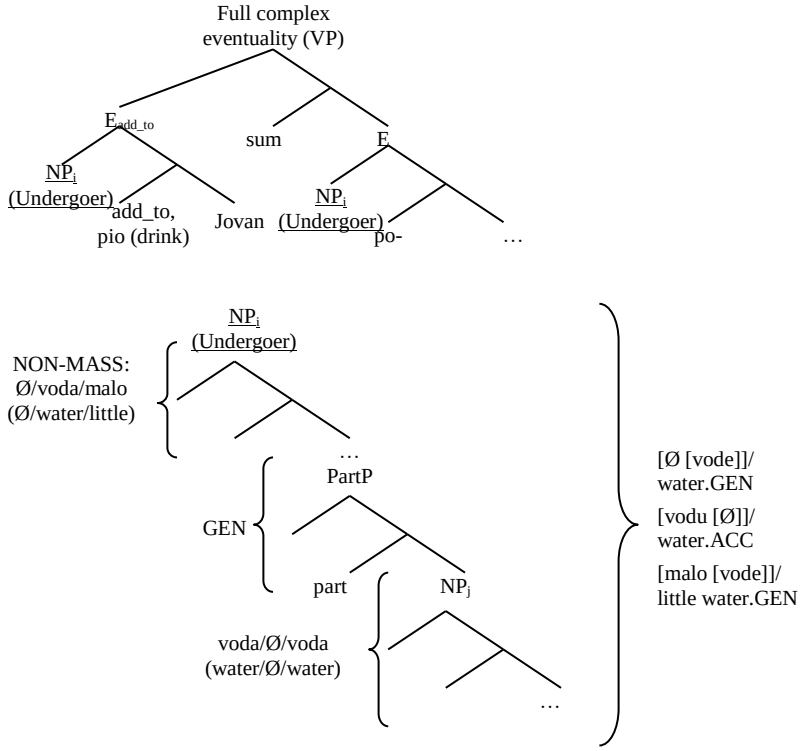
In (42b), the corresponding participant is specific, which is forced by the accusative case of vodu 'water'. The nonspecific reading is not available. In this case, the entire specific amount of water has to undergo the process and not only a part of it.

In (42c), with a pseudo-partitive construction involving both an accusative and a genitive form, the accusative element is interpreted as specifying a part of the denotation of the genitive NP. Many different amounts or glasses of water that can satisfy the given predicate may be available pragmatically. This nonspecific interpretation for the accusative phrase is strongly preferred. Again, their nonspecificity does not mean that they can be mass: in both cases, only a bounded quantity interpretation is available. For such readings, the denotations of the accusative elements in these two examples become specific only once the eventuality providing them with a definite description has been introduced to the discourse, i.e. only after a sentence as in (42c) is uttered.

Observe now that the common feature of (42a) and (42c) is the genitive case with a (pseudo-)partitive interpretation. It appears that the presence of a (nonspecific) phrase in genitive with a partitive interpretation licenses the nonspecific reading of the affected participant. It is sufficient for the purposes of our argument to conclude that the Undergoer position in eventualities which are morphologically marked for telicity is not reserved only for specific nominal expressions, but that indeed it can only receive a bounded, i.e. non-homogeneous, interpretation.

This indicates that the default structure of the VP with a mass nominal argument, at least in Slavic languages, is the one in which the mass NP is in the partitive complement of the actual argument NP. For the example with a mass noun in the Undergoer position in a telic eventality, this means that the actual Undergoer NP takes the accusative case, while the genitive NP originates in a complement partitive phrase. This is illustrated in (43) for all eventualities of the type in the examples from (42).

(43) General structure of the Undergoer in S-C for the sentences in (42)



In (43), the structure in the upper half of the figure is the general telic template with the material from the sentences in (42). The positions in which the Undergoer appears are filled with the NP_i, which is structurally represented in the lower half of the figure. The structure of this NP has three relevant sequences, the one projected by its head, the partitive complement that it takes (PartP), and finally the NPj that this PartP introduces. The interpretation is that the denotation of the higher NP is part of the denotation of the lower one. A detailed discussion of the partitive relation and its interaction with specificity is available in Arsenijević (2006).

NPi is the actual Undergoer and it is assigned accusative case. This NP is always non-mass, as predicted in the present model: it must be bound by the VP, as well as by the QP, if present. In the absence of a partitive phrase, the accusative NP receives a specific reading.[3] If the partitive phrase is present, both options are available.

The NP in the PartP is assigned genitive case by the head of the PartP. The VP does not influence the interpretation of this NP since it is too deeply embedded inside a NP without a canonical singular: another fact predicted by the present model. Lack of any predicate with the potential to define the canonical singular in the higher NP (i.e. of ClP)

[3] A possible explanation for this last part of the argument is that the partitive phrase can be omitted only if the partitive relation is strongly contextually determined (see MCNAY 2006). In this case, not only is the NP in the partitive phrase old in the discourse and therefore definite, but so is the partitive relation, and therefore the part itself, i.e. the NP realizing the Undergoer.

intervenes for binding by a predicate that is sensitive to this property, i.e. by the predicate that introduces division and any quantificational predicate that requires it.

It is possible that the core NPi is empty of any lexical material and that the only part of the whole structure that has a phonological realization is the PartpP. In this case, the direct object will appear in the genitive, with a proper mass interpretation. However, the intuition is always that the actual Undergoer of the eventuality is not the whole denotation of this genitive NP, but only a nonspecific bounded part of it.

This last observation is in fact crucial for the question concerning the mass participants in the telic template: How is it possible that the telic structure of an eventuality derives a mass interpretation when one of the relevant participants is a mass NP? The answer that I propose is based on the S-C paradigm, and in particular on the analysis in which this mass NP is not really the Undergoer but its partitive complement. This goes only if sufficient level of universality is assumed between grammars of different languages, allowing us to generalize the S-C paradigm.

The S-C paradigm shows that mass NPs cannot directly represent the Undergoer but can only appear in its partitive complement. If this is a universal property of the template, the mass NP that surfaces as a direct object in the English sentences may be generated in the partitive complement of the Undergoer. In those cases, the Undergoer itself is extremely light: it corresponds to a fully unrestricted variable, except for the property denoted by the PartP. This NP, which is basically a variable, can be bound by the VP and the QP, but its predicate does not provide the material required to define a canonical singular. It is only marked as a part of some mass, but not specified for any property that may determine a unit of counting. The canonical singular is therefore interpreted relatively loosely, it may vary with each instance of the eventuality, and it is not clearly determined for any particular sentence (unless strongly suggested by the context).

Let us again consider an English example with a singular eventuality that requires telic decomposition and a mass Undergoer, as in (44).

(44) John poured water into the barrel.

Applying the conclusions drawn from the Slavic paradigm, we observe the following. The entity involved in John's pouring activity and the entity ending up in the barrel have identical descriptions: they are both represented as variables without a direct restriction and are both parts of the mass of water denoted by the mass NP. This has the following consequences.

The two NPs appearing in the positions of the Undergoer are coreferential, since they are variables with the same restriction and the same binder. Their coreference forces the interpretation of concatenation, which further derives the meanings of initiating, result and change. However, the actual Undergoer, represented as a very light NP, appears to be too light to provide a determined canonical singular. The entire structure of the NP apart from its PartP complement (see (43e)) is empty. While it is still possible to divide an unspecified part of a mass, just like it is possible to divide a mass, it is not possible to count the units resulting from this division, because there is no predicate to determine the unit of counting (see ARSENIJEVIĆ 2006). An NP of this kind cannot be subject to count quantification. This means that NPs that only carry semantic contents in their PartPs can appear in VPs, since they can be divided, but not in QPs, because they cannot be counted. Eventualities with

such NPs in argument positions never have a proper singular or any other directly quantified interpretation (unless additionally specified by the context). These eventualities always remain at the level of a bare plural with a fully unspecified unit of division.

Under this analysis, the eventuality in the sentence in (44) is a bare plural, with an unspecified, possibly varying, unit of division. The sentence therefore denotes that at some point in past there was an eventuality that involved an unspecified number of instances of John pouring unspecified quantities of water into the barrel. This is only slightly different in S-C, where inner aspect is marked overtly (though possibly indirectly) on the verb through morphology.

A reading with exactly one instance of pouring is among the more prominent ones. This is probably because in the default case, the sentence is interpreted with only one reference time, and the singularity of the eventuality is an implicature of the singularity of the reference time.

Another interesting aspect of the fact that the NP under discussion does not define the canonical singular at the level of the eventuality in which it appears is that in the bare plural (iterative) interpretation of the eventuality, each of the instances of the iteration can involve a different quantity of water. Since no grid can be determined for the division in this NP, nothing guarantees that the units resulting from the bare plural are all identical.

The most important consequence in this respect is that due to the lack of a specified unit of counting for one of its participants, the eventuality also fails to specify its own unit of counting. Therefore, such an eventuality cannot take any quantification, it never projects a QP, which means such an eventuality is never non-homogeneous, an effect confirmed by the tests.

Crucially, this analysis preserves the generalization that mass nouns cannot surface as direct arguments of telic eventualities. The general mechanism described here applies to all nonspecific NPs. Therefore, we still can keep the generalization that a mass NP can be generated in an argument position of the telic template, but it cannot surface as a mass NP since it would then be bound at least by the VP. Those NPs that at first sight appear to contradict this prediction are in fact embedded within a PartP, and isolated from being bound by the VP and the QP. This holds for all arguments of the telic template and not only for Undergoers. We can therefore formulate the following generalization, which follows directly from the present model.

(45) Every mass NP generated in the direct argument position of a (telic!) VP, including Initiators, Undergoers, Sources, Goals and Paths, is bound by the divided VP and inflected for plural. Every mass NP surfacing in one of these positions must be generated in some more deeply embedded position, such as for instance a PartP.

The prediction is that mass NPs do not appear as direct Undergoers, or even as direct Sources, Goals, Paths or Initiators. This prediction is clearly confirmed for proper Goals, Sources and Paths. Witness in this respect the clear unacceptability of the sentences in (46).

(46) a. *John pushed the cart to water.
b. *John pushed the cart from hay to sand.
c. *John pushed the cart along road.
d. *Water killed John.

Some other elements appearing in result phrases might look at first sight as if they contradict this generalization. Observe for instance the example in (47a). At a closer look, however, we see that the Undergoer in this sentence (wine) must be interpreted partitively. Consequently, the result must be interpreted either partitively as well or as a predicate.

(47) a. John turned wine into water.
b. John turned the wine into (the) water.
c. The wizard turned the colour of the chair into blue.

The non-partitive interpretation in which the entire quantity of wine of the world is turned into the entire quantity of water of the world appears to be unavailable; speakers confirm that this meaning requires definite NPs. This is due to the fact that all the wine and all the water of the world must be old in the discourse if their predicates are old, it is trivial that they must be there, and there is no property that is needed to refer to them, that we do not know. Also, they are by definition maximized: there is no wine and no water in the world apart from that denoted by these NPs.

Finally, there is the question of the lack of overt realization of the partitive component for the mass NPs. I have shown, however, that an overt realization can be observed in languages in which the partitive is morphologically marked by case, for instance S-C. The (pseudo)partitive *of* in front of indefinites in colloquial English is often drops; in Dutch, for instance, it is almost never lexicalized, as (48) shows.

(48) a. John bought three pounds (of) apples.
b. John heeft drie kilo (*van) appels gekocht. Dutch

As argued in Arsenijević (2006), there are many other contexts in which mass nouns and bare plurals are interpreted with partitive meanings, without an overt marking of the partitive relation.

This subsection offered an explanation for why mass nominals can appear in telic VPs, without being bound and turned into bare plurals. It further explained the difference observed in the beginning of subsection 0, namely that eventualities with bare plural Undergoers have very prominent iterative interpretations while those with mass Undergoers do not have them, or they are difficult to get.

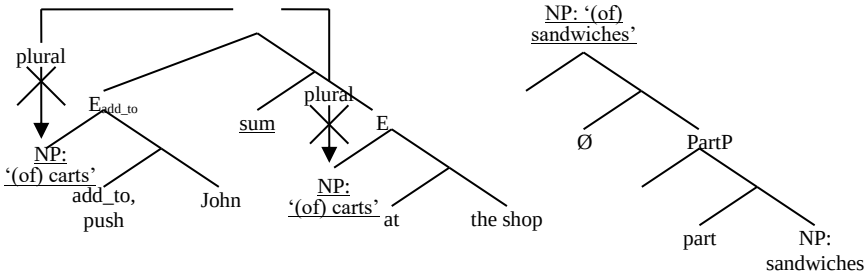
The analysis of mass arguments argued for above draws certain questions in respect of arguments surfacing as bare plurals. Bare plurals also often license a covert partitive marker, and just like mass nouns, they are nonspecific and homogeneous, and have similar effects on inner aspect. Let us therefore consider a telic eventuality with an Undergoer which surfaces as a bare plural NP, as in (49).

(49) John pushed carts to the shop.

There are three structures predicted by the present model that can derive this sentence. One has the Undergoer (carts) generated as a mass NP, and then bound by the VP, which is how it becomes a bare plural. The second has it generated as a bare plural independently of the telic template of the eventuality, resulting in the so-called collective reading. The third option is that the bare plural NP is in fact generated in the partitive complement of the relevant argument, and the NP of the argument itself has no other contents, as in (50). This structure is parallel to the one assigned to the VP arguments which surface as mass NPs in

the preceding subsection. Its entails that in an unspecified number of instances of a pushing eventuality John pushed possibly different quantities of carts to the shop.

(50) Bare plural inside a partitive construction: a VP without a canonical singular
'John pushed carts to the shop.'



The analysis introduced for the mass participant is hereby shown to raise no problems for the cases with bare plural arguments in the VP. This analysis can be applied to sentences with bare plural arguments in the VP, without losing the empirical coverage already established.

2.4. Summary

In this section I established a parallel between the structure that Borer (2005a) proposes for the core functional material of the NP and the decompositional structure of the VP. In doing so, I first introduced a split between the notions of inner aspect and telicity. I related telicity to the decomposition of the eventuality and inner aspect to the quantification that is assigned to it. I related the mereological notions of homogeneity and non-homogeneity, which are traditionally associated with inner aspect, to the presence of a specified QP in the structure. The presence of quantification is directly dependent on the properties of the lower structure, in particular on whether it defines a canonical singular and involves mass division. This aspect of the meaning of the eventuality is directly derived from decomposition.

The parallel with the nominal domain is established as follows. The level of the VP, based on the concatenation between two SEvs, is the counterpart of Borer's ClP. Both phrases project over a structure that has a mass interpretation and both impose a mass division on it. The QP, projected immediately over the VP parallels Borer's #P. These projections introduce quantifying predicates, which select a bounded subset from mass divisions introduced by the ClP and the VP respectively.4

I argued that specificity presents a barier for interactions between the predicates of eventualirties and the predicates of the nominal expressions representing their arguments. Nonspecific NPs, which all lack certain functional predicates, can be bound by the corresponding predicates from the structure of the eventuality, in particular by the predicates of division (VP) and quantification (QP). This causes them to surface as bare plurals or quantified NPs, respectively.

[4] In fact this is not true of mass quantifiers, which quantify directly over mass, but this is orthogonal to the discussion.

This structure predicts that no mass participant can surface as a direct argument of the SEvs building the VP. If a mass NP was generated in a telic eventuality, the telic structure would have it bound and inflected for grammatical number. This is empirically confirmed by the data from Serbo-Croatian in which mass readings are available only for NPs generated as partitive complements of the actual direct arguments. I argued that this holds universally, and that every NP that surfaces in a mass interpretation in a telic eventuality in fact receives a partitive interpretation.

Eventualities denoting a change in which it is not possible to form the canonical singular of one of their participants (above all the Undergoer) fail to combine with quantificational predicates. This happens for instance when this position only contains the embedded partitive construction. In such cases, the telic template is defective in this respect and it cannot be subject to proper count quantification.

A major aspect of the presented view is that the mereological properties of eventualities, and therefore also inner aspect, are associated only with quantification over the eventuality. An eventuality is non-homogeneous if it is quantified and homogeneous if it is not. Correlations between the mereological properties of eventualities and those of their participants appear only with nonspecific bound participants. They result from the binding the quantification over the eventuality establishes with the nonspecific participants. The mereological properties of the bound participants will reflect the mereological properties of the eventuality. While in the traditional approaches to the English VP, the properties of the participants are transferred to the eventuality, in the present model transfer occurs the other way around.

This section also led to one simplification of the model: the predicate concat, for concatenation, is replaced by the lighter predicate sum. The meaning of concatenation is shown to be derived from the meaning of sum and the properties of the Undergoer (coreference of the two positions in it is generated and the properties it is assigned).

3. Quantifier concord and the default values

3.1. A note on the reflexes of the QP on nonspecific participants

In the model presented so far, the phenomenon whereby the quantifier of the VP level is reflected on one or more of the nonspecific arguments of the VP is of particular importance. This concerns the reading of examples such as (51) where there were seven instances of the eventuality of pushing the particular cart to some shop or other.

(51) John pushed the cart to seven shops.

The model that I introduced assigns to the relevant reading of (51) an analysis in which the numeral seven in seven shops is a reflex of the covert numeral seven that quantifies over the telic eventuality of pushing the cart to a shop. This presents a radical turn in dealing with the correlations between the quantificational properties of an eventuality and of its arguments. In this subsection, I present further empirical support for this aspect of the analysis.

One potential point of criticism of the model might be that the phenomenon I capture is simply an instance of the more general, and well known, phenomenon of distributive readings of quantified expressions. Although this observation holds, it cannot be viewed as a real criticism, since no explanatory and constrained analysis of either of the two phenomena has to my knowledge been offered so far. Therefore, the analysis I propose can be viewed as an attempt to formally capture at least some instances of distributivity, i.e. those in which the eventuality appears to distribute over its arguments. Moreover, the same pattern of predicate-binding might also be applicable to other types of distributive readings.

A more substantial critique could target the lexicalization of the quantifier over the eventuality in the NP realizing one of the arguments. I therefore want to offer further and more detailed support for this aspect of the present model.

Observe that for sentences of the type in (51), if more than one nonspecific argument is present in the VP, these arguments can all take the same quantifier, and still derive the meaning in which there are seven instances of the eventuality of pushing a nonspecific cart to a nonspecific shop. This is shown in (52) for the reading in which there were seven instances of pushing one cart to one shop.5

(52) John pushed seven carts to seven shops.

This is exactly what the proposed analysis predicts. Of course, the other option for the same meaning, of still having the quantifier on only one argument and leaving the other argument in a singular indefinite form, is also available, as shown in (53).

(53) John pushed seven carts to a shop.

Although perhaps not the most prominent one, the meaning in which each of the cars is pushed to a different shop, i.e. where the shop varies with each instance of the eventuality is clearly available. This does not contradict the proposed analysis, since in this case an additional relation, between the nominal expressions, may take part in the aggregate interpretation.

Support for analyzing the quantifier on the nonspecific arguments of the eventuality as a reflex of the quantifier over the eventuality for all sentences of the type in (51), (52) and (53), also comes from a parallel between this and another well-known and documented phenomenon: the negative concord.

Full negative concord, which is exhibited in many languages, including some from the Slavic family, is illustrated in (54), where the negation over the full eventuality (or even a higher one) reflects on each of the nonspecific arguments of the eventuality, through what is usually called N-words (marked with an *N* in the example).

(54)	Jovan	ne	gura	nijedna	kolica	ni-u-jednu	radnju.	S-C
	Jovan	not	pushes	N-one	cart	N-in-one	shop	

'Jovan doesn't push any cart to any shop.'

[5] The reading in which there are seven eventualities of pushing a single cart to a seven shops is ignored as it is derived from the other possible structure where the numeral in *seven shops* is independently generated on the NP.

Whatever the precise technical analysis of how the N-words emerge in the instances of the negative concord is, the generalization is preserved that they are related to the presence of the negation in some higher, c-commanding, position. Labels such as 'distributive readings', at least in their standard use, are not particularly appropriate in this case for a number of reasons. First of all, the negation and the N-words are all overtly present, while in distributive relations the quantifier appears only on one member of the relation. Having each element independently marked for a certain predicate is exactly the opposite of the standard distributive effect, and closer in this respect to some kind of coreference or co-indexation (all the N-elements correspond to only one negation). Second, in most traditional approaches, negation specifies a certain set as being empty, and it is difficult to talk about distribution over an empty set. Intuitively, it would be more appropriate to speak about binding, or simply quantifying into the domain, which is more in the spirit of the present model.

Observe also that, similarly to the situation discussed above about the relation between (52) and (53), the N-word may as well be omitted on one or more nonspecific arguments, if they are in some other way bound by one of the arguments that are lexicalized with the N-word. The sentence in (55) has one reading which is parallel to the interesting interpretation of (53), i.e. where the shop is nonspecific and 'distributively' interpreted with respect to the carts.

(55)	Jovan	ne	gura	nijedna	kolica	u	radnju.	S-C
	Jovan	not	pushes	N-one	cart	in	shop	
	'Jovan doesn't push any cart to a shop.'							

The purpose of drawing this parallel is to show that what we are dealing with is a more general phenomenon in language. Its core consists in the lexicalization of the reflex of some predicate on the elements to which it applies by virtue of containing them in its c-command domain. These elements, naturally, must involve no predicate corresponding to the one that binds them. The effect involved in our analysis is hence not restricted to numerals and quantifiers, but can also appear with negation and a number of other predicates (ZEIJLSTRA 2004). The difference between VP or QP binding and negative concord can be reduced to the lexical availability of elements that can lexicalize the original instance of the quantifying predicate. While in most languages, there is a morpheme that lexizalizes the higher level negation, relatively few languages contain elements that lexicalize quantifying and division predicates over eventualities. Therefore, there is usually no lexicalization of such predicates in the position in which they are generated, but a lexicalization of their reflexes may appear on the elements over which they quantify.

Finally, although it is not a very common property, some languages can lexicalize the quantifier over the eventuality. This is illustrated below by the data from Mandarin Chinese. Apart from nominal classifiers, Mandarin also exhibits so-called verbal classifiers, or event classifiers. Classifiers can roughly be defined as elements that individuate, i.e. that define the canonical singular of a meaning, which can further be quantified in a way that requires countability. Verbal classifiers, however, not only allow for eventualities to be overtly quantified – they also make it possible to overtly mark a certain argument as bound by the quantifier of the eventuality.

I provide a general example involving verbal quantifiers in (56).

(56) Akiu qu-nian bing-le liang {chang/ci/*tang}. Mandarin
Akiu last-year sick-PERF two CL/CL/CL
'Akiu fell sick two times last year.' (Zhang 2002: 2)

The numeral liang (two) quantifies over the eventuality of getting ill by quantifying over the verbal classifier (chang or ci). While ci is a general verbal classifier which can be used for any eventuality, chang is a more specific one (i.e. with a stronger classifying force), and appears with a restricted set of meanings. Precisely because of the specificity of the classifier meaning, another classifier, tang, cannot combine with the eventuality of getting ill (while it does combine for instance with the eventuality of travelling to some destinations).

Apart from these classifiers, which are to a large extent functional elements with no transparent lexical meaning, there are other verbal classifiers with more transparent lexical semantics. Such is the case with the classifiers in (57).

(57) a. Ta da-le Baoyu liang bazhang. Mandarin
he hit-PRF Baoyu two CLpalm
'He hit Baoyu twice with his hand.' (not necessarily with two hands)

b. Ta da-le wo liang zuiba.
he hit-PRF I two CLmouth
'He slapped me twice on the mouth.' (Zhang 2002: 4)

The same eventuality in (57) takes two different classifiers, *bazhang* (palm) and *zuiba* (mouth). I have been informed by a considerable number of speakers that although this does not exhaust the full number of semantically transparent classifiers that can appear in this position, the possibilities are still limited to those that introduce a particular pragmatically relevant type of hitting (i.e. define a natural class).

This is very much in line with the predictions of the present model. The two classifiers are linked to the meanings of the Instrument (bazhang, palm) and the Undergoer (zuiba, mouth, here actually referring to the cheek), both being participants of the initiating subevent (the latter is in fact also a participant of the result subevent, but that is not relevant for the present discussion). The structure therefore contains an element linked to one of the participants from the initiating subevent and represents the canonical singular of the entire eventuality. More formally, a part of the material from the specifier of the VP is used to represent the canonical singular of the VP. This element does not fully specify this canonical singular: the canonical singular derives its full meaning from the entire predicate of the eventuality. Recall that in the present model, the VP is the counterpart of the Classifier Phrase. The specifier of the VP, i.e. the initiating subevent, is the counterpart of the position in which the nominal classifier is generated. The parallel is therefore complete: some material from the specifier of the phrase realizing division is taken to represent the unit of division. From this perspective, it is the addition of the initiating subevent and the head of the VP over the already projected structure of a SEv that makes the structure specify a canonical singular, just as it is the addition of the classifier in the specifier and the division predicate in the head of ClP over a lexical noun that derives a divided mass interpretation. It appears to be very natural that the unit that represents the canonical singular comes from the initiating subevent.

It would be surprising, judging from the parallel with nominal classifiers, to find that a property or a participant involved only in the result subevent, such as the result predicate or (a property of) the Goal, is used as the verbal classifier. This indeed appears to be impossible, according to more than a dozen Chinese speakers. Speakers, both linguists and non-linguists, were offered examples such as (58), and encouraged to formulate other examples obeying the same pattern with possibly better candidates for classifiers, but no grammatical sentences could be formed.

(58) a. he travelled to London five tasks/meetings/appointments/hotels
b. he kicked ball (across field) two goals
c. he went to cinema two seats

This is exactly as expected: the classifier cannot be generated in/from the complement of the VP. The complement does not contain any functional elements characteristic of the head of the VP. The specifier of the VP, on the other hand, is added to a structure that already has a specified head, and may therefore display some sensitivity to its contents. This is reflected in the requirement that the element that appears as the classifier in Chinese must, even if lexical, still display countability, just as with the VP, where the simple eventuality in the specifier must be dynamic (i.e. it must involve the predicate add_to).

In (57), the verbal classifier has meanings that seem to correspond to the Instrument, i.e. the directly affected part of the Undergoer. However, the speakers' intuition is that this does not really refer to the relevant participant of the eventuality. Its most direct interpretation is that of introducing a unit of measure for the entire eventuality. It requires of course that the kind of hitting is of the type done by hand and on the mouth, respectively, but this is perceived rather as a modification than as the introduction of a new participant. In fact, many speakers require that in (57a), where the classifier to some extent corresponds with the instrument, the slapping be on the face (the cheek or the ear in fact). A more transparent translation of both sentences in (57) might thus be something like 'He gave Baoyu two hand-slaps on the face.'

The meaning of the verbal classifier therefore is nonreferential, i.e. it corresponds to the meaning of a nonspecific NP. This is quite symptomatic, bearing in mind that in the present model, nonspecific NPs reflect quantification over the eventuality. In fact, nonspecific NP arguments arguably all display some degree of semantic incorporation into the meaning of the predicate. This goes well with the claim that these NPs are also bound by some of the predicates in the VP, QP, or higher functional projections.

I therefore suggest that verbal classifiers are generated as nonspecific arguments of the initiating subevent, and are then semantically incorporated into the meaning of the predicate. This makes them good candidates to appear as classifiers: they specify the natural class of the eventuality (in the given example hitting 'with a hand' and/or 'on the mouth'), and they are directly involved in the predicate of the eventuality (unlike specific arguments which establish reference independently of the eventuality).6

Finally, in Mandarin, verbal classifiers can participate in a particular construction with nominal classifiers, which Zhang refers to as the compound classifier. As illustrated in (59),

[6] The NP *the mouth* is not really definite in this case (it does not have to be discourse-old); its definiteness comes from the fact that it is by definition unique in the domain specified in the eventuality.

compound classifiers mark that the canonical singular of the argument related to the nominal classifier component is involved in a single instance of the eventuality related to the verbal component in the compound classifier.

(59) Zhe tiao lu shang-zhou tongguo-le qiche san-bai liang-ci.
this CL road last-week pass-PRF car three-hundred CLN-CLV
'On this road, three hundred instances of car-passing occurred last week, each time one car.' Mandarin, (ZHANG 2002: 13)

This is equivalent to saying that compound classifiers mark that the quantifier over the eventuality (which is linked to the compound classifier) also quantifies over the nonspecific participant related to the nominal component of the compound classifier. This is an overt realization of the relation between the quantifier over the eventuality and the nonspecific argument.

In conclusion, the data from Mandarin Chinese, in which quantification is lexicalized in a direct relation with classifiers, support the following two aspects of the present model. First, they confirm that eventualities can have a full range of quantification generated in their own predicate. Second, they display a more transpartent morpho-syntactic marking of the link between the quantification over the eventuality and the quantification over its nonspecific participants.

3.2. Singular and bare plural as the default interpretations

So far I have treated eventualities without any reflex of their quantifying predicates as fully ambiguous between an iterative and a singular reading. The prominence of a bare plural reading (i.e. the unbounded iterative reading) for a telic eventuality can be explained quite directly through the lack of any overt quantification on the eventuality in combination with the semantic component of mass division resulting from the telic template. The prominence of the singular reading needs more explaining, unless we relate it to pragmatic factors, which is not the most attractive solution.

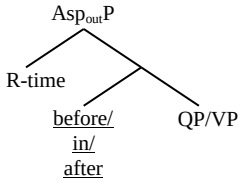
Observe again the sentence in (60). Its most prominent readings involve 1) one instance of John pushing the cart to the shop (the singular reading) or 2) an unbounded number of instances of this eventuality (the iterative reading).

(60) John pushed the cart to the shop.

In this subsection, I sketch one possible way of accounting for these facts formally. I introduce an additional component, the reference time, and use it especially to account for sentences which involve no nonspecific singular NPs, but still receive a singular reading. I do not offer a full account of reference time and outer aspect, but only sketch one possible direction for further thought.

At the level of outer aspect, the temporal interval of an eventuality is ordered with respect to a reference time (see DEMIRDACHE and URRIBE-ETXEBARRIA 1998 for a detailed account). It can be marked to precede, follow, or contain the reference time by the predicates *after*, *before* and *in*. The most straightforward way to represent this structurally is shown in (61).

(61) Structural representation of outer aspect



The reference time is usually old in the discourse, its quantificational properties are provided by the context, and as can be clearly seen in (61), it c-commands the entire structure of the eventuality. Therefore, in the default case, the eventuality will be assigned all the predicates which it lacks from the reference time level. This means that in fact, an eventuality normally receives the quantificational properties of the reference time, unless its own quantification is overtly marked (by verbal classifiers and quantifiers or by concord on a nonspecific participant).

This explains the prominence of the singular: in most cases, the discourse specifies a singular reference time. The cases in which one particular temporal interval is relevant for the discourse are most frequent, although other contexts may also appear. Since the reference time also introduces an additional complexity that is beyond the domain of this paper, I do not go into further discussion. Instead, I only address several points that may seem problematic for the present model.

If distribution over the reference time is an option, and if it uses the same mechanism of predicate-binding, then one also expects to see its effects with other structures than the singular, such as for instance quantified eventualities or bare VPs. This would lead to having the eventuality universally represented as bound by the properties of reference time, to the extent that it lacks its own specification.

With two additional remarks, this is indeed the generalization that is empirically confirmed. The two additional remarks are the following. First, only QPs can project predicates that relate to the reference time. This means that a bare VP will never be in situation to be bound by the reference time. Second, the inner aspect is indicated at the level of the QP. Whatever the status of the eventuality after being related with the reference time, it only matters for inner aspect whether it has a QP or not.

The generalization that only QPs can be related with the reference time is expected for several reasons. In terms of the cognitive quasi-physics that underlie temporal and spatial structures in language, it is impossible to order a homogeneous eventuality, which has an unbounded temporal interval, with respect to some other interval, which is firmly positioned on the temporal line. Moreover, and this is relevant for a narrower set of cases, it is impossible for the reference time to quantificationally bind an eventuality that does not define the canonical singular. This means that eventualities that do not define a canonical singular, such as states, processes and the VPs that involve partitive NPs (see section 2.2) cannot appear with outer aspect.

Support for this view comes from Slavic languages, where perfective outer aspect is morphologically marked and such marking on the verb is only possible for telic eventualities. The line of thinking outlined here is, however, only a sketch, and the problem remains an interesting and important topic for further research.

3.3. Summary

To support the general mechanism proposed in previous work for the relation between the properties of the eventuality and those of its participants, I drew a parallel between the reflexes of quantification over the eventuality appearing on its arguments and other similar relations in language, such as for instance the negative concord phenomenon. In addition, I discussed some Chinese data, in which the quantification over the eventuality is directly lexicalized, and in which the relation between the quantification over the eventuality and that of one of its participants is overtly marked.

I briefly discussed the question of the readings available for telic eventualities without any overt marking of quantification. I suggested that quantification could also come from the level of the reference time. This explained the empirical regularities in the observed domain. At the same time, it raised the question of whether eventualities without a defined canonical singular can combine with outer aspect, and I suggested that this was not the case.

4. Concluding and evaluating remarks

In this paper, I discussed the properties of the dual model of events in respect of its mereological power. It is argued that the model reconciles the decompositional and quantificational approaches to eventualities. The model is shown to explicitly treats phenomena that are usually simply stipulated as variable binding and distribution. Variable binding is analyzed into a relation between a predicate and a structure that it c-commands and is applicable to. Separate from pragmatic aspects of applicability, a predicate is applicable to a structure if this structure does not specify a predicate of the same kind. At least some instances of distributive readings are triggered by this type of binding by quantifying predicates. This also reduces some effects of nonspecificity, such as semantic incorporation, to binding effects: an expression is nonspecific if it lacks certain predicates in its structure, and can therefore be bound by the structure in which it is embedded.

References

ARSENIJEVIĆ, Boban. 2006. “Partitivity and reference.” In J. Dotlacil & B. Gehrke (eds.), *Proceedings of the second Syntax AiO Meeting* (Utrecht, November 18, 2005).

BORER, Hagit. 2005a. *Structuring sense, Volume 1: In name only*. Oxford: Oxford University Press.

BORER, Hagit. 2005b. *Structuring sense, Volume 2: The normal course of events*. Oxford: Oxford University Press.

DEMIRDACHE, Hamida. & Maria Uribe-Etxebarria. 1998. “The syntax of temporal relations: a uniform approach to tense and aspect.” *WCCFL* 16: 145-159.

GEHRKE, Berit. 2005a. “The aspectual nature of Slavic prefixes.” Presented at the LAGB satellite workshop on Perfectivity and telicity in Cambridge, September 03-04, 2005.

GEHRKE, B. 2005b. "The prepositional aspect of Slavic prefixes and the goal-source asymmetry." In *Proceedings of the ESSLLI workshop on Formal semantics and cross-linguistic data*: 47-56.

KRIFKA, Manfred. 1998. "The origins of telicity." In Susan Rothstein (ed.), *Events and grammar*. Dordrecht: Kluwer: 197-235.

MCNAY, Anna. 2006. "Information structure at the phase level." In L. Mackie and A. McNay (eds.) *Online* P*roceedings of LingO - the first University of Oxford postgraduate conference in linguistics*.

RAMCHAND, Gillian. 2002. "First phase syntax." Ms. Oxford University.

ZEIJLSTRA, Hedde. 2004. *Sentential negation and negative concord*. PhD Dissertation, University of Amsterdam.

ZHANG, Nina. 2002. "Counting and classifying eventualities in Chinese." Ms. http://www.usc.edu/dept/LAS/ealc/chinling/ articles/Classification.PDF.

ŽAUCER, Rok. 2002. *The role of verbal prefixes in Slavic: evidence from Slovenian locative denominal verbs.* Master's thesis, University of Ottawa.

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СВОЈСТВА ДВОЈНОГ МОДЕЛА УНУТРАШЊЕГ АСПЕКТА И ТЕЛИЧНОСТИ

Разматране су особине двојног модела догађајне семантике и његовог синтаксичког еквивалента с обзиром на мереолошку снагу коју имплицирају. Изнесени су аргументи да овај модел мири декомпозицијски и мереолошки приступ семантици догађаја. Показано је да модел изводи чињенице које су у другим моделима типично стипулиране помоћу везивања варијабли и дистрибуције. Везивање варијабли је разложено у однос између предиката и структуре коју це-командује и на коју је примењив. Предикат је примењив на структуру ако структура не одређује предикат истог типа. У најмању руку неке инстанце дистрибутивних интерпретација су изазване овим типом везивања особина квантитета. Ова анализа такође своди ефекте неспецифичности, попут семантичке инкорпорације, на ефекте везивања: израз је неспецифичан ако му у структури недостају предикати одређеног типа, и стога може бити везан од стране структуре у коју је угњежђен – уколико та структура има спецификоване дате предикате.

Кључне речи: унутрашњи аспект, семантика догађаја, синтакса глаголске фразе, дистрибуција, особине референције, мереологија