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A time-relational analysis of Russian aspect¹

The meaning of the Russian perfective-imperfective opposition is usually characterised in terms such as 'the situation is seen in its totality vs not in its totality, with a boundary vs. without a boundary', and similar ones. These characterisations, while capturing important intuitive insights, fail on a number of grounds. It is argued that aspects are purely temporal relations between the time at which some situation obtains, and the time for which an assertion is made by the utterance which describes this situation. This idea - with some modifications for non-declarative clauses - leads to a simple and precise definition of the two Russian aspects. It is shown that the intuitive characterisations familiar from the literature follow in a natural way from these definitions.

1. Introduction

It is generally assumed that, apart from a few cases of ambiguity, every Russian verb form can be assigned to one of two aspects, usually called perfective (PERF) and imperfective (IMPERF). This fact has been stated in various forms by many authors, for example by Timberlake (1982: 302):

Verbs in Russian belong to one of two aspect categories, the perfective or the imperfective. Although there is some variation in their morphological expression, these categories can be described as morphologically encoded aspect. They are used to express a number of partially distinct semantic features, such as durativity, iterativity, progressivity, completion, and the like. Each use of a particular aspect to express one of these semantic features defines a contextual variant of this aspect.

If it is true that each verb belongs to either PERF or IMPERF, then this raises the question of what the criteria for this assignment are? How does the speaker know, how does the linguist know that a particular verb form is PERF or IMPERF? Since a grammatical category is always a mapping between particular formal means and particular meanings (or functions), two answers are possible:

A. Each Russian verb form is characterised by some explicit marking - by a suffix, an infix, a prefix, a detachable particle, or some other morphosyntactic device. In this sense, the unity of PERF and IMPERF, respectively, is based on its formal marking (barring occasional ambiguities, observed everywhere in human language). The meaning of each aspect can cover a more or less rich spectrum of variants.

B. Each Russian verb form has one out of two precisely defined semantical components, for example 'action seen in its totality - action not seen in its totality'. Then, the unity of PERF and IMPERF respectively, is based on their meaning. In context, this meaning may vary within limits (as does the meaning of most expressions). But there must be a more or less stable and well-defined 'meaning spectrum' for each of the two aspects - a common semantic feature which eventually distinguishes PERF forms from IMPERF forms.

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Ideally, unity of formal marking and of specific semantical component should go together in the definition of a category. This is rarely found in human language.² In the following section, we shall examine what the rich literature on Russian aspect says about the formal and semantical definition of the two aspects. There is largely agreement on the morphological facts. In 2.1, we shall concentrate on these basic facts, only briefly mentioning controversial points. As for the semantic side, opinions are somewhat more at variance; in 2.2, we shall consider the three best-known characterisations.

2. Conventional wisdom

2.1 The morphological facts

The picture emerging from the rich literature is not entirely uniform. But some details aside, there is a certain consensus about the basic facts. The following summary is based on Isaenko (1968). We give the essentials in the form of three key rules, with some specified exceptions.³

CWI. Simplex verbs are IMPERF.

Simplex verbs are verb forms without a prefix.⁴ There are two exceptions to this basic rule:

CWIa. A small number (about 30) of simplex verbs are PERF.

CWIb. A few simplex verbs are ambiguous between PERF and IMPERF.

In what follows, we shall call the imperfective simplex verbs IMPERF-S, and the few perfective simplex verbs, PERF-S.

CWII. Adding a verbal prefix to a verb form results in a PERF verb form.

There are about 20 such prefixes. The addition of a prefix does not only render (or sometimes keep)

² In fact, the situation is more complicated. In many languages, for example, a particular case is neither uniform with respect to form nor with respect to meaning. Latin genitive, for example, has no fixed meaning, and its morphological marking is highly variable. We cannot say that it is always marked by a *-i* or by *-is* or *-ae*, nor can we say that it is defined by the fact that it expresses 'possession' (or whatever other semantic feature). What renders the genitive a uniform category, is primarily the fact that it is systematically governed by other forms, such as verbs, adjectives, or prepositions: *uti* requires the genitive, just as *cupidus*, in whatever way this genitive may be marked. In other words, the unit of a category can also be based on a constant grammatical function, such as government. But such a proposal has never explicitly been made for Russian aspect, although the two aspects typically exhibit a somewhat different behaviour within the sentence. In particular, it is usually said that the present tense form of the PERF has a future tense meaning, whereas this is not the case for the present form of the IMPERF. Similarly, the interaction of PERF and IMPERF with particular adverbials is different. Whereas such criteria are in practice often used as an argument to assign a particular verb form to either the one or the other aspect, the aspect definition in itself is never based on these differences. Therefore, we shall not deal with this possibility here.

³ There are some other exceptional cases, for example loan words and verbs based on foreign morphemes. But they do not affect the general picture, and are therefore not discussed here. In general, it should be pointed out that the long research tradition on Russian aspect has accumulated an immense stock of facts and observations which is impossible to deal with in a single paper. This article will focus on what I understand to be the core of the problem, the precise definition of the two aspects, and discuss a representative selection of the main problems, leaving aside many interesting but more peripheral issues.

⁴ This, as anything said here, should be seen from a synchronic perspective. It may well be that from a diachronic point of view, a 'simplex' is compound. For an account of the historical facts, see Regnell (1944).

the verb PERF, it also has other semantic effects. Three main cases are to be distinguished:

CWIIa. The verbal prefix modifies the underlying meaning of the verb to which it is applied in a characteristic way - it makes it inchoative, resultative, delimitative, in brief: It modifies the 'manner of action', or, as is often said, it introduces a particular 'Aktionsart'.⁵

CWIIb. The verbal prefix is 'empty' - i.e., it leaves the meaning of the underlying verb untouched and only modifies its aspect, as in sdelat 'to make' or pro itat 'to read'.

This case is rare, and some authors (such as Isaenko 1968) even argue that these derived forms, too, exhibit some modifications, though perhaps weak ones.⁶ In what follows, we shall not distinguish between these two cases; both will be labelled PERF-A.

CWIIc. The prefixed verb has a lexical meaning in its own right which, in the typical case, cannot be compositionally derived from its components.

We shall call verbs of this subclass PERF-D (for 'perfectives forming a derived verb').⁷

CWIII. Verbs of type PERF-D have an imperfective counterpart, formed by suffixation.

The most important suffix to serve this function is -iv/yv. We shall call this class IMPERF-D (for 'derived imperfective verbs').

If, minor details aside, this picture is correct, then several types of PERF : IMPERF contrasts must be distinguished:

1. Some forms are ambiguous, such as velet 'to command'. This case is atypical, though, and not of particular interest.
2. There are a few pairs IMPERF-S : PERF-S, such as brosat : brosit 'to throw' or davat : dat 'to give'.
3. Some verb forms have no aspectual counterpart (perfectiva tantum and imperfectiva tantum). This case is quite frequent. In other words, whereas it is true that each Russian verb belongs to one of the two aspects, this does not mean that all verbs can be grouped in aspectual pairs.⁸

⁵ Note that, in accordance with the Slavist tradition since Agrell (1909), the term 'Aktionsart' is used to refer to 'secondary modifications of a verb content', rather than to verb classifications according to temporal properties in general, as, for example, the Vendler (1963) classification. These secondary modifications can be expressed by prefixes (this is the case in which we are interested here), but also by other means.

⁶ For a critical evaluation of this view, see Forsyth (1970: 38-41).

⁷ An exact delimitation between PERF-A and PERF-D is not easy. When should one speak of a 'new verb', and when of an Aktionsart variant of the underlying verb? Isaenko (1968), who insists on a sharp boundary, is forced to make a number of ad hoc assignments that are far from being plausible (see, for example, his highly inconsistent argumentation about verbs with the prefix do- in 1968: 396).

⁸ Sometimes, the opposition IMPERF-S : PERF-A, that is, between a simplex imperfective and one or several perfectives derived from it by prefixation adding a new Aktionsart', is considered to be an aspectual opposition. Then, however, the two 'aspect partners' also differ by meaning features other than the purely aspectual ones. Moreover, the IMPERF partner then often has many PERF counterparts, each of which corresponds to a different Aktionsart'. This is somewhat against the spirit of the notion of a grammatical category; it is as if we assumed a tense contrast between a present tense form and some other tense form which, however, does not only differ in time but also with respect to the inherent semantics of the verb. A comparable case in English would be the opposition between came : was coming in, was coming on, was coming down. Therefore, we will not adopt this view. (A clear discussion of this problem is found in Forsyth 1970, chapter 3).

4. There is a large group PERF-D : IMPERF-D, such as dokazat : dokazyvat 'to prove'. This, again, is a pure aspectual contrast, based on a systematic morphological process. But its application is confined to verbs of a particular type whose precise boundaries are not easily drawn (cf. footnote 6).

This means that the 'unity of aspect' has no basis in formal marking. The only reason to assume that there are exceptions from Rule CWI is meaning; from a formal point of view, both IMPERF-S and PERF-S, as well as the ambiguous cases, are simplex verbs. In fact, it seems fairly clear that the difference between Russian PERF and IMPERF is only partly grammaticalised (Isaenko 1968: 352), much in contrast to, for example, the English opposition between 'simple form' and 'be-ing-form', which, with very few exceptions such as to know, to need, affects all lexical verbs.

If PERF and IMPERF can be given a uniform definition at all, it must be based on semantic criteria. Which are these criteria? Why are forms such as dat'to give', otrezat 'to cut off', perepisat 'to cut' unerringly considered to be PERF, whereas davat 'to give', rezat 'to cut', perepisyvat 'to copy' are considered to be IMPERF?

2.2 The semantic characterisation of PERF and IMPERF

There is no generally accepted semantic definition of the Russian aspects. But there have been many attempts to characterise them semantically⁹ limit, three of which are particularly prominent. According to the first, PERF presents the action referred to in its totality, whereas IMPERF lacks this feature. This is probably the most common definition. The second definition states that PERF presents the action as 'completed', and IMPERF presents it as 'not completed'. The third definition operates with the notion of a '(inner) boundary': in some way, PERF implies such a boundary, whereas IMPERF does not. These characterisations are not incompatible with each other. In fact, some authors use sometimes the one, sometimes the other.

For all three characterisations, the precise formulation varies from author to author, and often within the writings of a single author. Moreover, most authors also distinguish between the basic semantic opposition as such and various modifications found in particular contexts. In the following discussion, we concentrate on the basic opposition (the full spectrum of usages is discussed in Bondarko 1971)¹⁰.

A. The situation¹¹ is presented in its totality - not in its totality

This characterisation, which goes back to Berny (1877) is by now the dominant definition found in literature on Russian aspect, shows up in various formulations. We give three characteristic variants:

Les langues slaves distinguent régulièrement deux aspects du verbe: le perfectif représente l'action dans sa totalité, comme un point, en dehors de tout devenir; l'imperfectif la montre en train de se faire, et sur la ligne du temps [The Slavic languages regularly distinguish two aspects of the verb: the perfective represents the action in its entirety, like a point, beyond any

⁹ For a recent survey and a highly critical evaluation of most theories presented to date, see Durst-Anderson (1992:29-47).

¹⁰ The most comprehensive treatment of the Slavic aspect in general is Galton (1976). Unfortunately, Galton's own definition of the basic aspectual contrast is very general: 'the Slavic languages ... have created special morphological means for the presentation of the temporal succession, in the perfective aspect (pv.), as well as of its contradictory opposite, a state lasting unchanged while other events change; this is done by the imperfective aspect (ipv).'

¹¹ Following Comrie (1976), we use the word 'situation' as neutral term for events, processes, activities, states, etc.

development; the imperfective shows it as it goes on, and on the time axis]. (Saussure 1917: 161s).

Der perfektive Aspekt drückt einen Vorgang als ganzheitliches, zusammengefaßtes Geschehen aus, der imperfektive Aspekt läßt dieses Merkmal unausgedrückt [The perfective aspect expresses a process as a holistic, condensed incidence, the imperfective aspect leaves this feature unexpressed]. (Isaenko 1968: 350).

A perfective verb expresses the action as a total event summed up with reference to a single specific juncture. (Forsyth 1970: 8).

In all of these cases, the IMPERF aspect is the 'negative counterpart' - it lacks the feature of presenting the situation in its totality. This, however, can be understood in two ways. It is either a neutral form - i.e., IMPERF unmarked whether the situation is 'seen in its totality' or not, or it is supposed to express that the situation does not have this feature. Under the first interpretation, the opposition is in a way not PERF : IMPERF but rather PERF : PERF OR IMPERF (where PERF means 'seen in its totality'). The second interpretation, under which IMPERF cannot also have the PERF reading, is the common one, and we shall adopt it here. But authors are not always very explicit in this respect, and occasionally, their formulations also allow the other interpretation according to which IMPERF 'combines' both perspectives.¹²

The characterisations given so far relate specifically to the two Russian aspects PERF and IMPERF. But the same idea is also used in more general definitions of 'perfective' and 'imperfective'. According to Comrie (1976: 3), 'aspects are different ways of viewing the internal temporal constituency of a situation'. The situation may be presented as a whole, without specific reference to its inner constituency ('perfective aspect'), or it may involve a reference to the inner constituency ('imperfective aspect'). In the latter case, there are various ways of doing so, and accordingly, we have different subtypes of the imperfective.

Much the same idea is found in the entry 'Tense and Aspect' (J. Bybee) in the International Encyclopedia of Linguistics (1992):

ASPECT is not relational like tense; rather, it designates the internal temporal organization of the situation described by the verb. The most common possibilities are PERFECTIVE, which indicates that the situation is to be viewed as a bounded whole, and IMPERFECTIVE, which in one way or another looks inside the temporal boundaries of the situation.[...] These aspects are usually expressed by inflections, auxiliaries, or particles.

The idea that there is some differentiation within IMPERF is also exploited in the literature on Russian aspect (for example in the sense of contextually bounded variants). What is decisive, however, is the fundamental distinction: 'the situation is seen in its totality - not seen in its totality', which will now be critically examined.

This distinction is very suggestive: aspects are different ways to 'view' or to 'present' one and the same situation. But it fails on at least two grounds as a satisfactory definition.

1. The characterisation is purely metaphorical, and thus far from being clear. Characteristically, it is accompanied by spatial and other circumlocutions, such as 'der ... Prozeß liegt geschlossen im Blickfeld des Sprechers [the process as a whole ... is in the speaker's field of vision]' (Ruijka 1952: 4), as if the process were a matchbox or the Eiffel tower. A particularly vivid formulation is due to Isaenko (1968: 348). He compares the action described by the verb to a parade which can be seen either from the perspective of a participant or from the perspective of an external

¹² As we shall see later, both interpretations make perfect sense, but they apply to different verb classes. For what will be called below '1-state verbs', which are always IMPERF, both the 'totality'-reading and the 'non-totality' reading are available, whereas this is not the case for what will be called '2-state verbs'.

observer on the tribune. The former represents the imperfective aspect in which beginning and end are out of view, and the parade cannot be seen in its entirety, whereas the latter, in which the entire action is in view, represents the perfective aspect. Exactly this idea is also found in more recent characterisations, such as Gospodarov's (1990: 195):

Thus, the use of the Perf. projects a world view according to which a person assumes the position of an external observer who is not immediately involved in the process he describes in the message ... On the other hand, by choosing Imp., the speaker places himself, as it were, inside the very course of the process. The external boundaries are lost from this perspective.

These visual characterisations are highly intuitive. They also makes clear that IMPERF is not considered to be the neutral case, compatible with both perspectives; it rather marks the 'interior perspective'. But they are surely not what one would expect from a precise definition.

2. Suggestive as the totality metaphor in many cases may be, there are a number of very elementary examples in which it does not make much sense. Consider the following example¹³:

- (1) Velikan Rodosa vesil_i sto tonn.
The colossus of Rhodos weighed 100 tons.

The notion that in this case, the situation is, as it were, presented from the inside, in its course, rather than in its totality, seems odd. It is simply a historical fact which is stated here - and this fact is presented in its totality. Note, incidentally, that in English, the progressive form was weighing 100 tons would be strange here.¹⁴

In this example, the situation expressed is a singular fact. The same impression obtains for generic facts:

- (2) Tridzat' let nazad stoil_i litr piva pjat' kopeek.
Thirty years ago, a pint of beer cost 5 p.

It is hard to imagine what it should mean here that the situation is presented from the interior, not as a whole, not in its entirety.

In the following two cases, the situation is an activity, rather than a - more or less static - fact:

- (3) Prošljuju no ' , Ivan spal_i v komnate dlja gostej.
Last night, John slept in the guest room.
- (4) V era Severin rabotala_i s dvuch do pjati.
Yesterday, Sévérine worked from two to five.

In both cases, the Russian verb is IMPERF. It is clear both in 3 and in 4, that the situation is presented in its totality. It is also clear that the situation is bounded and completed - a fact which falsifies the completedness definition of PERF, to be discussed below. It is even difficult to imagine what definitions like 'the activity is shown in its development, from the interior, with special reference to its inner properties, without taking into account its beginning and its end' could mean here. In 4, the boundaries of the situation are even explicitly indicated. Similarly, it is clear that in 3, John's sleep is not described from its interior, as would probably be the case with the English progressive John was sleeping. If one had to choose between one of Isaenko's or Gospodarov's spatial metaphors, it would doubtlessly be the position of the external observer which is relevant here - the one which is supposed

¹³ In the examples, IMPERF is marked by the subscript 'i' and PERF by the subscript 'p', respectively.

¹⁴ In French, only the imparfait, which is often considered to express imperfective aspect, is possible here: Le colosse de Rhode pesait cent tonnes. Both the passé simple and the passé composé are distinctly odd.

to represent PERF.

To sum up, the characterisation of the aspects as 'seen in its totality - not seen in its totality' may often reflect a correct intuition - a fact which somehow must be explained -, but it does not provide us with a satisfactory definition of PERF and IMPERF.

B. The situation is presented as completed - not completed

This characterisation which goes back to the eminent Slavist Miklosich (1883: 274) is most popular in textbooks; but it is also found in recent linguistic treatments, such as Fontaine (1983). It is somewhat less metaphorical than the totality-definition, because there are normally relatively clear criteria to distinguish between situations, when they go on and when they are completed (although there remains a strong metaphorical component in the term 'presented as').¹⁵ Nevertheless, it fails on at least two substantial grounds.

1. As was already noted in connection with examples 3 and 4, there are many common usages of IMPERF in which the situation is clearly completed. This is not due to the fact that the situations are in the past and therefore 'over' (a fact which should not matter, anyway, for aspect); the same point can be made for situations in the future:

- (5) *Zavtra Severin budet rabotat'/rabotaet; c dvuch do pjati.*
 Tomorrow, Sévérine will work/works from two to five.

Here, the beginning and end of the situation are even explicitly indicated by the adverbial. The situation is presented as completed at five.¹⁶ Nevertheless, the imperfective is used - a simple consequence of the fact that the verb in question is a simplex verb, without a PERF counterpart with the same lexical meaning.

2. Completion is always relative to a time span (independent of how this time span is related to the time of utterance). If (5) is true, then the situation referred to is completed, for example, at 6 o'clock, and it is not completed at 4 o'clock. Therefore, a statement such that PERF 'presents an action as completed' only makes sense if it means: 'it is presented as completed at some time T'. A speaker who presents some situation as completed does not want to suggest that it was or is completed at any time: It is completed at some time T, as well as at any time thereafter, and is not completed at any time before T. This 'reference point' T need not be made explicit; in particular, how T is related to the time of utterance need not be expressed. But somehow, T must be implied in the utterance. What is

¹⁵ There is also the problem as to whether 'completed' only means that the action (in the largest sense of the word) is simply over, or whether it is completed according to some inner logic of the action itself. In English, for example, there is a well-known difference between Chris finished working and Chris stopped working, where in the former case, Chris somehow completed the work he intended to do, whereas in the latter case, his working is simply over and not necessarily 'completed'. Most authors who talk about 'completion' are not very explicit about this point. There is considerable discussion, however, about the closely related question of 'boundary types' or 'limit types' (see, for example, Bondarko 1991: 64-94), a point to which we shall return in the next subsection. The criticism raised below against the 'completedness characterisation' is essentially independent of this distinction. In particular, example 5 can be understood in the sense of 'by which time she will have completed what she intended to do'.

¹⁶ One might argue here that, whilst the situation is apparently presented as completed, this is due to the adverbials, rather than to the verb, and this is in agreement with its imperfectivity, as defined here. But then, imperfectivity cannot mean that the situation is presented as non-completed because this immediately leads to a contradiction in the way in which the situation is presented. Such an analysis is compatible, however, with the notion that IMPERF is not confined to any perspective - it simply leaves open in which way the situation is presented, as completed or not, in its totality or not, with or without an inner boundary (as discussed below). As will become clear in section 5, we indeed believe that in some cases, this impression is correct.

this - possibly implicit - time T, at which the situation is completed? Without an appropriate definition of this notion, the entire characterisation as 'presented as completed - not completed' is hanging in the air.

There is a third weakness of this definition, occasionally referred to in the literature: It gives too much weight to the endpoint of the situation, without taking into consideration its other components, in particular the beginning (Isaenko 1968, Comrie 1976). This is correct but not easily demonstrated. Therefore, we leave it with the two problems mentioned above, each of which seems sufficient to show the inadequacy of this characterisation. Again, however, it should be stressed that the intuitions behind this characterisation are not accidental, and a satisfactory account of aspect must be able to explain them.

C. Presence - absence of an (internal) boundary

This characterisation goes back to Jakobson (1932) and is now used, in one way or the other, by many authors (for example Vinogradov 1947, Timberlake 1984, 1985, Dahl 1985, Bondarko 1987 - partly translated in Bondarko 1991). The following definitions, which are particularly straightforward, are due to Smith (1991): 'The perfective viewpoint ... presents events with both initial and final endpoints.' (301) and 'The temporal schema of the imperfective viewpoint focusses on part of a situation, excluding its initial and final endpoints.' (302). Again, definitions of this sort capture important insights, but there are at least two reasons which render them unsatisfactory.

1. It is common to distinguish between different verb types according to their lexical temporal properties. The best-known example is Vendler's (1957) typology of time schemata as reflected in particular verbs (or verb phrases); but there are many other, much finer classifications (for a recent survey, see Binnick 1991). In most of these typologies, the presence or non-presence of a boundary which is somehow inherent to the situation also plays a role. Thus, Vendler's accomplishments and achievements involve such a boundary, whereas states and activities do not. Now, if the semantics of aspect is defined in terms of 'inner boundary', as well, then the difference between inherent lexical properties of the verb, on the one hand, and aspect, on the other, is entirely confounded. If PERF somehow involves a boundary, then this boundary must be of a different type than the boundary inherent to the lexical content. In Russian, verb pairs such as dat' and davat' 'to give' or perepisat' and perepisyvat' 'to copy' are said to have exactly the same lexical meaning; in Vendler's terms, both would be accomplishments, hence involve some inner boundary. But they differ in aspect. Hence, PERF should add some other, additional boundary. What is this boundary?

2. Consider again some simple examples of the type mentioned above:

(6) Vesnoj 1994 ja rabotal; v Pari e.

In the spring of 1994, I worked in Paris.

(7) V era ja spal; do obeda.

Yesterday, I slept till lunchtime.

In both cases, the situation described is bounded. In the first case, the boundary is not explicitly mentioned, but it is clear that it exists, most likely somewhere before the time of utterance. Nevertheless, Russian requires IMPERF here.¹⁷ This also applies in the second example, where the final boundary is even explicitly mentioned. Therefore, presence or absence of a boundary to the situation cannot be decisive for the choice of an aspect.

Both problems might be accounted for by distinguishing different types of boundaries, for

¹⁷ This holds irrespective of whether the work - or the sleep in the following example - has come to a 'natural end', or whether it was interrupted by something external to the 'event' itself.

example 'inherent boundaries' versus 'factual boundaries' (or 'actual boundaries'). But a clear definition of these notions is not easily given. The first may be understood to refer to a boundary which is part of the verb's lexical meaning, such as accomplishments or achievements, as compared to states and activities.¹⁸ Then, this cannot be the type of boundary on which the distinction between PERF and IMPERF is based. Thus, it must be the 'actual boundary' which is responsible for aspect. But in the imperfective examples of 6 and 7, there is such an actual boundary, and this actual boundary is also reached within the time intervals considered here - in the spring of 1994 and yesterday, respectively.

An exceptionally clear attempt to define an aspectually relevant notion of boundary such that aspectual distinctions can be based on it is found in Timberlake (1984, 1985).¹⁹ Since his analysis also includes a time-relational component and in that respect resembles the analysis suggested in the present paper, I will discuss it in somewhat more detail. Temporal relations are said to obtain between the 'event time' and what Timberlake calls 'the narrative time', the latter being defined as 'the time from which the speaker evaluates the aspectual character of the event' (1984: 36). Based on these temporal relations, three aspects are distinguished, the 'aorist' - the basic configuration of the perfective - and two types of imperfective, called durative and progressive imperfective. In the aorist, 'narrative time includes both the event time (it is an actual temporal limit) and the inherent limit (it is a limit on the potential realization of the predicate).' (1984:37). The difference between the two imperfectives 'lies in the relationship between the event time and the narrative time. In the progressive the narrative time falls within the event time ... In the durative configuration the narrative time includes the event time.' (1984: 37/8). In terms of temporal relations, therefore, the perfective goes with the durative imperfective (for both, the narrative time includes the event time), whereas the progressive imperfective is characterised by the opposite relation. What discriminates between perfective and durative imperfective, is whether an 'inherent limit' - in contrast to an 'actual limit' - is reached within the narrative time. Limits are defined in terms of functions (called 'predicate functions' or 'histories') which assign states or processes (called 'situations') to time intervals. Suppose such a predicate function assigns situation s_n to time t_n for a given (narrative) world. Then, the pair (s_n, t_n) is an actual limit if s_n is not assigned by the predicate function to any time interval t after t_n in that world. It is an inherent limit when there is no possible world such that the predicate function assigns s_n to any time interval t after t_n . In a nutshell, at an actual limit, the situation ends but could go on, and at an inherent limit, it ends and could not go on.

There are two problems with this idea. First, an actual limit, as defined here, would not just mean that some state or process no longer obtains but also that it could not obtain again (since t is any time interval after the limit); this is not very plausible. When John's sleeping comes to an end yesterday at seven o'clock, then it should not be excluded that he sleeps again at some later time (although there is surely a last sleep for everybody). Second, if John's copying a letter comes to an end at some time, say yesterday at ten, then the perfective would be appropriate: Ivan perepisal' pis'mo 'Ivan copied a/the letter'. But innumerable worlds are imaginable in which he is still busy doing this yesterday at eleven o'clock. It is not logically excluded that he does it after the boundary. But quantification about all possible worlds states exactly this.

¹⁸ Breu (1994) gives 'a classification of verb meanings which is determined exclusively by their boundary characteristics.' (24). This classification ranges from 'totally static verbs' such as to contain, to weigh to punctual verbs such as to find, to explode. About the former, it is said: 'These states of affairs are inalienably connected with their subjects.' (1994: 25). I am not sure, however, whether it is really true that, if my cup contains coffee, this state of affair is inalienably connected to the cup. Similarly, it is surely not an inalienable property of John to weigh 200 pounds, if he happens to weigh 200 pounds. Therefore, it is not plausible when it is argued: 'The totally static verbs (TSTA) ... can never be conceived as a whole owing to the complete lack of boundaries. It follows, therefore, that the Russian TSTA verbs can never be combined with the perfective aspect. Verbs such as vesit 'weigh' ... are therefore imperfectiva tantum.' (1994: 27s). This also neatly illustrates the problems with aspectual definitions such as 'conceived as a whole'.

¹⁹ The two papers slightly differ in terminology (as well as in their general aim), but the approach is essentially the same. Both papers, incidentally, give convincing arguments that an analysis of the Russian tense-aspect system purely in terms of the three Reichenbach-parameters R, S and E does not work.

Therefore, I believe that this important attempt to give clearer shape to the notion of boundary does not work, as it stands. But it reflects an important insight: It is not the existence of a boundary in the real (or narrated) world which matters but whether the action 'could go on' after this boundary. But this 'could go on/not go on' cannot be simply reconstructed by quantification about possible worlds. It has to do with which meaning components are packed into the lexical content of the expression to which aspectual marking applies. In a way, the content of the verb (or some larger expression) must say: at some time yes, and at some later time no. This will be discussed in the following sections.

In conclusion, none of the common semantic characterisations found in the literature is satisfactory.²⁰ But they cover important intuitions which any attempt to characterise the difference must preserve in one way or the other. In the following sections, we will try to give a definition which meets this requirement. This definition is strictly time-relational: it defines both aspects in terms of temporal relations such as 'before, after, contained in, overlapping', which obtain between particular time spans. It has two essential components, both of which are justifiable on independent grounds. The first is rather a prerequisite of the aspect definition proper. A distinction is made between verb contents (and lexical contents in general) which express one state only, and those which combine two partly opposing states. This evokes the old distinction between 'atelic' and 'telic' event types, but it is given a somewhat different turn here. Second, it is argued that a difference has to be made between the time at which the situation described by an utterance obtains, on the one hand, and the time for which a particular assertion is made in this very utterance, on the other. Aspect is a temporal relation between these two time spans. Depending on whether the lexical content used to describe the situation is of 1-state type or of 2-state type, the ensuing result is somewhat different. In what follows, this idea will be worked out.

3. Lexical content

3.1 Properties of situations vs properties of the linguistic content

It will be useful to start with a distinction which is in a way trivial, but all too often ignored. We may state it as follows:

- (8) One thing is the content of a sentence, another thing is the situation to which this sentence, when uttered, refers and which is selectively described by its content.

Consider a sentence such as 9, uttered on some particular occasion:

- (9) Einstein analysed something.

It refers to a particular situation, which is said to have obtained in the past. This situation has numerous properties only some of which are selectively described by 9. It is not indicated what the 'something' is (perhaps a bill). Similarly, the situation has some duration, as well as a place where it occurs (relative as these notions may be in Einstein's world). But nothing is said about these and many other properties of the situation referred to. Thus, we must sharply distinguish between the properties of a situation, to which an utterance refers, on the one hand, and the properties of the content of the

²⁰ There are some approaches in the literature which operate with one of the three common oppositions and complement it by some other factor or factors. Thus, Thelin (1978, 1990) uses a feature [\pm TOTALITY], which gives the basic aspectual contrast, and an additional feature [\pm TIME] which relates to the particular temporal embedding of the action in the discourse context: some situations are not related to the time axis at all (and a special case of IMPERF in Russian), and the totality - non-totally distinction applies only to those which are linked to the time axis. A similar idea is found in Leinonen (1982). Her basic opposition between 'Totality' and 'Non-Totally' is complemented by the concept of 'temporal localisation', which is used to subdifferentiate between the various aspects). In the present context, we cannot deal with these differentiations, but it should be clear that the core distinction is subject to the same problems discussed above.

sentence which is used to describe this situation, on the other.

In interpreting an utterance such as 9, the listener or reader can draw on two sources of information: On various types of contextual knowledge, such as situation information, information from previous utterances, general world knowledge, on the one hand, and on what is 'in the words', on the other. This latter information I will call 'lexical content'. It results from the lexical meaning of the elementary components and the way in which they are put together.²¹ A speaker who sets out to refer to some situation will normally select only some of its properties and make those explicit by an appropriate choice of lexical items and by the way in which they are put together. In other words, the content of a sentence is a selective or partial description of a situation. Thus, the situation itself has many more properties than are made explicit by the sentence content. Some of those can be inferred by the listener due to other knowledge sources, others remain entirely implicit.

I dwell on this quite trivial point, since it demonstrates that 'situation types' - for example, whether they are bounded or not - is one thing, and the inherent temporal features of the lexical content of verbs (or larger constructions) is quite a different thing. When it said that a lexical content²² such as <Einstein analyse something> does not involve a boundary - in contrast to, for example, <Einstein discover something> -, then this can only mean that nothing is made explicit about beginning and end of the situation referred to. It cannot mean that the situation is of a type which does not have boundaries. Normally, any situation of this type has boundaries (although only context and world knowledge tell us something about them). If there is need, these boundaries can be made explicit, for example by the addition of appropriate adverbials. The following two utterances can well be used to describe one and the same bounded situation:

- (10) Séverine worked.
- (11) Séverine worked from two to five.

The difference is only that in 10, the boundaries are left implicit, and in 11, they are spelled out. In the second case, this information is part of the lexical content of the entire sentence, in the first case, it is not. The same point illustrated here for boundaries can equally be made for many other properties of a situation.

Verb contents - as an essential part of the entire lexical content of a sentence - never specify such a boundary. Nevertheless, we have the clear intuition that there is somehow a clear difference in this respect between, for example, <sleep> and <fall asleep>, <dormir> and <s'endormir>, <schlafen> and <einschlafen>. This intuitive difference and its reasons will be discussed in the next section.²³

²¹ Note that lexical content, as this term is used here, is not just the meaning of 'lexical items'. It is that part of the meaning of some expression, be this expression simple or complex, which stems from the lexicon and the compositional rules of the language - in contrast to any meaning contribution stemming from other knowledge sources, in particular the context in which this expression is used, and world knowledge of the interlocutors. Thus, the lexical content <next spring> of the expression next spring results from the application of the lexical content of next to the lexical content of spring, and the resulting entire lexical content <next spring> is - roughly speaking - 'in the spring which is contained in the year which follows the year which contains the time of utterance'. Used in a particular context, for example in an utterance made on May 24, 1994, this lexical content serves to refer to some subinterval of spring 1995.

²² In what follows, I shall note the lexical content of a - simple or compound - expression xxx by putting it (in its infinitival form) in pointed brackets <xxx>.

²³ The fact that lexical contents such as <Georg sleep on the guestbed> or <Einstein close the window> by themselves contain no information about duration, frequency, or position on the temporal axis has a number of interesting consequences. Thus, they can be used, for example, to describe a situation where whatever they describe obtains once, sometimes, or even regularly - the frequency is simply not specified. It is wrong to assume that utterances such as Georg slept on the guestbed or Einstein closed the window refer to one such occurrence of sleeping on the guestbed or closing the window. This is only a special case - perhaps the one we first think of. But they can also be used to refer to a situation whose time contains many of Georg's sleeps on the guestbed or many closings of the window by the eminent physicist. Nothing in the utterance says anything about the frequency, and whether we give it a single-case reading or not, depends on context.

3.1 0-state, 1-state, 2-state contents

Each of the following two utterances relates to a situation in the past:

- (12) It was raining.
- (13) Chris was sleeping.

In both cases, world knowledge tells us that the time of situation - abbreviated here as T-SIT - has a beginning and an end, hence is bounded, although the lexical contents <rain> and <Chris sleep> do not say anything about these boundaries. There are also lexical contents which normally exclude the possibility of a beginning and an end of the situation which they describe, such as <seven be a prime number> or <John be the son of a widow>. A situation, described by such a lexical content, either obtains without temporal boundaries or not at all:

- (14) Seven is a prime number.
- (15) John was the son of of a widow.

Therefore, it is useful to distinguish between lexical contents which describe situations which are normally²⁴ limited in time, and others for which this is not the case. Those of the former type, we will call 1-state contents, and those of the latter type, 0-state contents (or 'atemporal contents').²⁵ In the examples above, this distinction applies to the content of entire sentences. It may already be found in the content of its parts, in particular in the verb content. Then we shall speak of 1-state verbs or 0-state verbs, respectively. In what follows 0-state contents will not be systematically discussed since they are not directly relevant to the problem of Russian aspect.²⁶

A situation described by a 1-state content is, as it were, surrounded by situations in which this state does not obtain - by its negative counterparts. In 12, T-SIT is followed and preceded by a situation describable by <not rain>. Similarly, in 13 T-SIT is followed and preceded by situations describable by <Chris not sleep>. A speaker might now want to speak about a longer interval which includes, first, a situation at which it rains, and then its negative counterpart - the subsequent (or preceding) situation at which it does not rain. This is always possible in the case of 1-state contents, and never in the case of 0-state contents. In doing so, the speaker has normally several options, the simplest of which is to describe each situation by a separate sentence, perhaps with the addition of appropriate adverbials which indicate the intended order:

- (16) First, it was raining, and then, it was not raining.
- (17) First, Chris was sleeping, and then, he was not sleeping.

The lexical content of 17 has then two parts, <first, Chris sleep> and <then, Chris not sleep>. The first

²⁴ I say 'normally' because it is often possible to give a somewhat derived interpretation to an 'atemporal' lexical content.

²⁵ There are also lexical contents which are used to describe situations which are supposed to have a beginning, but no end (or vice versa), such as <Caesar be dead>. If there is need, they can be labelled '1-sided 1-state contents'.

²⁶ This does not mean that this distinction is irrelevant in general. Thus, the English perfect cannot be applied to 1-state expressions. We can say, as in 15, John was the son of a widow but not *John has been the son of a widow. Note, further, that there is a difference between examples like 14 and examples like 15. In the former case, the situation as such exists forever. In the latter case, the situation is in a way restricted to 'John's time', more precisely, by the birth of John. We would not say that the situation expressed by 15 already obtained before he was born. Therefore, it would be more accurate to say, that <be the son of a widow> is a 0-state property of John, but <John be the son of a widow> in itself is not 0-state but 1-state. Again, we shall not follow up this point here since it does not play an important role for Russian aspect.

part describes the source state (abbreviated SS) of the entire complex situation (consisting of two subsituations), and the second part describes its target state (abbreviated TS), and when put together, as in 17, they describe a change of state from SS to TS.

In these examples, the description of the two states is distributed over two sentences. Most languages also provide their speakers with various possibilities to express both states within a single simple sentence. In this case, the change of state is 'packed' into a smaller expression - not necessarily a single word, though. The degree of 'condensation' or 'integration', the 'package density', may vary, and languages have quite different preferences here. We list some of the most important possibilities:

A. Two clauses. SS and TS are each described by a full clause content. This case, illustrated by 17 and 18, has the weakest 'package density'.

B. Two verbs. The lexical verb is enriched by another lexical verb, each of them representing one of the two states, as in to set out to work, to stop working, to intend to work, to regret having worked. The 'higher verb' may relate to either the SS or the TS. Moreover, it may simply express that there is another state, in addition to the one expressed by the 'lower verb', or it may characterise this additional state in a particular way.²⁷

C. Verb complements. The English verb to walk is a 1-state verb. It is possible, however, to add a description of a target position in form of a complement, for example by into the room, as in John was walking into the room. Note that the adverbial does not describe the place of the entire action, nor the position of John in general, but his position in the target state (independent of whether he ever reaches this target state or not).

D. Detachable verb particles. Compared to C, this is further step towards higher integration. In English, the 1-state verb to fall may be enriched by the particle down, and the resulting lexical content <to fall down> includes two states, one of them something like moving towards the center of gravity, and the other characterising the target position. We often observe that a particle 'bleaches'. In John fell down, it is clear that John is down in TS (independent of whether he ever reaches this position or not). In John ate his dinner up, neither the dinner nor John are supposed to be in a spatial position 'up'. The construction is no longer compositional.

E. Prefixes, suffixes, infixes. This case is particularly frequent in German, with examples such as blühen, erblühen, verblühen 'to blossom, flower, wither'. In these examples, the construction is compositional, but there are also cases which are either not compositional or only in some usages. It is this strongly integrated way to bundle two states in one morphologically complex word which plays a primordial role for Russian aspect, and we shall come back to this point shortly.

F. Simple verbs. It also occurs that SS and TS are packed into one simple verb lexeme. An English example is to die with the lexical content <SS: to be alive, TS: to be not alive>.²⁸

These are not the only possibilities for packing two opposing states into the lexical content of a - single or complex - expression, but they seem to be the most important ones. It has also been noted already that the transition between them is continuous and that within each possibility, several degrees of compositionality can be distinguished.²⁹

²⁷ Language development often leads to a certain bleaching of the particular semantic contribution of the 'higher verb', such that, eventually, it only marks the state before or after. A well-known example is the French construction with aller, as in aller dormir, lit. 'to go sleep'. Originally, the SS was characterised by a proper movement (and the construction can still be used in this sense). But now, this particular meaning component is often lost, as in Nestor allait se lever, and then, the entire construction expresses something like a 'prospective': At the given time, Nestor was in the source state of getting up.

²⁸ Here, as everywhere in language, we might face some instances of ambiguity, i.e., a verb can have a 1-state reading as well as a 2-state reading (just as it can have a 0-state reading and a 1-state reading). So long as this is the exceptional case, it does no harm.

²⁹ Languages vary in their preferences for the possibilities A - F. The first is found in all languages, the second in all languages with finite verbs. In French, E is rare, and D is virtually non-existent. In English, E is rare, too, but D is very frequent, in all degrees of lexicalisation. In German, D and E are quite common. In Russian, D does not exist, but E is extremely common.

Verbs, simple or complex, whose lexical content includes two distinct states in this sense, will be called '2-state verbs'. It is important to distinguish carefully between lexical content which express a boundary (or two boundaries) and 2-state expressions. Consider again examples 10 and 11 above. They can be used to describe one and the same situation. In both cases, this situation by itself is bounded. In the first case, the lexical content <Sévérine work> expresses no boundary, in the second, the lexical content of the verb <work> does not either, but the entire lexical content <Sévérine work from two to five> makes 'the endpoints visible'. Still, it is no 2-state content including a source state and a target state. The lexical content of 11 does not explicitly mark that after the first, bounded state of her working, there is a second state where she does not work. When a situation including a final boundary is described by a 1-state expression, then nothing is explicitly asserted about what is the case after that boundary. In 11, there is a strong pragmatic implicature that after the final boundary, she no longer works - but it is in no way contradictory to assume that she did. In an appropriate context, the implicature can be cancelled. Suppose that all people who do not work for at least three hours a day are fired. Then, someone could easily say Well, she worked from two to five, in fact, she even worked until six, and that is more than needed. Normally, one would not say that she worked from two to five, if in fact she worked from two to six, just as one would not say that she had two beers when in fact, she had eleven. But the reasons are purely pragmatic. A 2-state expression, by contrast, includes, in its lexical content, first a state where she is working, and then a state where she is not working. Nothing is said about the boundary between those states - although at some time, the first state is over, and this is why we have the impression that these expressions somehow have an 'inherent boundary'.

3.2 Simple verbs, prefix verbs, and secondary imperfectivisation in Russian

In Russian, morphological variation of a simple verb is quite common. It is plausible, therefore, to relate this variation to the difference between 1-state contents and 2-state contents. The basic rules of lexical content correspond to the rules CWI - CWIII from section 2.1. We label them SI - SIII, respectively:

- SI. Simple verbs express 1-state contents.
- SII. Prefixation results in a 2-state content.
- SIII. Adding a so-called 'imperfective suffix' to a 2-state verb marks its source state as 'distinguished state' for aspect marking.

These rules require some comments. As was indicated in connection with CWI, Rule SI has a number of exceptions: there are some simple verbs which are 2-state, such as dat_p 'to give', and there are some ambiguous cases. Therefore, a more comprehensive treatment would have to cover these expectations, as well.

As for SII, its primary effect is to turn a 1-state verb into a 2-state verb. Moreover, the prefix normally adds other meaning components, ranging from giving a particular 'flavour' to one of the two states to creating a completely new 2-state verb, whose meaning cannot be compositionally derived from the original simplex verb. The additional state can be a source state, as in 'inchoative' zakri at_p with the lexical content <SS: not cry, TS: cry>, whereas the simplex kri at_i simply includes one state <cry>. It can also be a target state, as in pro itat_p with the lexical content <SS: read, TS: not read>.

The case is more complex in examples such as po itat_p whose lexical content can be rendered as <SS: to read for x time, TS: not read>. How long 'for x time' is, can be made explicit by an adverbial or simply left to context. The crucial point here is, that the addition of the prefix does not just add a special 'Aktionsart' - it also adds the component 'and then no longer' to the entire lexical content of the underlying simple verb. There are many possibilities in which prefixation may affect the lexical content of the simplex verb above and beyond turning them into 2-state verbs. This is a matter of individual lexical analysis, which we will not go into here (see, for example, Isaenko

1968: 385-418, and Forsyth 1970: 20-30).³⁰

Rule SIII applies to a selected subclass of the prefixed verbs - roughly those which are not just an 'Aktionsart modification' but a new word. As was mentioned in footnote 6 above, the borderline between these two cases is somewhat fuzzy, though. In contrast to SII, SIII does not change the lexical content. It does not 'remove' a state from the entire lexical content, in the way that SII adds one. It simply marks that only the first of the two states, called here 'distinguished state', counts for aspect scope (this will be explained in section 4 below). Thus, perepisyvat'_i 'to copy' still includes two states (roughly 'to copy and then not to copy'), just as davat'_i 'to give' includes two states; but the second of those states falls not in the scope of the assertion time (in a sense to be made precise below). In this respect, its effect is comparable - though not identical³¹ - to the transition from English to die to to be dying. The former encompasses minimally³² the lexical content <SS: to be alive, TS: to be dead>. To this lexical content, the morphologically complex formation of the 'progressive form' assigns its first state: to be dying means roughly 'to be in the source state of the 2-state verb to die'. A still closer analogy - no perfect parallelism, though - is the English series of verb forms to write - to write up - to be writing up, on the one hand, and the Russian series pisat'_i - perepisat'_p - perepisyvat'_i. The first element is 1-state verb, the second a 2-state form, formed by adding a detachable particle in English and a prefix in Russian (with somewhat different meaning modifications in the two cases), and the third element is again a 2-state verb whose target state is not in the scope of aspect.

Rules SI-III describe lexical properties of the verb. These properties are the basis for the aspect distinction - they are not this distinction itself. In particular, they cannot explain the intuitions discussed in section 2.2 - for example the fact that PERF somehow given the impression that the situation is presented in its totality, or as bounded. This is only possible when we look at the precise way in which concrete utterances with a finite verb are related to the situation which their lexical content selectively describes.

4. A time-relational analysis of aspect

4.1 Time of utterance, time of situation, time of assertion

Consider the following three utterances, made on the same occasion:

- (18) a. Ivan rabotal_i v Moskve.
Ivan worked in Moscow.
- (18) b. Ivan rabotaet_i v Moskve.
Ivan works in Moscow.
- (18) c. Ivan budet rabotat'_i v Moskve.
Ivan will work in Moscow.

The situations to which they refer are described by the same lexical content <Ivan work in Moscow>. This does not mean, of course, that the situations as such are identical in every respect. Minimally, they differ by the time at which they obtain - the 'time of situation', henceforth abbreviated T-SIT.

³⁰ It is also possible that prefixation operates on a 2-state verb, in which case it again modifies the meaning to some extent, the result still being a 2-state content.

³¹ The comparison between 'secondary imperfectivisation' and 'progressive form' should only illustrate the nature of the former. There are also some clear differences. In particular, the former cannot be applied to 1-state contents, as is the case with the English progressive, for example in to be sleeping.

³² We say 'minimally' because it is not excluded that one of these states is to be characterised by additional semantic properties. Thus, there is good reason to assume that the source state is not sufficiently described by <be alive> but also carries some feature like <being in bad shape, with fading vis vitalis>, or whatever. This, again, is a matter of detailed lexical analysis and not directly relevant to the point made here.

Most grammarians assume that the tense marking of the verb indicates how T-SIT (the 'event time') is related to the time of utterance TU. The standard analysis for Russian tense (in the case of imperfective verbs such as *rabotat'*) then says:

- (19) past tense form: T-SIT BEFORE TU
 present tense form: T-SIT SIMULTANEOUS TO TU (or CONTAINS TU)
 future tense form: T-SIT AFTER TU

This analysis is found in virtually all grammars. It is easy to see that it is false. Utterance 18a is quite appropriate when Ivan is still working in Moscow, that is, when T-SIT CONTAINS TU, rather than precedes it. But if it precedes it, it cannot contain it, and vice versa. Similarly, 18c is not false when Ivan is already working in Moscow at the time of utterance, hence, when T-SIT CONTAINS TU, rather than follows it - a function which is normally assigned to the present tense form. Therefore, it can be said without any contradiction:

- (20) Ivan rabotal_i, rabotaet_i i budet rabotat'_i v Moskve.
 Ivan worked, works, and will work in Moscow.

If the past tense form indeed expressed that 'the event' precedes the 'moment of speech', or, in our terminology, that T-SIT is before TU, then it cannot contain TU, let alone be simultaneous with it. What is really expressed by the past tense form, is rather, that some subinterval of T-SIT is before TU. It is only for this subinterval that the speaker makes a statement. Whether the rest of T-SIT is before TU or not, is simply left open: the speaker makes no assertion whatsoever to this effect. The same is true, in the opposite direction, for the future tense form. Hence, a distinction must be made between the time of the situation, on the one hand, and the time for which an assertion is made, on the other. The latter time we call 'assertion time', abbreviated T-AST.³³ Hence, three time spans play a role for the definition of tense and aspect: TU - the utterance time, T-SIT - the time at which the situation obtains, and T-AST - the time for which the assertion is made (or, as one might say, to which the assertion is confined). T-SIT and T-AST may coincide, of course, but they need not. The speaker may simply not know for how long the situation obtained, or may know it but prefer to make an assertion about some other time related to the situation time.

The distinction between T-SIT and T-AST allows us to give a more appropriate definition of tense:

- (21) Tense is a temporal relation between TU and T-AST.

This gives us the correct readings for 18a-c, and it explains why 20 is in no way contradictory. But it cannot explain why we normally have the impression that tense somehow relates the situation itself temporally to the deictic center. This is explained by the fact that T-AST and T-SIT, in turn, are temporally related to each other. In the examples 18a and 18c, T-AST is a subinterval of T-SIT: the relation is proper inclusion. But this is not the only possibility. It is also imaginable that T-AST contains T-SIT, that T-AST precedes T-SIT, or that T-AST follows T-SIT. I assume that it is these varying temporal relations between T-AST and T-SIT which are expressed by aspect marking. Thus, aspect is a temporal relation between the time of the situation, as described by the lexical

³³ If tense is a temporal relation between the time of utterance and the time for which an assertion is made, then there is an apparent problem here, since not all utterances make an assertion. Questions or imperatives, for example, do not. In the former case, this is not so very much of a problem because there is still an assertion 'at issue', which is time-bound, and the assertion itself is only made in the answer. The 'time of assertion' need not necessarily be the time for which the assertion is made; in more general terms, it is the time for which an assertion is either made or made an issue. The case is more tricky in imperatives. A complete account will have to replace the notion of 'assertion time' by the more general notion of FIN time in combination with an assertion operator with certain scope properties. Under special conditions, this assertion operator is replaced by some other operator (cf. section 4.3 below). For a discussion of how cases other than assertions should be handled, see Klein (1994, chapter 11).

content of an utterance, and the time for which an assertion is made by this utterance, in brief:

(22) Aspect is a temporal relation between T-SIT and T-AST.

Languages vary in the way in which they differentiate between these temporal relations, in particular in the way in which temporal relations are 'bundled' into different forms. Thus, the aspectual differentiation encoded by Russian PERF and IMPERF is one particular way to express two such relationships, related but not identical to the English difference between simple forms and progressive forms.

Defining the temporal relationship between T-AST and T-SIT is simple in the case of 1-state contents: the time for which the assertion is made is contained in, follows, precedes etc. the time of the situation, for example the time of Ivan's working. This is much more complicated in the case of 2-state expressions, where the situation described contains two mutually exclusive subintervals: a subinterval which corresponds to the source state, and another subinterval which corresponds to the target state. We shall call these subintervals T-SS and T-TS, respectively. Which one of these is treated on a par with the single state in the case of 1-state contents? Languages may vary in what they consider to be this 'distinguished state' for aspectual marking. Thus, the distinguished state (abbreviated DS) is (a) the only state of 1-state contents, and (b) either the source state or the target state of 2-state contents, depending on the particular language.

If we assume that English treats the source state as DS, we have a very simple definition of the English aspectual system (T-DS is the time of DS; the POSTTIME of T-DS is simply the time after T-DS)³⁴:

(23)	Perfect form	T-AST AFTER T-DS
	Progressive form	T-AST IN T-DS
	Simple form	T-AST OVL T-DS AND T-AST OVL POSTTIME OF T-DS

In simple prose: the perfect form marks that the time for which an assertion is made is after the single state of a 1-state verb (John has worked in London) and after the source state of a 2-state verb (John has closed the window). The progressive form marks that the assertion time is a proper subinterval of either the single state (John was working in London) or of the source state of a 2-state expression (John was closing the window). The simple form, finally, marks that the time for which the assertion overlaps with the single state and the time thereafter (John worked in London) or, in the case of 2-state expressions, the source state and the target state (John closed the window). In all of the examples, T-AST itself is before the time of utterance, as indicated by tense. There are a few lexical verbs and normally the copula, in which the simple form additionally assumes the function of the progressive form.

Note that a perfect form, such as John has worked in London does not say that T-AST is after the time of John's working but after the time of John's working in London, i.e. the aspectual marking has scope over the entire lexical content <John work in London> and not just over <John work>. The importance of this distinction becomes clear with examples such as *John has been dead vs. John has been dead for two weeks. The first utterance says that John is right now in the time after being dead -

³⁴ In what follows, we shall use some abbreviations for temporal relations (all of these can be precisely defined - see, for example, Klein 1994, chapter 4 -, but for present purposes, we only give informal definitions; a and b are time intervals, not points):

a AFTER b :	a is fully after b
a IN b :	a is fully included in b
a OVL b :	a and b overlap, i.e. they have a common subinterval.

As usual, we allow Boolean operations on these, such as 'a AFTER b OR a IN b', which means that a cannot be before b, or 'a NOT OVL b', which means that a and b must be disjoint.

which is odd (at least for the small minority of people who do not believe in resurrection), whereas the second utterance says that he is right now in the time after being dead for two weeks, for example in the third week after his death.

4.2 The meaning of Russian perfective and imperfective aspect

In Russian, the aspects, too, express temporal relations between the time for which an assertion is made, on the one hand, and the time of the situation, on the other. But there are two differences. The first one concerns the definition of the distinguished state. In Russian, DS is (a) the only state for 1-state expressions, and (b) the source state of 2-state expressions, if this is explicitly marked (cf. rule SIII above).³⁵ Second, PERF and IMPERF bundle the possible temporal relations in a somewhat different way than English. The background is the distribution of 1-state verbs and 2-state verbs, as described by rules SI - SIII above. We then have:

- (24) 1. PERF T-AST OVL T-SS AND T-AST OVL T-TS
 2. IMPERF T-AST OVL T-DS AND T-AST NOT OVL T-TS

We again give an informal paraphrase. The perfective is characterised by the fact that the time for which an assertion is made has a common subinterval with the source state as well as with the target state.³⁶ Since this is only possible for 2-state verbs, 1-state verbs are automatically IMPERF.³⁷ In the imperfective, the assertion time must have a common subinterval with the distinguished state, and it must not have a common subinterval with the target state. This is either the single state, or the source state when marked as such (rule SIII). Nothing is said on how precisely T-AST should overlap with T-DS: T-AST can be included T-DS, simultaneous to it, and even contain it - provided, of course, that there is no overlap with a target state. Hence, IMPERF is much wider in its range of applications than, for example, the English progressive form which requires T-AST to be properly contained in the source state or the single state, respectively. This is in accordance with the traditional view that the Russian IMPERF is somehow a 'neutral', 'unmarked' form.

This explains why it is possible (and even necessary) to say Velikan Rodosa vesil 100 tonn with the imperfective form (cf. example 1 in section 1 above), whereas in English, it is odd to say The colossos of Rhodos was weighing 100 tons with the progressive form; this would really give an 'interior perspective'. In Russian, 1-state verbs can have an 'interior perspective', but they need not. Therefore, they sometimes correspond to the English progressive, and sometimes, they don't.

4.3 PERF, IMPERF, and verb forms

Aspect is basically a temporal restriction on what is asserted. In a nutshell, the definitions in 24 say this:

³⁵ Thus, in English, every source state counts as distinguished state, whereas in Russian, this status has to be explicitly marked; there is no difference for 1-state expressions; they always count as distinguished state. Incidentally, another way to look at the English facts would be to say that the morpheme -ing is simply a marker of the distinguished state, which applies to 1-state as well as to 2-state verbs (except the copula and some stative expressions). But this is a matter of how the English morphology should be analysed and is beyond our present concern.

³⁶ Forsyth (1970; 74-76) discusses a number of examples in which perfective verbs function like the English perfect. Such a reading could easily be included in the definition of PERF by omitting the first clause, which requires a common subinterval of assertion time and time of the source state. Thus, the definition of IMPERF would simply be: T-AST NOT OVL T-TS. But since these cases seem atypical, the more restrictive definition given here is perhaps preferable.

³⁷ This corresponds to an observation made by several authors, namely that states and activities (in the Vendlerian sense) are regularly IMPERF (see, for example, Brecht 1984).

in the PERF aspect, the assertion extends over the source state and the target state;
 in the IMPERF aspect, the assertion only affects the distinguished state, that is, the
 only state in 1-state expressions, and the source state in 2-state expressions.

In Indo-European languages, an assertion is normally made by a finite (non-subordinate) clause. The non-finite, lexical form of a verb does not involve an assertion. Nevertheless, every Russian speaker 'knows' that a non-finite verb form such as davat' 'to give', __itat' 'to read', perepisyvat' 'to copy' belong to the IMPERF aspect, whereas dat', pro itat', perepisat', belong to PERF aspect: it is part of his or her lexical knowledge. They can only be used to mark either the one or the other assertion scope. The most straightforward way to describe this knowledge is to assume that each lexical entry of a verb has a feature which we will call here $[\pm p]$. This feature need not be individually learned. To a large extent, it is predictable from the morphological form of the entry. This is what the rules SI-SIII describe; we can interpret them as lexical redundancy rules. A somewhat more straightforward way to formulate this lexical knowledge is as follows:

- (25) 1. Each lexical verb in Russian is either $[+p]$ or $[-p]$, unless it belongs to a limited list of 'ambiguous entries'.
 2. Each lexical verb in Russian is $[+p]$, unless:
 (a) it is morphologically simple and does not belong to a limited list of exceptions, or
 (b) it is marked by the suffix -iv/yv (and perhaps some other affixes, not to be discussed here).

The feature $[\pm p]$ is simply a property of lexical entries. It is not to be confused with the aspect itself. The aspectual differentiation comes into play as soon as the lexical verb becomes part of a finite construction. Then, the 'temporal scope of assertion' is different, depending on whether the verb form is $[+p]$ or $[-p]$. The effect of finiteness is to assign a set of 'finiteness times' to the situation described by the utterance. The way in which this is done follows naturally from the definition of the two aspects:

- (26) 1. If a finite verb is $[+p]$, then its set of finiteness times P is $\{t: t \text{ OVL T-SS AND } t \text{ OVL T-TS}\}$.
 2. If a finite verb is $[-p]$, then its set of finiteness times I is $\{t: t \text{ OVL T-DS and } t \text{ NOT OVL T-TS}\}$.

In the case considered here, these finiteness times are the potential assertion times of the utterance³⁸. It is important to note that finiteness as such does not fix a particular assertion time; it only determines the type of assertion time in relation to the entire time of the situation. If the language in question also has tense marking, then this again narrows down the possible assertion time, for example to those which precede the time of utterance (in the past tense).

Consider now an utterance such as 27:

³⁸ If no assertion is made by the utterance, the basic aspectual mechanism is exactly the same, but the finiteness times will have a different interpretation than 'assertion times'. This interpretation depends on the particular type of utterance; in imperatives, it may be the time for which the obligation expressed by the imperative is meant to hold, for example. In subordinate clauses, the function of the finite element - whether it involves an assertion or not - interacts with, and can be overruled by, the function of the complementizer and thus give a special interpretation to the finiteness times. Since this does not directly concern the aspectual distinction as such, we shall not follow it up here, because it would require a detailed discussion of the function of various sentence types; it should only be kept in mind that 'time of assertion' is only a special interpretation of 'finiteness time' in general.

- (27) Ivan *ital* knigu.
John read a/the book.

The lexical verb *ital* is [-p] (it is a simplex verb). Tense (past in this case) and aspect (IMPERF) restrict the potential assertion times to the set of those intervals which (a) precede the utterance time, and (b) overlap the only state. This is all that the finite form *ital* itself tells us, and as a consequence, there are still many potential assertion times. Any further narrowing down of this set requires either additional linguistic means, for example adverbials such as yesterday from four to five, once, sometimes and the like, or it is left to contextual interpretation. In the latter case, there are three main possibilities:

(a) A specific assertion time is taken from the preceding context, as is often the case in narrative discourse; this leads to a 'definite reading' of 27.

(b) There is implicit existential quantification, in the sense of 'for some time in the past ...'; this leads to a 'existential reading' of 27.

(c) There is some other type of implicit quantification, in the sense of 'Often, ...; sometimes, ...; habitually, ...' etc.; this leads to a frequentative, habitual, ..., reading of 27.

Tense and aspect themselves leave this open; they are neither definite nor indefinite;³⁹ they only narrow down the set of potential assertion times.

5. Concluding remarks

The analysis of Russian aspect suggested here is strictly time-relational. It only operates with notions that are independently needed, such as time intervals, temporal relations between these intervals like 'before' or 'after', and the notion of assertion, which can be confined to a particular time interval. Thus, it is conceptually very simple, and it does make use of the suggestive but highly metaphorical notions so often found in the literature on aspect. But can it do justice to the impressive body of observations accumulated in this literature? In section 2.2, we examined the three best-known traditional characterisations of PERF and IMPERF - the situation is presented in its totality : not in its totality, as completed : as not completed, with an internal boundary : without an internal boundary. How does the present approach deal handle the problems discussed there? And how does it handle phenomena such as the 'imperfectum de conatu' or the notoriously difficult 'fact constatation' use of the IMPERF. In this concluding section, we will address some of these questions.

The present approach makes somewhat different predictions for 1-state contents and 2-state contents. Let us begin with the latter, that is, with aspect pairs such as *dat*_p: *davat*_i 'to give' or *perepisat*_p: *perepisyvat*_i 'to copy'. Both 'aspectual partners' involve a source state and a target state. The difference is that in the PERF case, the target state is reached within the time for which a claim is indeed made, whereas this is not true for the IMPERF case: the assertion time must not overlap with the target state. This explains why in the PERF, independent of any boundary, the 'action' is felt to be completed; the missing time T (cf. section 2.2.2) in relation to which the completion is considered is the assertion time. By the same token, it becomes clear why the 'action' is felt to be presented in its totality, rather than in its development: PERF encompasses the entire lexical content, whereas IMPERF places the assertion time, as it were, in the midst of the 'action'. No assertion is made about whether the target state is reached or not, since the target state does not overlap with the assertion time.

This temporal limitation of the assertion naturally explains the so-called conative use of the IMPERF (see, for example, Forsyth 1970:71-76). It is not contradictory - although pragmatically perhaps not very felicitous - to say 28 or 29 (the latter example is from Timberlake 1982:312):

³⁹ Thus, Partee's (1973) classical example of definite tense is just one of the various possibilities of tense (and aspect) interpretation.

- (28) Ivan mne daval; knigu a potom ne dal.
Ivan gave-IMPERF me a book but then not gave-PERF (it to me).
- (29) Kalif bagdadsnij rubil; emu golovu, a on vse-taki živ.
Kaliph-of-Bagdad cut-off-IMPERF him head, but he still alive.

The reason is simply that a claim is only made about the source state, and nothing is said about whether the target state - the state at which the speaker has the book, or the victim no head - is ever reached: the time for which an assertion is made ends before the target state. This does not preclude, of course, that the target state is reached, and in fact, this is a common implicature. But it is not asserted. Thus, the possibility of a conative use is predicted by the our analysis of the IMPERF⁴⁰

Let us turn now to 1-state contents, most typically expressed by simplex verbs. They have no target state. Thus, there is no risk that the assertion time ever contains it, be it partly or fully. Hence, it is easily possible to present an entire historical fact such as the colossos of Rhodos weighing 100 tons with an IMPERF form, without giving the impression that this situation is seen from within: it is presented in its totality, and this is fully in accordance with the definition of the IMPERF. This also explains the so-called 'konstatacija fakta' use of IMPERF, a perennial problem in the analysis of Russian aspect. Consider the following example (taken from Forsyth 1970:83):

- (30) Vy itali; Vojnu i mir? - itali.
You read-PAST War and Peace? - Read-PAST.
Have you read War and Peace? - Yes, I have.

In this context, the answer simply states the fact that the speaker has read War and Peace. In a different context, the same form could also mean that at some time in the past, he was involved in this activity, without ever bringing to an end (in which case the English translation should rather be 'I was reading War and Peace'). Both readings follow from the definition of IMPERF for 1-state verbs: the assertion time can include the time of the situation, and this leads to the 'fact constatation'-reading, but it can also be included in it, and this leads to the 'progressive' reading. Which reading is intended and understood, depends on the particular context. For the same reason, the IMPERF can encompass a clearly bounded activity such as Séverine's working from 2 to 5: the assertion time need not necessarily be included in this time, as would be marked by the English progressive form.

In conclusion, it seems that the intuitions behind the classical aspect characterisations simply follow from the time-relational analysis given here. At the same time, this analysis avoids the problems discussed above in connection with these approaches.

There are a number of problems connected to the Russian aspects and their usage which we have not dealt with here - for example the fact that IMPERF forms seem to be more prone to an iterative reading than PERF forms, the interaction between aspect and negation, or, even more importantly, the different interaction of PERF and IMPERF with tense marking (in the present tense, PERF normally, though not necessarily, has a future reading).⁴¹ These facts may be accidental; but

⁴⁰ There is no ideal way to translate these 'conative' usages of IMPERF into English. A 'conative' translation such as Ivan tried to give me the book but then didn't or The Kaliph tried to cut his head off but he is still alive would be odd and misleading. What is meant, is, that the action was undertaken but that the state to which it normally would lead (book with me, victim without head and hence dead) was not reached. The Russian sentence Ivan mne daval knigu has the strong implicature that I eventually had the book (though this is not asserted, and hence, the implicature can be cancelled). An English sentence such as Ivan tried to give me the book has the strong implicature that I eventually did not have the book.

⁴¹ Hans Kamp (personal communication) suggested that the tense constraint may have to do with the difference between a short assertion time, which is more or less identical to the utterance time ('actual present') and a long assertion time which only includes the utterance time but is in fact much longer ('generic present, habitual present'). A long assertion time can easily overlap with source state and target state, hence PERF should be possible here, and so it is. A very short assertion time cannot overlap with both source state and target state,

they might also be a consequence of the definitions of tense and aspect given here. An answer to these question would require an in-depth analysis of the various ways in which aspect interacts with tense and with contextual information, a task which is beyond the scope of this paper.

hence it is somehow 'prolonged' into the future, and the target state falls into the time after the utterance time. I think this line of reasoning is basically correct, although at this point, it must be left to further investigation.

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