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THE *FOR*-PHRASE[2]

This paper proposes a novel account of the semantics of the *for*-phrase and its counterparts in at least some other languages. After a presentation and discussion of two standard accounts of its semantics, and of the event-semantics and scope properties of the *for*-phrase, I introduce some novel data that point in the direction of a more complex semantics for this expression. I argue that the *for*-phrase introduces a proportional matching between the measure that it introduces and some relevant quantity involved in the description of the modified eventuality. This implies that it is generated at the level of quantification over eventualities. I show that the *for*-phrase can modify telic eventualities, as well as states and processes, whether independent, or as subevents in the telic template, and even the reference time – as long as they have not yet been quantified, showing how this is accounted for by the analysis proposed.

Key words: *for*-phrase, event interval, aspect, proportional matching, measure phrase.

Introduction

Temporal adverbial tests of the aspectual properties of verbal expressions, illustrated in (1) are based on the ways the temporal interval of the verbal expression can be modified for duration.

(1) a. The girl grew up in/*for 15 years.
b. The girl grew for/*in 15 years.

Therefore, examining the nature of these tests means examining the relation between eventualities and time, as well as of the tested property, usually referred to as the inner aspect. In this paper, I discuss one of the two modifier phrases used in the temporal adverbial test in English: the *for*-phrase.

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Main questions that I tackle are what the semantics of the for- phrase IS, what the syntactic position where it is generated IS, why it combines with one aspectual class eventualities, and not with the other, i.e. what property it is sensitive to, and finally what it TELLS us about the temporal intervals of eventualities, and in particular the level of syntactic and semantic complexity at which eventualities get their temporal nature. I argue, respectively, as follows. The *for*-phrase is generated at the level of quantification over the eventuality, where it semantically specifies a variable head in the projection in charge of quantification. This is why it only combines with non-homogeneous predicates: the homogeneous ones already have a fully specified quantificational head and cannot receive the corresponding value from the *for*-phrase. I argue, based on the facts observed on some novel data and through the application of a particular model of the VP, that eventualities have a temporal nature already at the very basic level of bare processes and states.

In section 0, I present two standard approaches to the semantics of the *for*-phrase, DOWTY (1979) and KRIFKA (1998), and discuss some aspects of the use of the preposition *for* in measuring contexts other than eventualities, observing a tendency of proportional matching between two measures. In section 0, I argue that the effects of modification of bare states and processes by the for-phrase imply that these simplest forms of eventualities involve temporal intervals, and hence that all eventualities are temporal in nature. Aspects of modification of subevents of a telic eventuality by the for-phrase are analyzed in section 0, and in section 0, I discuss scope relations between the *for*-phrase and negation. The position in which the *for*-phrase is generated to modify eventualities is discussed in section 0, and in section 0 I take into consideration another position where it can be generated – as a modifier of the reference time.

The nature of the *for*-phrase

The most standard test for inner aspect is the temporal adverbial modification test. Two different prepositional phrases, used for temporal modification, the *for*-phrase and the *in*-phrase, appear to combine with two different types of predicates derived for the eventuality. The *for*-phrase only modifies homogeneous predicates and the *in*-phrase only non-homogeneous ones. These phrases therefore diagnose the mereological nature of the meaning they combine with. In this paper, I discuss the *for*-phrase. Two different strategies in accounting for the *for*-phrase are found in the literature.

One of them, referred to as the *quantificational approach* (to my knowledge first proposed in DOWTY 1979), analyzes the *for*-phrase as

quantification over the interval that it introduces, with respect to a certain predicate. The analysis, roughly, assumes that the *for*-phrase has two effects: it introduces an interval and marks that the modified predicate holds for every relevant part of this interval.

For the sentence in (2), this means that within every part of a certain interval of ten hours, it holds that John walks.

(2) John walked for ten hours.

A problem for this approach, noted already by Dowty, is that the *for*-phrase can also introduce non-consecutive intervals the sum of which provides the length specified in the *for*-phrase. This is illustrated in (3), where the most pragmatically salient interpretation is that there are many different intervals during which John brushed his teeth, or was reading something, and their sums amount to three days and to two months, respectively.

(3) During the last ten years, John brushed his teeth for three days and read for two months.

Efforts to capture this, and some other properties of the *for*-phrase, led to a different analysis, usually referred to as the *measure function analysis* (KRIFKA 1989). The intuition behind it is that the *for*-phrase is similar to expressions that assign some measure to an otherwise unstructured meaning (just like phrases of the type *seven grams/meters/litters of NP*). The measure in the *for*-phrase is temporal, and it is specified by the nominal complement of the preposition *for*, which denotes a certain amount of time expressed in units such as seconds, minutes, hours, days, weeks, months etc.

Semantic aspects of the temporal measure phrase are discussed in KRIFKA (1998), where the term *extensive measure function* is used. Extensive measure functions map empirical relations to numerical relations, and therefore make it possible to assign certain units with numerical values to an empirically attestable quality. Krifka's example uses temperature: the relation between different degrees to which something can be cold is mapped to the relation between numbers. Each individual quality can be assigned many different measure functions, but once a measure function is determined, it is fixed for all its applications. Standard measure functions for temperature are degree Celsius and degree Fahrenheit, although nothing prevents us from defining infinitely many new measure functions for the same property.

The *for*-phrase is for Krifka a phrase that assigns an extensive measure function for time to a certain predicate. In his theory, predicates of eventualities all undergo another function (the *temporal trace function*), which assigns them the property of having a temporal interval. The extensive measure function for time then assigns a certain degree, measured in the numerical value of a

certain unit, to the temporal interval of the eventuality. This means that for Krifka every predicate that can be assigned to an event argument must by definition have a temporal trace. The *for*-phrase only specifies the length of this interval by mapping it onto a value.

I present here one further possible analysis of the *for*-phrase. It is a slightly more complex, but also more general, version of Krifka's analysis, and it is motivated by the observation that extensive measure functions are usually specified by quantified NPs which take another phrase as a complement, but which also project the higher structure. The *for*-phrase is different in both these respects. It is a PP, and it does not project, but only modifies, while the modified VP keeps on projecting (4).

(4) a. the five grams of water
$[_{DP}$ the five grams $[_{PP}$ [of] $[_{NP}$ [water]]]]
b. John ran for five minutes
$[_{VP}$ $[_{PP}$ for five minutes] $[_{VP}$ John ran]]

Not only temporal measures can be realized by a PP with the preposition *for*. Let us go through other similar cases and see if they can be related to the discussion of the *for*-phrase. At first sight, it is unusual to express non-temporal measure functions by PPs involving the preposition *for*. Observe the examples in (5), where the measure phrase for the apples introduced by a NP yields a fully acceptable sentence, while the one involving a PP with the preposition *for* is strongly degraded.

(5) a. Give me seven kilograms of those apples.
b. ??Give me (those) apples for seven kilograms.

But in fact, there is a measure that is normally introduced by a PP headed by the preposition *for*. As illustrated in (6), it is used when a measure that is imposed does not directly apply to the object to which it is imposed, but rather relates to it indirectly, through some context-determined proportion.

(6) a. #Give me seven dollars of apples.
b. Give me apples for seven dollars.

In (6b), the quantity of apples is bounded and measured by the quantity of dollars. The matching in the presented case is mediated by a proportion of two measures, one of which is more natural for the measured object. This more natural measure is the weight or number of apples that corresponds to seven dollars through some proportion established by the price of a kilogram of apples or of a single apple. The reason why a direct partitive phrase as in (6b) is not an option for this type of meaning is probably that the amount of

money that a quantity of apples is worth is not perceived as an immanent, inalienable property of apples.[3] Hence, it can only measure apples through a matching with another measure, of a more natural property of apples, in this case weight or number.

Another similar use of the preposition *for* is in the constructions like (7). Here again, one quantity (whole apples) is matched with another (the mass of apple required for three apple pies).

(7) John bought (enough) apples for three apple-pies.

Finally, the construction in (5b) above is not ungrammatical in all languages. Look at the S-C examples in (8), which realizes exactly this pattern.

(8) Daj mi jabuk-e/jabuk-a za sedam kila. S-C
give me apples-ACC/-GEN for seven kilograms
'Give me a quantity of apples to match/make seven kilograms.'

This example has a different meaning than a proper pseudo-partitive construction (I henceforth refer to the modification achieved through the pseudo-partitive construction as the *partitive modification*), which is also available in S-C (9b). One difference is that in (8), there is an intuition that what is asked for will be first estimated (hence measured in some way) based on some other units than kilograms, possibly pieces or even some informal, subjective unit of weight, used in order to estimate the quantity that will make seven kilograms. The person to whom the sentence is directed should estimate some weight or number of apples, or some other measure, so that measured in kilograms, they will weigh seven kilograms. In other words, some other unit, which is possibly a different unit of weight, is assumed to be present before the weight in kilograms is determined. Crucially, the measure introduced in the PP is separated from the object that it applies to, and is therefore always deprived of any extension.

For a finer tuning of the intuition behind this construction, observe (9).

(9) a. U sobi je jabuka za sedam kila. S-C
in room is apples.GEN for seven kilograms
'There are seven kilograms of apples in the room'
lit. 'There are apples for seven kilograms in the room.'

[3] V. van Gelderen (p.c.) drew my attention to the fact that even in English there is a way to use a (pseudo)partitive construction to relate the price and the quantity of a matter, but then the use of an additional noun is required, as in *seven dollars worth of apples*. This fact actually confirms my analysis: in English, the overt introduction of the inalienable property that is measured is required (here *worth*), for a (pseudo) partitive construction can be used.

b. U sobi	je	sedam	kila	jabuka.
in room	is	seven	kilograms	apples.GEN

'There are seven kilograms of apples in the room'

The sentence in (9a) is less salient if the apples in the room are on one pile, or in one bag, i.e. if they form a compact whole. At the very least, it implicates that the apples consist of a number of smaller quantities which have to be summed to match the measure that is introduced. This further implicates that the apples are distributed in more than one place within the room. The sentence with the partitive modification in (9b) favors the other reading, in which there is one pile, box or bag with seven kilograms of apples. Even if used in a situation where the apples are all around the room, it implicates that before being scattered, they used to form one big quantity of apples or that they come from the same source. This difference is even stronger if a mass noun is used, which is as expected, since apples suggest division even without any further modification because their lexical meaning (shape) is closely associated with having a canonical singular.

This supports the view that the measure phrase with the preposition *for* tends to involve more than just assigning a measure – in particular, a matching between the measure that it introduces and an already measured out object. Even when the matching takes place between two instances of the same property, an interpretation is forced which makes a difference between two measures in order to match them. This may be by requiring that one of the measures is a result of summing up some smaller quantities, by imposing two different measures on the same property, or possibly in other ways with the same effect.

Example (9) suggests that it is possible that the measure expressed in the PP and the contextually provided matching measure apply to the same property (in this case weight), as long as they do not directly match, but require a previous execution of some operation (sum) on one of them. I do not tackle here the interesting question of why this pattern is excluded in English.

The point of this excursion into the non-temporal measuring by PPs involving the preposition *for* is that the rough analysis that has been suggested can be extended to the *for*-phrases used to test inner aspect. The *for*-phrase in this view matches between the temporal measure that it introduces and some other contextually suggested measure of the eventuality that it modifies. This contextually suggested measure can be temporal, but it can also relate to other properties, including, as an interesting case, singular instances of a telic eventuality, as in the plural readings of eventualities of the type in (10a), and different properties incremental to the change entailed, as in (10b).

(10) a. John pushed carts to the shop for ten hours.
b. The shuttle accelerated (by) 3m/s^2 for 7 hours.

The entailment of the iterative reading of (10a), according to the suggested analysis of the *for*-phrase, is that all the instances of John pushing a single cart to the shop that occurred, if summed up, match in their temporal interval with the interval of ten hours. I therefore refer to the English *for*-phrase type of modification as the *matching modification*. Sentence (10b), under the same approach, entails that the aggregate acceleration during the eventuality corresponds to a match between the gradual acceleration of 3m/s^2 and the interval of 7 hours. In most cases of language use, the acceleration, or other change involved, would not be constant, and hence the matching and its result would also be somewhat rough, but the same mechanism still applies.

There is, however, an important asymmetry between the temporal measure and other measures. While I noted above that the PPs with *for* used in the nominal domain cannot have any extension, this is not the case with the temporal interval introduced by the *for*-phrase. The difference is obvious, as illustrated in (11).

(11) a. John has apples for ten dollars.
b. John ran for ten minutes.

In (11a), the fact that apples are existentially quantified has no effect on the measure: ten dollars are still lacking extension. On the other hand, in (11b), having the eventuality directly bound by tense extends to the temporal interval in the *for*-phrase: if the eventuality has taken place, the interval in the *for*-phrase also has an extension.

If the eventuality is embedded under a modal meaning, and the *for*-phrase does not scope over this modal predicate, both the eventuality and the temporal interval are intensionally embedded, as in (12).

(12) John wished he could run for ten days.

This difference in fact follows from the following two facts.

First of all, it can be explained if time is an immanent, inalienable property of eventualities, which is most often not the case for the properties measured by PPs that modify nominal expressions. I return to this issue in section 0.

Secondly, and more importantly, the predicate within the domain of eventualities that is in charge of reference, and therefore also able to provide the extension, is either outer aspect (as in e.g. Demirdache & Uribe Etxebarria 1998, and also in the present model) or tense (as in Borer 2005b). In both cases, it is a temporal predicate, which orders two temporal intervals. It is

therefore natural that this temporal predicate should also bind the temporal measure in the *for*-phrase. Since the temporal predicate involved, reference time, in indicative sentences usually has extension, so does the bound interval of the *for*-phrase.

On the other hand, the corresponding predicate in charge of reference in the nominal domain consists of specificity and/or definiteness (essentially spatial concepts, see Jayaseelan & Hariprasad 2001, Arsenijević 2006a). Even if there were a measure typically applying to either of these two properties in the way temporal measure applies to eventualities, this would never be the one realized in the *for* PP. Ergo, the measure introduced by a PP with *for* cannot be referentially bound by the predicates of specificity and definiteness.

For-phrase and the temporal structure of the eventuality

The discussion in the preceding sections suggested that every eventuality that can be modified by a *for*-phrase is already assigned some measurable property, before combining with the *for*-phrase. The *for*-phrase then matches this already assigned property with the temporal interval that it introduces. Since the *for*-phrase applies to stative eventualities and processes, we conclude that even the simplest possible eventualities, states, involve a measurable property. What is, then, the universal property of a state that can be measured? The typical gradable properties, such as temperature or height, are not present in all states. The states of lying down, or of being whole, are not gradable in this way.

The most natural candidate for the universal measurable property of a state is its temporal interval. While processes do have a non-temporal universal measurable property, the actual change that they involve, they still universally involve time. Moreover, no change can be thought of, and hence also measured, without at least two distinct temporal points on the same temporal line. And two distinct temporal points on the same line entail the presence of an interval.

If it is indeed the case that states and processes are universally assigned temporal intervals, as their ontological and inalienable properties, it means that all eventualities, no matter their level of complexity, are characterized by temporal nature. In the light of a decompositional view of eventualities, presenting telic eventualities as pairs, concatenations or other structures built from processes and states (HIGGINBOTHAM 1999, ARSENIJEVIĆ 2006a, RAMCHAND 2002),this means that temporal intervals are not separate semantic components that are assigned to eventualities, but immanent

and perhaps core components of predicates of eventualities. One of the consequences is that every quantification, measure, or matching of measures, applying to an eventuality, has its temporal interval as a potential target.

This excludes the possibility that eventualities are assigned temporal intervals somewhere higher, for instance immediately over the VP, over the inner aspect projection, over the outer aspect projection, or even higher in the structure. The temporality is present before any quantificational specification. Also, since eventualities are universally temporal, their temporal interval is the default target of quantification or measure modification, including that by the *for*-phrase. The same holds for the corresponding phrases in other languages, like the 'x temporal_unit (*long*)' phrase in Dutch and in Slavic languages. Although they might attach to different levels in the structure, they still modify predicates which are already assigned (yet unspecified!) temporal intervals.

'Atypical' results of *for*-phrase modification

Let me now present some data that illustrate more directly the temporal nature of both states and the telic template. Observe the sentences in (13).

(13) a. John closed the shop for two weeks.
b. John went to Vancouver for a couple days.

The *for*-phrase in these two sentences properly combines with singular (i.e. non-iterative) telic eventualities. This type of reading is, for both sentences, more prominent than that involving an iterative eventuality. In this reading, the adverbial is not modifying the entire telic eventuality, but only its result subevent: the states of being closed and being in Vancouver, respectively. Obviously, it is possible to modify the temporal interval of the result subevent only.

At the level at which it is modified the subevent is a bare state, without any division or quantification, and it therefore receives a mass interpretation. This means that if the subevent has a temporal interval, before being modified by the for-phrase, this interval is unbounded. On the other hand, the *for*-phrase involves matching of two measures, and a measure can be assigned only to a bounded object (in this case a property).[4] This means that the temporal

[4] A difficult case is the assignment of an infinite value of the measure. I am ready to allow that this is the one exception in which a measure is assigned to an unbounded object. However, a more intuitive view is that even the infinite value for a measure is thought of as a bounded value without specifiable boundaries. This issue is not central for the discussion.

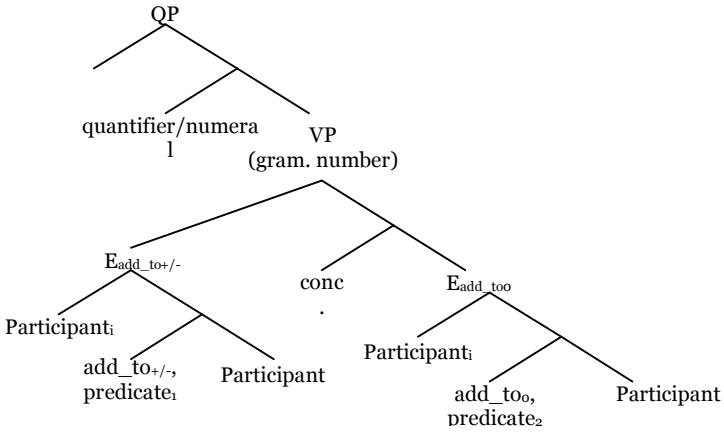
adverbial in fact not only measures the temporal interval, but also either assigns boundaries to it, or selects only for eventualities with bounded intervals.

Before going on with this discussion in more depth, let me briefly introduce the model of eventualities at the syntax-semantics interface that will be used. The model is presented in detail in ARSENIJEVIĆ (2006a), and here I provide only a brief overview.

The model defines two general types of eventualities: the simple and the complex ones. Simple eventualities appear in two flavors: processes and states. This distinction is represented by the predicate add_to, stemming from VERKUYL's (1972) view of eventualities, but with some modification. This predicate appears with two values: +/- and 0. With the value +/-, it marks that the simple eventuality involves a change of a property of some relevant participant, and with the value 0, it marks that no such change takes place. All complex eventualities are built as a concatenation of two simple eventualities with two minimal requirements. One is that the first member of the concatenation is a process. In the default case, the second member of the concatenation is a state, but it may as well be another complex eventuality, in which case a causative is formed.[5] For reasons of simplicity, I only consider the default case, a concatenation of a process and a state. A second minimal requirement for the formation of a complex eventuality is that the two concatenated eventualities have coreferential subjects. This secures that the undergoer of change, represented as the subject of the process (with the agent within the complement of the add_to head), is also the holder of the result state, represented as the subject of the state.

The syntactic representation of the model is given in (14).

(14) Template of a telic eventuality



[5] Causatives are traditionally viewed as telic eventualities that have a full-fledged eventuality in their result subevent position (e.g. Levin & Rappaport Hovav 1999).

The phase transition established by the concatenation of two eventualities in the VP (which I also call the *telic template*) figures as a unit of counting for the derived predicate. In other words, the telicity derived by the VP has as a bi-product the fact that the VP represents a divided predicate, and defines the canonical singular of the complex eventuality. In this way, it parallels the nominal PartP (ARSENIJEVIĆ 2006b), i.e. ClP (BORER 2005). This projection derives a meaning that is still homogeneous, but yet divided (BORER 2005), and it is in charge of the core grammatical number effects (introducing divided reference and determining the unit of counting). Just like in the nominal domain, this enables the projection of a QP, in which quantifiers are generated. It is possible as well to quantify directly over states and processes, but only by mass quantifiers (corresponding to e.g. *much* and *little*), and not by the count ones (*numerals*, *many*, *several*).

The model takes it to be possible to quantify directly over eventualities, and quantification is the only way to derive a non-homogeneous eventuality. This view hence distinguishes between telicity, i.e. the involvement of a concatenation of a process and another eventuality, and inner aspect, which has the value non-homogeneous if the VP is quantified and homogeneous otherwise.

Delimiting the result state of an eventuality, which is one of the effects of the *for*-phrase in the reading that was discussed before the excursion above, expels the eventuality from the class of default complex eventualities into the class of causatives. Recall that in the default case, the concatenation takes a process and a state. A state is defined as a homogeneous eventuality entailing no change in the relevant domain. A bounded eventuality is not homogeneous: it is non-cumulative and non-divisive, and hence quantized (KRIFKA 1998, BORER 2005). And concatenations of a process and a non-state are causatives. Indeed, we can paraphrase *John closed the door for ten minutes* as *John caused the door to be closed for ten minutes*. But, apart from this rather informal observation, is there any more formal similarity between the eventualities with the *for*-phrase modifying the result subevent and causatives?

Yes indeed there are. In telic eventualities with temporal modification of the result subevent, the initiating subevent cannot have a rich lexical predicate, i.e. the verb cannot incorporate much manner-related modification. As the examples in (15) show, any heavier lexical meaning of the verb results in grammatical degradation (speaking only about the singular, non-iterative reading, since the iterative reading takes the *for*-phrase in a higher position and not immediately over the result subevent).

(15) a. John closed/??slammed the door for five minutes.
b. John went/??ran to London for five days.

The predicate of the initiating subevent can only have a very light meaning, essentially the meaning of the predicate *add_to*, which in this case corresponds to bare causation. It might also involve the property under change and its result value (the incorporated result predicate). A similar property, just more radical, can be observed in causative structures as in (16).[6]

(16) a. John made/*sang Mary close the door.
b. John made/*laughed Mary go to London.

It appears that depriving the result subevent of its mass interpretation in a concatenated structure, whether by using a *for*-phrase or by projecting a functional structure, leads to the same type of effect. The initiating subevent is reduced to the meaning of causation and the properties of the entire structure change because what is concatenated is not two mass predicates, but one mass and one bounded one.

If the result state can be assigned a temporal interval and this interval can be modified, a natural question is whether the same holds for the initiating subevent. Examples in (17) present an attempt to form such a construction in English. In all these examples, there is a tendency to interpret the *for*-phrase as a modifier of the initiating subevent.

(17) a. ?John ran for ten minutes to the store.
b. ?John swam for three hours to the island.
c. ?John heated the water for ten minutes to 90 degrees.
d. ?John carried the message for five days to the headquarters.
e. ?John cut the cheese for twenty minutes into 35 pieces.
f. ?John shelved the books for three hours onto the top shelf.

Most native speakers find these sentences degraded. Nevertheless, the degradation is judged as slight, and some sentences are even judged fully grammatical. For most sentences, however, the only possible interpretation is that the result of the eventuality is not yet reached. In other words, it is similar to progressive forms, in not entailing the completion of the telic eventuality as described in the VP. This may be because only the modified interval, and not the entire telic structure, is bound by the higher projections such as tense

[6] An additional asymmetry between the two sets of examples is that only in regular telic eventualities with a *for*-phrase modifying the result subevent, semantic components from the result subevent may incorporate into the verb. No such relation can be established between the causatively used verb and the caused eventuality in causatives. A possible reason is that, as argued in section 0, the result subevent in the former case is a quantified simple eventuality, while in the latter case, it is a richer structure, usually involving a telic template and even its own independent temporal reference.

or modal predicates. As a result, only the modified interval is linked to the relevant world, or set of worlds, with respect to which it is interpreted.

In the interpretation of tensed non-modal sentences of this type, only one part of the aggregate meaning derived in the concatenated structure is truly entailed to be bound by the tense or other higher projections, involved in the specification of the reference domains. The entailment of the clause always covers the initiating subevent and leaves the entire result subevent intensionally embedded. In (17a) for instance, John's running is described as ending at the store, but that component of the meaning of the clause is not entailed. It is only entailed that John participated as the agent in some running, and just like in the imperfective paradox (TER MEULEN 1995, ARSENIJEVIĆ 2006a), this running has the tendency to end up at the store, but it may as well never really reach this end. This makes the eventualities in (17) very similar to progressives. Progressives are traditionally defined as having a meaning that entails only a part of the initiating subevent from the aggregate description of the eventuality (see e.g. BENNETT & PARTEE 1972). Compare the sentences in (17) with those in (18). They all only entail that a part of the initiating subevent took place, without asserting that the result state was reached.

(18) a. John was running to the store.
b. John was swimming to the island.
c. John was heating the water to 90 degrees.
d. John was carrying the message to the headquarters.
e. John was cutting the cheese to 35 pieces.
f. John was shelving the books onto the top shelf.

This parallel with the progressive might be the reason why the sentences in (17) are degraded: their meanings are normally expressed using the progressive. In addition, there are prepositions denoting direction rather than goal, such as *towards*, which derive similar meanings, as in (19), and would also probably better fit the sentences in (17) than *to*.

(19) a. John ran (for ten minutes) towards the store.
b. John carried the message (for ten minutes) towards the headquarters.

The fact that the examples in (17) are degraded may therefore be partly due to the double elsewhere effect. The meaning resulting from a temporal modification of the initiating subevent tends to be realized in two other ways. These two ways, the progressive and the directional prepositions, are more universal because they do not require the presence of a temporal adverbial (the *for*-phrase) to realize the relevant meanings.

There is one further possible reason why the sentences in (17) are degraded, namely that there is a clash between the *for*-phrase and the result subevent, since one of the (indirect) effects of both is marking the initiating subevent as bounded. Probably due the fact that the *for*-phrase appears to be structurally closer to the initiating subevent, as well as the fact that it appears first in the linear, left-to right word order in the sentence, results in the *for*-phrase having priority. As a result, the result subevent cannot be properly interpreted, and the sentence is degraded.

However, with a modification of the result subevent (13), at least in the linear, phonological word order of the sentence, the telic template is identified before the *for*-phrase. The *for*-phrase is then applied to the result subevent, without any fatal consequences for the already formed interpretation of division.

The parallel between eventualities with a temporally modified initiating subevent and the progressive, tells us something about the nature of the progressive. Just as the causative was generalized as the meaning derived by projecting a functional layer in the result subevent, the meaning of the progressive could come from some special structural property of the initiating subevent (this line of analysis is explored in ARSENIJEVIĆ 2006a).

The scope of the *for*-phrase with respect to negation

VERKUYL (1993), and even more explicitly VERKUYL (2000), argued that the external argument of an eventuality enters the same type of Event-Argument Homomorphism (EAH) effect as the internal argument. Although I agree with this view, I criticize here the argument that Verkuyl puts forth to support it. Along the way, the behavior of the *for*-phrase with respect to negation will be examined.

One of Verkuyl's central examples, repeated here as (20), is taken to show that an external argument (the Initiator) with the relevant property ([–SQA]) may present a 'leaking point' for inner aspect, i.e. may show EAH effects. This NP, *nobody*, is considered to be [–SQA] because of the negation, and in Verkuyl's view, one [–SQA] participant suffices to make the eventuality atelic.

(20) a. For an hour nobody ate a sandwich.
b. ?In an hour nobody ate a sandwich.

The argument is weak for two reasons.

First of all, it is assumed that a negated participant has its [+/–SQA] value determined by the negation, although in the default reading, negation scopes over the entire VP. If the negation indeed has wide scope, the external

argument within the VP is interpreted as a singular, and is therefore [+SQA]. Or, from a different perspective, we might say that the morphology of the argument is singular, and since mass interpretation for it is excluded by the operator that binds it (the negation), this results in a [+SQA] interpretation.

In this view, what the test indicates is the relevance of the negation for inner aspect. It does not prove however that the external argument is relevant as well. In other words, a negated eventuality combines with the *for*-phrase and not with the *in*-phrase. As I show in what follows, this behavior in fact appears only with one of the two readings of the sentences in (20), and, furthermore, only with the one in which the way the *for*-phrase is used does not correspond to its use in telicity tests.

The second weakness in Verkuyl's argument is related to the position of the temporal adverbial. In (20), the *for*/*in*-phrase is fronted, which is normally not the case when these adverbials are used to test the inner aspect. Observe the sentence in (21), where the adverbials appear in final position.

(21) Nobody ate a sandwich for an hour/in an hour.

Here both the *in*-phrase and the *for*-phrase are equally acceptable. However, the two phrases bear different scopes with respect to the negation. The *for*-phrase is acceptable only if its scope is wider than the scope of the negation. The entailed reading is that there is an interval during which it holds that there is no eventuality of the relevant kind. The *in*-phrase is acceptable only if scoping lower than the negation. It yields the interpretation that there is no eventuality of the relevant kind such that its temporal interval falls within the interval introduced by the *in*-phrase. The *for*-phrase is ungrammatical if it scopes lower than the negation and the *in*-phrase is ungrammatical if it scopes higher than the negation.

Observe first the acceptable reading of the *for*-phrase, in which the *for*-phrase scopes over the negation, as represented in (22a). Interpreted in this way, the sentence asserts that there was an hour, e.g. between 5PM and 6PM, during which there was no eventuality of completely consuming a sandwich. In this reading, the sentence is false if, during some relevant interval that takes an hour, someone spent ten minutes eating sandwiches and finished at least one of them in this period. However, it is true if someone ate parts of a number of sandwiches during the entire interval introduced by the *for*-phrase (for one whole hour), or possibly longer, but so that none of the sandwiches were finished before the relevant interval ended. In the other reading, which is ungrammatical, the negation has wider scope than the *for*-phrase, as represented in (22b). Why it is ungrammatical is quite obvious: it directly combines a telic eventuality with a *for*-phrase.

(22) a. for an hour < NEG < one ate a sandwich
b. *NEG < for an hour < one ate a sandwich

Quite symptomatically, in both cases, the reading that matters for the acceptability of the *for*-phrase is the telic one: the one that culminates with the eating of one sandwich being completed. This indicates that in this type of examples, no effect of the properties of the agent on inner aspect of the VP are attested.

Now observe the acceptable reading of the *in*-phrase, the one in which the *in*-phrase scopes lower than the negation. For this reading, represented in (23b), the sentence asserts that there was no eventuality of eating, and completing, a sandwich, such that it took less than or exactly one hour. The sentence is false if someone ate a number of sandwiches, and has managed to finish at least one of them so that the temporal interval of eating this sandwich is shorter than one hour. Therefore it is false if someone spent ten minutes eating sandwiches and finished one of them in that period. On the other hand, it is true if someone spent exactly one hour and one second eating a sandwich, and finished this sandwich at the end of this interval. The ungrammatical reading, represented in (23a), asserts that the interval in which no eventuality of eating and completing a sandwich occured is shorter or equal to one hour. The ungrammaticality comes from the fact that the meaning of there being no occurence of an eventuality of a certain kind is [–ADD TO] in Verkuyl's terms and cannot derive telicity. Such a meaning is expected not to combine with the *in*-phrase. In both cases again, ignoring the negation and the temporal modificaton, the relevant eventuality is the one that reaches its culmination, i.e. the one traditionally labelled as a telic eventuality.

(23) a. *in an hour < NEG < one ate a sandwich
b. NEG < in an hour < one ate a sandwich

We can therefore conclude that the observed eventuality is telic, which is clearly confirmed by the narrow scope of the adverbial (good with the *in*-phrase, not so good with the *for*-phrase). When the adverbial scopes over the negation, it modifies the interval in which the existential quantification over the eventuality is negated. In other words, it modifies the temporal interval of the non-occurrence of an eventuality. The non-occurrence of an eventuality has the properties of a state irrespective of the eventuality itself.

Verkuyl's argument for the claim that external arguments take part in the composition of inner aspect cannot hold in the simple way in which it is presented. It is the negation that influences the interpretation of the sentence with respect to the adverbial test, and not the external argument itself. This negation, although surfacing on the external argument, has independent

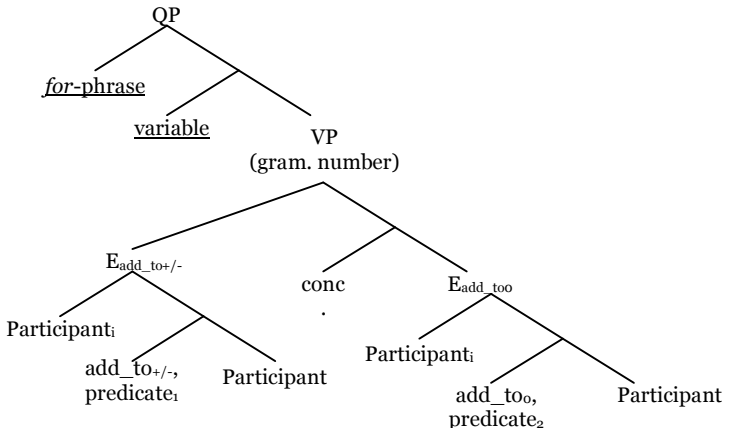
scope, which may be higher or lower than the scope of the adverbials. The lower scope of the adverbials tests the eventuality without the negation, and indicates telicity. The higher scope of the adverbials tests the non-occurrence of the eventuality and shows atelicity.

The position of the *for*-phrase and the nature of eventualities

In section 0, we reached the conclusion that the *for*-phrase may appear at different levels of the semantic and syntactic structure of a verbal expression. It can modify the entire eventuality, but also the structures that it concatenates: the initiating and the result subevent.

Recall now that the model of eventualities introduced in section 0 included the QP projection, which has so far been ignored, and which introduces quantification over the eventuality. Recall as well that an eventuality is homogeneous up to the level of the QP, and non-homogeneous if the QP is projected, i.e. if the eventuality is quantified. This is strikingly similar to what happens when an eventuality is modified by a *for*-phrase. In order to combine with the *for*-phrase, an eventuality has to have a homogeneous description, and at the same time, it needs to be assigned a measure, hence bounded. Let us try to reconcile these two clashing requirements. The most logical position for the *for*-phrase is at the level of QP, because this is where homogeneous eventualities become bounded. It is either a kind of adjunct to or a specifier of QP, depending on one's theoretical syntactic views. In section 0, it was explained that in order to match two distinct quantities the way the *for*-phrase is shown to do, the expression it applies to has to be quantified, and its quantifier has to be unexpressed. This is exactly what the *for*-phrase at the QP level gives us. The QP it modifies has an unspecified element in its head, something like a variable, yielding an unspecified quantification over the unit of counting defined in the VP. This produces the bounding component of the effect of *for*-phrase modification. The *for*-phrase itself then matches this variable quantity with the measure it specifies for the corresponding temporal interval. This gives us the structure in (24).

(24) The position of the *for*-phrase



Two interesting questions immediately emerge. First, is there a contradiction here, because the *for*-phrase is characteristic for appearing on atelic eventualities, and the structure proposed requires that it only combines with VPs, which represent telic eventualities. Second, what happens when the *for*-phrase modifies only a subevent of the default case of a telic eventuality – is the subevent, which is normally a process or a state, then turned into a quantified telic eventuality?

In response to the first question, it needs to be noticed that the *for*-phrase in fact freely combines with telic and even semelfactive eventualities (25). The only restriction is that the eventuality gets iterative interpretation. Iterative interpretation of an eventuality can be matched with the plurality in the nominal domain. By a parallel, an eventuality is iterative if it is divided and does not receive a singular interpretation.

(25) a. Mary drove John to the hospital for ten years.
b. The light blinked for ten minutes.

Some telic eventualities cannot combine with the *for*-phrase, but this is only because those eventualities strongly resist the iterative interpretation. Most drastically, this holds for the eventualities involving the so-called uniqueness relation with one of their participants (KRIFKA 1998). It is only possible to destroy the same object once (26a), and this cannot be iterated because the object does not exist any more. Similarly, it is only possible to make the same sandwich once (26b), because once made, it exists and cannot reach existence any more.

(26) a. ??/#John destroyed the sculpture for ten hours.
b. ??/#Mary made the sandwich for ten hours.

But this is a consequence of our world knowledge. The sentences in (26) are both syntactically and semantically well-formed, and the only problem is that we cannot match them with any of the actual worlds we usually have in the discourse. Imagine a world in which everything, once fully destroyed, instantaneously reintegrates back to the original form. In such a world, (26) is a good sentence.

Now the second part of the question: What happens when the *for*-phase modifies a state or a process? Well, nothing special. The *for*-phrase does not require that the modified expression denotes a count quantity, it can as well establish a proportion between the temporal interval it specifies and a mass-quantified eventuality, i.e. imposing some kind of a variable mass quantifier, an unspecified member of the little-much-some paradigm, on the eventuality before matching it with the interval.

This also provides an answer to the second question, about the modification of one of the subevents in a telic eventuality by the *for*-phrase. When the modified subevent is a state or a process, it will be quantified in the same way that states and processes outside the telic template are quantified. They are hence not full telic templates, but simple homogeneous eventualities, with some unspecified mass quantification, marked to match the temporal measure introduced by the *for*-phrase. This is probably the reason for a higher degree of degradation of the lexically rich verbs used causatively, compared to the use of lexically rich telic verbs with *for*-phrase modification over the result subevent (see examples (15) and (16) in section 0).

Finally, the conclusions reached in this section also tell us something important about the nature of eventualities. I argued so far that the *for*-phrase can modify a simple eventuality, and that it involves a matching between two quantities, one of which is measured out in the *for*-phrase, and the other without a measure assigned. If this is correct, it implies that simple eventualities involve a measurable property which can be matched with a measure of a temporal interval. Telic eventualities, in the iterative interpretation, provide three candidates for this property: the quantity of the counting units (a single instance of the telic eventuality), the temporal interval and the degree of change accumulated in the aggregate quantity of the eventuality matched with the *for*-phrase. Processes provide two candidates for the matched property: one is the change, i.e. the dynamicity involved in the process, and the other is the temporal interval. States, however, only involve the latter, since they entail no dynamicity. Hence, it has to be that even simple eventualities involve temporality. This may be formally accounted for in two ways: either eventualities are assigned temporal intervals at the level lower than a completely specified simple eventuality, or the temporality is the actual ontological property that forms eventualities. I argued in ARSENIJEVIĆ (2006a) that the latter is the case, and that the categorial

difference between nominal and verbal expressions lies in the spatial nature of the referential potential of the former and the temporal nature of the referential potential of the latter.

Other positions of the *for*-phrase

Apart from the position in which it assigns a predicate to the QP, the *for*-phrase can also appear in other positions, where it modifies other aspects of the meaning of the clause. One of these was illustrated in section 0, where examples such as (27) were discussed.

(27) For an hour, nobody ate a sandwich.

In this example, the *for*-phrase may in theory scope higher or lower than the negation. When it scopes higher than the negation, the interpretation is that there was a period of an hour such that during the entire period there was no eventuality of someone eating a sandwich (here the *for*-phrase probably modifies the reference time). The other scope, which seems to be strongly degraded or altogether unacceptable, corresponds to the meaning in which there was no singular eventuality of eating a sandwich that lasted for one hour. The degradation of the latter interpretation is expected, because it combines a *for*-phrase with a singular telic eventuality.

In (28), both readings, for the two given types, are fully available.

(28) For an hour, nobody ate sandwiches.

One reading is that there was an hour during which there was no instance of the bare plural eventuality of someone eating a sandwich. The bare plural on the Undergoer in this example (*sandwiches*) is an instance of concord between the argument and the bare plural on the eventuality (see ARSENIJEVIĆ 2006c, 2006a). The other reading is that no singular eventuality of someone eating a collective object denoted by *sandwiches* had a temporal interval of one hour. To show that these readings indeed have different truth conditions, I present a situation in which one of them is false and the other is true.

The first reading is false if during some relevant period of an hour someone spent ten minutes eating sandwiches, and in these ten minutes he finished eating one sandwich and ate half of the second sandwich. Thus, an eventuality of eating a sandwich quantified by *one and a half* is such that it has taken place. Since the first reading introduced requires that no eventuality of eating (and finishing) a sandwich is such that its denotation has taken place, the sentence is false: an eventuality of eating a sandwich, quantified by *one and a half*, has taken place within the relevant interval.

The same situation makes the other reading of the sentence true. This reading requires that no eventuality of eating a sandwich lasted for one hour. In the situation described, an eventuality of eating a sandwich quantified by *one and a half* has taken place. However, this quantified eventuality has a temporal interval of only ten minutes, therefore smaller than one hour. The only eventuality that has taken place does not satisfy the second condition, imposed by the *for*-phrase with the low scope: its temporal interval is not one hour long. Therefore it is true that no eventuality with the given predicate lasted for one hour.

I assume that for the reading in which it scopes over the negation, the *for*-phrase appears at the level of the reference time. This is because reference time and speech time are the only two elements within the structure projected by a VP the quantity of which can reasonably be matched with a temporal interval. The speech time, however, cannot be modified in any way – it is immanently determined by the utterance itself, and by different pragmatic conditions. The reference time in the particular case is some, for which it is asserted that the epistemic evaluation of the eventuality of someone eating a single nonspecific sandwich gives a negative result. The *for*-phrase modifies the reference time, which scopes over the negation. The reading in which the *for*-phrase is in the scope of the negation is the one I have been discussing in this section, where the *for*-phrase directly modifies the QP.

To briefly summarize, the *for*-phrase, when modifying an eventuality, is related to the QP. It assigns a light predicate to the head of the QP and therefore cannot combine with QPs that independently have other predicates in their heads. The test based on the *for*-phrase indicates whether the structure that it applies to has a non-homogeneous reading (i.e. a reading derived without any material in the head of the QP). There are also other possible positions in which the *for*-phrase can appear, for instance a position related to the reference time, but these do not provide indications of the quantificational properties of the eventuality.

Conclusion

For-phrase presents one of the standard tools for testing the inner aspect of an eventuality. In this paper, I briefly introduced two accounts of its semantics, pointing to some of their advantages and problems. After a discussion of event-semantics and the scope properties of the *for*-phrase, and having introduced some novel data, I proposed an account that unifies the two standard ones. I argued that the *for*-phrase introduces a kind of proportional

matching between the measure that it introduces and some relevant quantity involved in the description of the modified eventuality. It is hence generated at the level of quantification over eventualities. I showed that the *for*-phrase can modify telic eventualities, as well as states and processes, whether independent, or as subevents in the telic template, as long as they have not been quantified. This is because the *for*-phrase itself needs to assign a quantificational predicate to the description of the eventuality, defined in terms of a proportion with the measure specified by the *for*-phrase. The *for*-phrase can also appear in other, higher, positions, such as the modification of the reference time.

The paper argues that the *for*-phrase, when modifying states, has only one candidate quantity to match with the temporal measure that it specifies, namely the temporal interval of the eventuality. This implies that even the simple eventualities, without any additional specification, have temporal intervals as their ontological property.

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FOR-ФРАЗА

Резиме

Временски модификатор за трајање радње, изражен у српском језику временским изразом у акузативу без предлога, а у енглеском такозваном *for*-фразом, у проучавању аспекта се користи као најпоузданији и најшире примењиви тест унутрашњег, или клексичког, аспекта глаголског израза. Као прозор ка структури самог феномена лексичког аспекта, овај израз је привукао пажњу многих семантичара, а у досадашњој литератури се издвајају два најутицајнија приступа његовој анализи: Доутијев (DOWTY 1991) и Крифкин (KRIFKA 1998). Рад најпре представља ова два приступа, истичући њихове досад препознате предности и недостатке, а затим уводи нов емпиријски материјал из српског језика који упућује на неке досад неуочене појаве и на потребу за комплекснијом анализом. Примећује се да изрази који у различитим језицима модификују ателичне глаголске предикате не морају имати идентичну семантику, с обзиром на то да ни аспектуална структура ових језика није идентична. Другим речима, енглеска *for*-фраза ближе одговара српској предлошкој синтагми са предлогом *за* и мером времена у његовој допуни, него изразу који у српском језику спецификује временско трајање модификујући ателичне глаголске предикате. Формална анализа

која укључује сва ова запажања је и понуђена: изложени су аргументи да изразе са предлогом за и у српском и у енглеском, и другим језицима, треба посматрати као функције које уводе пропорционално поклапање између два квантитета који се мере на различитим скалама. У раду се затим разматрају неки специфични примери употребе *for*-и *за*-фразе (модификација теличних предиката и под-догађаја, као и референцијалног времена), и показује како се и ове употребе директно уклапају у предложену анализу.

Кључне речи: for-фраза, интервал, аспект, пропорционално подударање, мерна фраза