Aspect and Reference time

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Aspect en Referentietijd
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ter verkrijging van de graad van doctor
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door

Olga Borik

geboren op 17 mei 1972 te Moskou

"The major problem is quite simply one of grammar, and the main work to consult in this matter is Dr. Dan Streetmentioner's *Time traveler's Handbook of 1001 Tense Formations*. It will tell you, for instance, how to describe something that was about to happen to you in the past before you avoided it by time-jumping forward two days in order to avoid it. The event will be described differently according to whether you are talking about it from the standpoint of your own natural time, from a time in the further future, or a time in the further past and is further complicated by the possibility of conducting conversations while you are actually traveling from one time to another with the intention of becoming your own mother or father".

Douglas Adams
"*The restaurant at the End of the Universe*"

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Abbreviations

AG	Russian Academy Grammar
ACC	Accusative case
DA	degree achievements
DAT	Dative case
DRT	Discourse Representation theory
DRS	Discourse Representation structure
fem	feminine
GEN	Genitive case
IMP	imperfective aspect
IMPER	imperative mood
INF	infinitive
INSTR	Instrumental case
K&R	Kamp & Reyle (1993)
masc	masculine
neut	neuter
NOM	Nominative case
PAP	present active participle
PERF	perfect (tense)
PF	perfective aspect
pl	plural
PPP	past passive participle
PREP	preposition
pres	present tense
PROG	progressive
PRT	participle
pst	past tense
RES	resultative
sg	singular
SI	secondary imperfective
SQA	specified quantity of A

Introduction

The central question that will be addressed in this thesis concerns the nature of the aspectual differences in Russian. Its main purpose is to identify a property or a set of properties that allows us to give a uniform definition of perfective and imperfective aspect in Russian. For instance, if A means 'to be perfective', then the ultimate goal is to find a property B, such that we could say 'A iff B', giving, thereby, a strict definition of perfective aspect.

Let me now illustrate the phenomenon of aspect in Russian on an example. Russian sentences in (1) are almost identical; the only difference between (1)a and (1)b is the *aspectual* form of the verb:

(1)   a. Petja stroil dom
          Petja built-IMP (a/the) house-ACC
      b. Petja po-stroil dom
          Petja PF-built (a/the) house-ACC
          '*Peter built a house*'

The term *aspect* here refers to the opposition between *perfective* and *imperfective*. In (1)a the form of the verb *stroit'* 'to build' is imperfective, while in (1)b it is perfective. In Russian, the aspectual differences are reflected in the verbal morphology. Perfective forms are frequently, but not exclusively, derived from imperfective forms by means of prefixation. For instance, the perfective verb *po-stroit'* 'PF-build-INF' used in (1)b, is derived from the imperfective *stroit'* 'build-IMP-INF', the past form of which is used in (1)a, by adding prefix *po-*. The question that should be asked with respect to the sentences in (1) is the following: how do the aspectual differences influence the interpretation of the sentences in (1)a and (1)b? What does aspect essentially do in Russian?

Aspectual phenomena are discussed in relation to many other languages, not only Slavic. The non-Slavic language that is going to be used in the present work for the purposes of comparison is English. In English, there are several contrasts of an aspectual nature. One of them is exemplified in (2):

(2)   a. John built houses (for two years)
      b. John built his house (in two years)

A way of stating the relevant difference between the sentences in (2) is by saying that the predicates of these sentences differ in terms of their *telicity* value: (2)a is a sentence with an *atelic* predicate, whereas in (2)b, the predicate is *telic*. The term 'telicity' is very often used in aspectual literature, but, unfortunately, is not always accurately defined.

Sometimes, the contrast between (2)a and (2)b is referred to by a different terminology. For instance, Verkuyl (1993) uses the term *terminative* as a synonym to *telic* and *durative* as a synonym to *atelic*. The distinction in (2) is stated as a difference in *aspectuality*, not *aspect* in Verkuyl (1993). Telicity as an aspectual phenomenon is going to be discussed in chapter I of the present work in detail. For now it suffices to say that all predicates are classified into two types, according to their telicity value, i.e. telic and atelic ones. This value is established on the basic level of the predicate-argument structure (therefore *telicity aspect* can also be referred to as *predicational aspect*) and is determined only when the argument positions are filled by the lexical items, so that their relevant properties can be taken into account.

Another contrast in English, which often emerges in connection with aspectual matters in general and Russian aspect in particular, is exemplified in (3):

(3)   a. John was building a house
         b. John built a house

These two sentences illustrate a distinction between *progressive* ((3)a) and *non-progressive* ((3)b). This contrast is relevant for the discussion of Russian aspect because of the following correlation: the sentence in (3)a can only be translated into Russian (1)a, but not into (1)b. On the other hand, the Russian sentence in (1)a can be translated into both (3)a and (3)b. However, (1)b in Russian can never get the meaning of the English (3)a. In other words, it is a well-established fact that progressive in English invariably corresponds to imperfective in Russian, although the opposite does not hold. The valid correlation from the perspective of Russian is the following: perfective aspect in Russian never corresponds to the English progressive. This issue is going to be discussed in much more detail in chapter V of the present study.

Note also, that the examples in (3) are often considered to be a result of an aspectual operation in the higher domain, which is sometimes called the domain of *outer* aspect (*viewpoint* aspect), whereas the distinction in (2) is relevant at the lower aspectual level, which is referred to as *inner* aspect (Verkuyl 1993). This is a crucial distinction. It means that different levels of aspectual information are distinguished. The question that arises with respect to this observation is whether or not the aspectual phenomena of different levels can be treated in a uniform way or should be strictly separated. I will argue for a separation of two aspectual domains, telicity aspect and viewpoint aspect. This is one of the central issues that will be addressed in this study, the discussion of which starts in chapter III.

Finally, the distinction in (4) is not often mentioned in connection with Russian aspect, i.e. perfective/imperfective distinction. (4) is usually taken to represent the opposition between *complex* (or *perfect*) and *simple* (*non-perfect*) tenses, not aspects:

(4)   a. John has built a house
            b. John built a house

The question of how relevant this contrast to aspect is usually arises when the aspectual distinctions are analyzed as related to tense and temporal semantics (e.g., Klein 1995). The analyses of Russian aspect along these lines are often based on such notions as Event time and Reference time (Reichenbach 1947) or their cognates.

To the theory of Russian aspect that I will propose in this work suggests that the contrast between Russian sentences in (1) should be captured in the same terms as the contrast between both English (3) and (4), but crucially not (2). I will keep the distinction between different levels of aspectual information and argue that the Russian perfective/imperfective opposition, which is sometimes referred to as *viewpoint* aspect, belongs to the level of the outer aspect, whereas the telicity distinction exemplified in (2) belongs to the realm of inner/predicational aspect. I will also argue that the difference between (2)a and (2)b should be captured in terms of different types of *predicates*. The perfective/imperfective distinction, however, will be analysed in terms of *Reference time*, just like the differences between (3)a,b and (4)a,b.

To conclude the introductory remarks, I will introduce another term that will be used throughout this study. The term *eventuality*[1] (Bach 1981) refers to all kinds of actions, events, processes and states with temporal properties. Eventualities come in different types. The relation between eventualities and linguistic expressions used to refer to them is one of the most intriguing questions in semantic theory for different reasons. Some important questions are the following. How much ontology is allowed into a linguistic theory? Would it be necessary and/or appropriate to introduce ontological primitives like 'eventuality' into the theory of semantics? What is the relation between eventualities and linguistic expressions and what kind of tools do we need in order to describe it? These are basic problems that the theory of semantics should tackle. In this thesis, I will touch upon some of them, but only to the extent that the discussion is important for the particular aspectual problems discussed.

Let me now present the basic morphological facts relevant to the aspectual issues in Russian. These facts are mentioned here to give the reader a general overview of what is often called 'morphology of aspect'. The issues of aspectual morphology, however, will not be thoroughly discussed in this work.

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[1] A synonymous term which is also often used is *situation*. I will sometimes use this term as a substitute for *eventuality* for stylistic reasons.

0.1. Morphology

Russian, as all the other Slavic languages, is known to have a vast variety of different semantic distinctions encoded in verbal morphology. Aspectual differences are also reflected in the domain of verbal morphology, therefore it is often said that aspect in Russian is a *morphological* category. No one denies the fact that there is, indeed, aspectual morphology in Russian, and that aspectual differences become apparent due to the morphological processes such as prefixation and suffixation. However, there is no single perfective or imperfective morpheme in Russian, or, in other words, no uniform morphological aspectual marker.

   Aspect in Russian is a *grammatical* category. This means that any given verb form belongs to one of the two classes: it is either perfective or imperfective, so that the category of aspect is *obligatorily* expressed.[2] Given the absence of a uniform perfective or imperfective morphological marker, it becomes more difficult to predict for any given verb form its aspectual value. There are, however, some tests, e.g., participle formation and complementation, that help identify the aspectual value of a verb form. The tests are discussed in chapter II.

   Aspectual morphology in Russian is complex, although there are some similarities in the morphological design of perfective and imperfective forms.[3] Imperfective verb stems are often morphologically simple, underived. They provide a basis for the derivation of perfective forms, for instance, by means of prefixation:

(5)   a. delat'   s-delat'
            make, do-IMP   PF
        b. pisat'   na-pisat'
            write-IMP   PF
        c. čitat'   pro-čitat'
            read-IMP   PF

The Russian Academy Grammar (henceforce AG) lists twenty eight prefixes that can be attached to an imperfective verb yielding a perfective one. Up to sixteen prefixes can be compatible with one and the same verbal stem, fortunately, not all of them at the same time. When a verb gets two or more prefixes, the order of attachment is not free:

(6)   kopit'   na-kopit'
         save-IMP   PF-save up   pod-na-kopit' / *na-pod-kopit'
                           pod-kopit'   PF-PF-save up a little/some
                           PF-save up (a little)

---

[2] There are so-called bi-aspectual verbs in Russian, e.g., *annulirovat'* 'to annul, cancel'. The majority of them are loan words, but note that the verb *byt'* 'to be' also appears to be aspectually unmarked, at least in modern Russian. More on the verb *byt'* will be said in chapter V.
[3] Cf. also Klein's (1995) rules of 'conventional wisdom'.

Moreover, most prefixes can actually change or modify the lexical meaning of a verb. For example, *za-* is a prefix that can have a locative meaning (=into), pure 'perfective' (i.e., there is no lexical meaning difference between perfective and imperfective forms) or it can mark the beginning of an action:[4]

(7) a. polzti   za-polzti
    crawl-IMP PF-crawl (into sth)
  b. planirovat' za-planirovat'
    plan-IMP   PF-plan
  c. pet'   za-pet'
    sing-IMP   PF-start.singing

Prefixation is a common way to derive perfective aspectual forms, but it is certainly not the only way. There is a suffix *-nu-*, which is used to form *semelfactive* perfective forms with a specific meaning, namely, to do something just once:

(8) prygat'   pryg-nu-t'
  jump-IMP   PF-jump.once

There are also some cases of 'irregular' aspectual pairs, when imperfective and perfective forms have identical lexical meaning, but different morphological stems (*suppletion*):

(9) brat'   vzjat'
  take-IMP   PF-take

Finally, some perfective/imperfective pairs are distinguished by vowel alternation:

(10) brosat'   brosit'
   throw-IMP PF-throw

The question that the reader might have in mind at this point is whether perfective forms are always morphologically more complex, i.e. derived from imperfectives? The answer to this is negative. There are morphologically simple perfective verbs which can also take prefixes:

(11) kupit'   PF-buy
   na-kupit'   PF-buy.a.lot
   do-kupit'   PF-buy.some.more
   o-kupit'   PF-compensate
   s-kupit'   PF-buy everything, all

---

[4]AG actually lists ten possible meaning differences that this prefix can bring about.

Another fact that should be mentioned here is that there are morphologically complex[5] imperfective verb forms as well. There is a phenomenon in Slavic languages which is called secondary imperfectivization (henceforth SI). Recall that perfective forms can be derived from morphologically simple imperfectives by adding prefixes. It can be the case that the meaning of a verb is changed after a prefix has been added. Subsequently, it usually becomes possible to derive imperfective forms with the new lexical meaning brought in by a prefix, using special suffixes. The derivation is schematically represented in (12) and exemplified in (13):

(12)   (plain) imperfective $\Rightarrow$ prefixed perfective $\Rightarrow$ prefixed perfective +
                                                              imperf.suffix (SI)

(13)   *pisat'*   *za-pisat'*   *[za-pis]-yva-t'*
         write-IMP   PF-write.down   write.down-SI
                            pod-pisat'   *[pod-pis]-yva-t'*
                            PF-sign.up   sign.up-SI
                            PF subscribe   subscribe-SI

This is a productive morphological process. The suffixes that are used in this derivational pattern are *-a-, -va-, -va/-yva*.[6] Sometimes, but not often, it is possible to have a 'full' row of aspectual forms (aspectual triples) without any change of lexical meaning:

(14)   a. *čitat'*   *pro-čitat'*   *pro-čit-yva-t'*
             read-IMP   PF   SI
         b. *pit'*   *vy-pit'*   *vy-pi-va-t'*
             drink-IMP   PF   SI

Very rarely, secondary imperfectives can be derived from simple imperfective stems as well, as shown in (15):[7]

(15)   *čitat'*   *čit-yva-t'*
         read-IMP   read-SI
         pro-čitat'   *pro-čit-yva-t'*
         PF-read   read-SI

---

[5] From the viewpoint of morphology they are even more complex than perfective verbs.
[6] Productivity of these suffixes varies from one Slavic language to another. In Russian -va-/-yva- seems to be the most productive one, though all the others can also be used.
[7] These forms are used only in the past tense and have a bit of 'memoir' flavour:
(i)   V to vremja i ja na baly xažival
         in this time and I on ball-ACC.PL go-IMP-pst.sg.masc.
         'At those times, I also used to go to balls/went to balls from time to time'

To sum up, aspectual morphology in Russian is very complex and there are not so many strict rules concerning morphological derivation processes. An important conclusion is that no generalization can be built on the basis of morphology only, because there are morphologically simple perfective verbs (e.g. (11)) and there are morphologically complex imperfective verbs (secondary imperfectives in (13) and (14)). We cannot generalize over all the perfective verbs as being prefixed, since there are perfective verbs derived by suffixation (as in (8)) or other means (as in (10)). There is no such thing as a perfective or imperfective morphological marker in Russian.

0.2 Markedness

Perfective and imperfective aspect in Russian form an aspectual *opposition*. A tradition to treat certain grammatical categories, and, in particular, aspect in Russian, as an opposition stems from Jakobson (1932) and the so-called Prague circle. The Prague circle, which belongs to the linguistic school of structuralism, developed a theory of *markedness*, the notion which underlies *oppositions.* The members of the Prague circle, i.e., Jakobson, Trubeckoj and others, devoted much attention to analyzing the 'close' systems of phonology and morphology and the relations within these systems. In a closed system, a number of oppositions can be formed, one member of which is positively specified for a certain feature and is more specific than the other. This member is called a *marked member of the opposition,* the other is *unmarked*.

   The oppositions that can be formed in a closed system are classified according to several criteria. First, oppositions can be symmetrical or asymmetrical. In a symmetrical opposition, each of the contrasting classes bears a positive value of some feature. Such opposition is called *equipollent* (e.g., *male* vs. *female*). By contrast, in an asymmetrical opposition only one member is characterized by a positive value of a certain feature (e.g., *male* vs. *'the rest'*). This member is called *marked*. Further distinctions are drawn within the class of asymmetrical oppositions according to the characteristics of the other member, the *unmarked* one. In a *privative* opposition, the unmarked class is specified by the negative value of a given feature (e.g., *male* vs. *non-male*). The last type of oppositions is called *subordinative* and its distinguishing characteristic is that the unmarked class is underdetermined with respect to this feature (e.g., *male* vs. *+/-male*). The general scheme of oppositions with two possible features A and B and their values is given in (16) below:

(16)   OPPOSITIONS
   SYMMETRIC(*EQUIPOLLENT)*   ASSYMETRIC
   +A vs. +B   *PRIVATIVE*   *SUBORDINATIVE*
                     +A vs. –A   +A   vs.   +/-A

Jakobson (1932, 1957) applied this theory of oppositions to the aspectual distinction between perfective and imperfective in Russian. He argued that the aspectual opposition is subordinative, with perfective aspect being a marked member. From the semantic viewpoint it means that perfectivity usually expresses some property A (+A), whereas imperfectivity is associated with an undefined value of A (±A). Perfective aspect, is, therefore, more specific and more restricted than imperfective.

In the analysis of aspect that I will develop in the present work, the aspectual opposition in Russian should rather be classified as privative. I am going to maintain the view that perfective aspect is a marked member of the aspectual opposition and my definition of perfectivity in chapter V is a *positive* definition, in the sense that perfective is defined as fulfilling a certain condition A. Actually, two conditions for perfectivity are going to be identified, and the definition will state that *both* of them must hold. Imperfective aspect, however, is going to be defined in *negative* terms, i.e. as *non*-perfective. Therefore, if *at least one* of the two perfectivity conditions is not met, the imperfective aspect results. This means that the opposition between two aspectual values in Russian is classified as privative.

As has been mentioned earlier, I will argue that Russian aspect belongs to the domain of outer aspect, i.e., a level distinct from the telicity/predicational aspect that underlies the distinction exemplified in (2). Note, however, that predicational aspect seems to be based on the same type of opposition, i.e. privative one, where one member is positively specified as [+telic] and the other one is characterized by the negative value of the telicity feature, i.e. is [-telic]. This claim is advocated in Verkuyl (1993), who argues that telic (in his terms, *terminative*) aspectual value is marked. In particular, a telic predicate in Verkuyl's approach is formed only if all the elements of the predicate (i.e., a verb and its arguments) are positively specified for relevant features. Atelic (Verkuyl's *durative*) aspectual value is unmarked and less specific. It is derived if at least one of the telicity conditions is not met. The class of atelic predicates is more varied due to the fact that atelicity may have different triggers, whereas the class of telic predicates is more uniform.

This parallelism in definitions of perfectivity in my approach and telicity in Verkuyl's theory of aspectuality is a good result. It suggests that all the aspectual oppositions, independently of the level of aspectual representation may be of the same nature, i.e., privative. This, in turn, means, that the theory of markedness underlies the aspectual distinctions and there is always a marked member in any aspectual opposition.

To conclude this introductory chapter, let me explain how this thesis is organized.

Telicity as an aspectual notion is in the focus of the discussion in chapter I. The central question addressed in this chapter is how telicity should be semantically defined.

Chapter II investigates the hypothesis of whether a one-to-one correspondence between telicity and perfectivity can be established. It is argued that telicity is neither a sufficient, nor a necessary condition for perfectivity. This means not only that perfectivity cannot be defined in terms of telicity, but also that (im)perfectivity

and (a)telicity are two completely different aspectual phenomena. Therefore, an alternative a`pproach to perfectivity should be pursued.

In chapter III, an important question is raised concerning whether the aspectual phenomena of different levels, like perfectivity and telicity, can be analysed in the same terms employing the same theoretical tools. I will motivate a negative answer to this question.

Chapter IV provides a theoretical basis for the analysis of the aspectual differences in Russian. In particular, the notion of Reference time is introduced and discussed in this chapter and the unified theory of Reference time proposed in Reinhart (1986, 2000) is presented. This theory, as I will show, opens up a way to clearly state and formalize the distinctions between different levels of aspectual information.

An account of the perfective/imperfective aspectual opposition in Russian is provided in the final chapter, chapter V. It is based on the theory of Reference time presented in chapter IV. The fact that is taken as a point of departure for formulating the definitions of perfective and imperfective aspect in Russian is that perfective aspectual forms in the non-past tense cannot get the actual present interpretation. The theory of Russian aspect developed in chapter V derives this fact and explains the dependencies between tense and aspect, which can be clearly seen in the Russian system.

Chapter I

Main theories of aspect [part I]: the telicity approach

The main purpose of this chapter is to introduce the notion of telicity, show its relevance to the discussion of aspectual issues, and, most importantly, examine how it can be defined in existing approaches. The layout of this chapter is as follows: after some preliminary remarks in section I.1, the ways of testing telicity will be introduced in section I.2. The tests I adopt will be first applied to English to illustrate the relevant distinctions, and then, briefly, to the Russian data. In section I.3, I review the theory of compositional aspectuality as developed in Verkuyl (1972, 1993) and in the last section, I examine two approaches to the definition of the notion of telicity. The first one, discussed in section I.4.1, which I call the *end-point* approach, will be rejected in favour of the second one, the *homogeneity* approach (section I.4.2). The last section presents a summary and conclusions.

I.1. Preliminary remarks: how many aspects?

There are two categories that are used in the linguistic analysis of the temporal structure of sentences in language: tense and aspect. The category of tense is employed to determine the temporal location of an eventuality described in a sentence with respect to some given 'anchoring' point in time, like Speech time, or with respect to an eventuality described in another sentence. Tense issues will be discussed in chapters IV (English) and V (Russian).

As for aspect, it is commonly assumed that aspect is a name for a category (or a set of categories) that is taken to define the temporal properties of the described eventualities themselves and to characterize a way the eventualities 'unfold' in time. As opposed to tense, aspectual characteristics are not taken to be dependent on any designated temporal anchoring point, but to reflect the '*internal*' temporal properties of eventualities.

This is a very general description of the most common view on aspect, which, as I argue throughout this work, is not entirely correct. In particular, the view on

aspect as a category describing the internal temporal properties of eventualities is very misleading and, if used inappropriately, is simply wrong (see section I.4.1).

Slavic grammarians of the 17th century seem to be the first ones to employ the term 'aspect' to refer to the perfective/imperfective opposition in Russian and other Slavic languages.[1] Interestingly, the tense-aspect distinction was not recognized in the earlier Russian grammars, e.g., the one by Lomonosov, where the term aspect was not even used and all the aspectual categories in the modern sense of the word were described as tense. When the first translations of the Russian grammars appeared, the term 'aspect' exclusively referred to the 'Slavic' type of aspect, i.e. the opposition between perfective and imperfective.[2] Subsequently, another term, *Aktionsart*, emerged in the German linguistic tradition, but initially it was just another (i.e. German) name for aspect in Slavic languages. Since it was not very handy to have two terms referring to the same phenomenon, the situation was bound to change. Gradually, the following opposition was formed: the perfective/imperfective distinction was described as *aspect,* whereas different types of temporal meanings (i.e. beginning, iteration, etc.) conveyed by some derivational prefixes in Slavic languages were called *Aktionsarten*. This opposition is found in many important contributions, for instance, Isačenko (1960), and is often encountered in the literature on Slavic aspect up to the present time.

This is just one example of the – often very confusing – complexity of the aspectual terminology. There are many more intricacies in the terminology itself and the way particular terms are used, but the purpose of this work is not to resolve all these issues. Nevertheless, more serious theoretical questions are concealed behind terminological divergences and as far as they are concerned, I have a clear picture in my mind and I will try to be as precise about it as possible.

There are, indeed, two temporal grammatical categories in language: tense and aspect. Moreover, there are different types of aspect. The first one is *lexical aspect*, which focuses on a lexical type of verbs determined by their inherent temporal properties (cf. Rothstein (2002), Ramchand (2001)). The second type of aspect is what I will call *telicity aspect*. The term 'telicity aspect' (it can also be called '*predicational* aspect' or '*inner* aspect', as was pointed out in the introductory chapter) refers to the aspectual type of a predicate, which can be either telic[3] or atelic. This aspectual value is derived on the basis of the information provided by a verb and its arguments. One of the most extensive studies of telicity aspect is found in the work of Verkuyl (1972, 1993, etc.), who provides a compositional account of telicity. Not much work has been done on the telicity aspect in Slavic languages

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[1] In modern Russian linguistics, there are two terms for aspect: '*aspect*' and '*vid*'. While the former is just a transcript of the most familiar English term, the latter was the 'original' Russian term, which is translated as 'view'. It is this term that was first introduced in Slavic grammars.

[2] Although this opposition is common to all Slavic languages, I will not make any claims about languages other than Russian in this work.

[3] I use the term 'telic' as a synonym to Verkuyl's 'terminative' or, as will become clear later, Krifka's 'quantized'. It should be kept in mind that in the present work 'telic' is not necessarily associated with 'reaching a goal', as suggested by the translation of the original Greek word 'telos'. Although some researchers believe that the aspectual use of the term is rather unfortunate, it nevertheless has become almost 'default', i.e. one of the most popular and widespread terms.

until recently (but see Filip 1993, Schoorlemmer 1995, Schmitt 1996). Finally, there is one more type of aspect, namely, *viewpoint aspect* (also called 'grammatical' or 'outer' aspect), which refers to the Slavic 'type' of aspect (Comrie (1976), Smith (1997)). A common criticism (e.g., Klein 1994) of the viewpoint approach to aspect is that it does not sufficiently formalize the notion of viewpoint, which makes it hard to deal with it. The theory of aspect that I am going to develop in this work crucially relies on the insights of the viewpoint approach to Slavic and, in particular, to Russian aspect. I will also suggest a formalization of the notion of viewpoint, or perspective, in terms of Reference time (chapters IV and V).

I will not discuss lexical aspect in this work, although this is an interesting and potentially fruitful area for Slavic linguistics, especially for the type of research that focuses on the contribution and meaning of the derivational prefixes in Slavic languages. My primary interest concerns the relation between telicity and viewpoint aspect, the correlations that can be established between them and the validity of these correlations.

The question of whether or not some of the three types of aspect (i.e., lexical, telicity and viewpoint aspects) are essentially the same linguistic phenomena is still a matter of controversy. In this work, I will touch upon the most influential proposals concerning this issue (see, in particular, the discussion of de Swart (1998) in chapter III). However, what I would like to address first is the notion of telicity, its linguistic relevance and its properties. This is the main topic of the present chapter, where I will concentrate on the theoretical issues with minimal involvement of the Russian data. An attempt to apply a theory of telicity aspect to Russian is the subject of the next chapter.

I.2 Introducing the distinction between telic and atelic predicates: some tests.

Perhaps the most popular approach to the perfective/imperfective distinction is the one which associates this opposition with the notion of completion or reaching the (inherent) boundary of an eventuality, i.e. with telicity. This intuition is not a novelty: the idea goes back as far as the 19th century (Miklosič 1883). It can also be found, in one way or another, in Jakobson (1932), Vinogradov (1947), Bondarko (1987) among others, but modern semantic theories provide possible tools to formalize the notion of a temporal boundary (e.g., Krifka, 98 etc.), which, I believe, is one of the reasons for the uptrend. In particular, it has become popular to attempt to formalize the intuitive idea that perfectivity goes hand in hand with some notion of completion, a bound temporal interval or some kind of delimitedness in time. This is an informal way of expressing the core of what I will call the telicity approach.

The first important question to be addressed is the following: how do we know that telicity is a linguistically relevant notion which really finds its way into the grammatical system of language? As an answer to this question, there exist

numerous tests (cf., Dowty 1979, Hinrichs 1985) which show that telic and atelic predicates[4] are indeed different and that this distinction is important for the purposes of aspectual research. I have chosen to use three tests here: the adverbial modification test, the conjunction test and the progressive entailment test. Let me now illustrate how these tests work in English.

- <u>Adverbial modification</u>

The essence of the adverbial modification test is the following. Telic predicates, as opposed to atelic ones, allow for modification by so-called 'frame' adverbials, e.g., *in an hour* in (1)b, whereas atelic predicates, like the one in (1)a, take duration adverbials of the *for an hour*-type:

(1)   a. Mary drove the car for an hour/*in an hour
         b. Mary ran a mile *for an hour/ in an hour

This is the most extensively used test for distinguishing telic and atelic predicates (Verkuyl 1972, Dowty 1979, Hinrichs 1985).

- <u>Conjunction</u>

The conjunction test comes from Verkuyl (1972, 1993). It also involves temporal modification. Compare (2)a and (2)b:

(2)   a. Mary drove her car on Monday and on Tuesday   (ambiguous)
         b. Mary ran a mile on Monday and on Tuesday   (non-ambiguous)

In the case of two telic predicates (as in (2)b), the interpretation arises of two distinct eventualities that occur independently during two temporal intervals denoted by PPs. This is an available, but not the only possible interpretation of (2)a, the sentence with an atelic predicate. Thus, Mary could in principle be driving for two days continuously, so that the whole sentence can report on just one eventuality. This reading is not available for (2)b, which is not ambiguous: it has to be two different eventualities, two 'mile-runnings', as it were. This is the difference between sentences with telic and atelic predicates that this test brings out.

There are two conditions concerning temporal modification here that have to be fulfilled. First of all, full temporal PPs should be conjoined (i.e. the second 'on' cannot be omitted) and, secondly, the temporal units denoted by these PPs should be subsequent. For instance, the expression 'on Monday and on Tuesday' provides good grounds for testing, while 'on Monday and on Wednesday' does not.

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[4] The use of the word 'predicate' here presupposes that telicity applies to predicates. This is not a universally shared opinion; see sections I.4.1 and I.4.2 for discussion.

- Progressive test

The progressive test is also widely used to illustrate the differences in the behavior of telic and atelic predicates (Dowty 1979, Hinrichs 1985, de Swart 1998). This test shows that the two types of predicates license different logical inferences, i.e., this is an entailment test. A sentence with an atelic predicate in the progressive entails the truth of the sentence with a verb in the simple past form, as in (3)a, while a sentence with a telic predicate does not license such an inference, as in (3)b:

(3)   a. Mary was driving the car → Mary drove the car
         b. Mary was running a mile -/→ Mary ran a mile

Note that a predicate that is tested is in the past tense form, i.e. the test reveals the status of the predicate in the right hand part of the entailment.[5]

Thus far, it has been shown that telic and atelic predicates differ in at least three respects: they co-occur with different classes of adverbials, they exhibit differences in interpretation with conjoined temporal expressions, and, finally, they give rise to different logical inferences. The three tests that have been given above provide enough evidence for distinguishing two classes of predicates, telic and atelic:[6]

(4)   ATELIC   vs.   TELIC
         love   *drive a car*   *build a house*   *die*
         hate   *draw circles*   *eat 3 sandwiches* *recognize*
         be happy   *run (in a park)*   *run a mile*   *win (the race)*

The property underlying the difference in telicity is known as the *homogeneity property* (Vendler, 1967). I will discuss the notion of homogeneity in section I.4.2 in more detail, and now I give an informal description of this property and illustrate how it can be tested.

A predicate is called homogeneous if parts of the predicate's denotation can be referred to by the same predicate. For instance, parts of running can also be described as running, whereas the predicate 'run a mile' can only be used for a description of an eventuality of running a mile, but not, for instance, the one of running 300 meters. To check whether a given predicate is homogeneous or not, I use the following test, which I call *homogeneity test*. In principle, the test shows that if a predicate holds for a given temporal interval, then it also holds at a subinterval of this interval. Thus, intuitively, a part of the temporal denotation of a predicate can

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[5] This has to do with the fact that all predicates in the progressive form are atelic. More will be said on the English progressive in chapters IV and V.
[6] Following Bach (1981) and many others, some scholars use the terms '*state*' and '*event*' instead of '*atelic*' and '*telic*' predicates respectively. The main reason why this terminology is not adopted in the present work is that the terms 'state' and 'event' are sometimes used to refer to ontological categories, different types of eventualities (e.g. de Swart 1998, Kamp & Reyle 1993), not to predicates. To avoid confusion, at least in this particular case, I have chosen the terms 'telic' and 'atelic'.

also be referred to by the same predicate (cf. (5)a). If this is not the case, a predicate is not homogeneous ((5)b):

(5)   a. Peter drove the car from 5 p.m. till 8 p.m. $\rightarrow$
               Peter drove the car from 6 p.m till 8 p.m
           b. Peter ran a mile from 5 p.m till 8 p.m. -/$\rightarrow$
               Peter ran a mile from 6 p.m till 8 p.m.

There are two other common tests that can be applied to demonstrate the difference between telic and atelic predicates that have not been mentioned yet. The first one is another entailment test. It shows that atelic predicates, as opposed to telic ones, license the inference from the present progressive to the present perfect:

(6)   a. John is driving the car $\rightarrow$ John has driven the car
           b. John is running a mile -/$\rightarrow$ John has run a mile

This is the 'present tense' version of the progressive entailment test, illustrated in (3). As in the examples in (3), the atelic predicate in (6)a licenses the inference from present progressive to present perfect, whereas the telic predicate in (6)b does not.

    Another telicity test shows that only telic predicates can occur as complements of the verb *finish*:[7]

(7)   a. *John finished driving a car
           b. John finished writing a letter

To make example (7)a grammatical, another 'aspectual'[8] verb, *stop*, has to be used:

(8)   John stopped driving a car

These two tests, however, will not be used in the present work. I will motivate this choice at the end of this section.

    To complete this general discussion of tests and move on to the illustration of their effects in Russian, one final remark should be made. It is well known that tests are usually restricted in their application. The results are often not absolute, sometimes the tested difference emerges only under certain conditions. Consider, for instance, the most commonly used adverbial modification test. It is an oversimplification to say that duration *for*-adverbials, when applied to telic predicates, lead to ungrammaticality. The same is valid for their counterpart, frame

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[7] This is not to say that *all* telic predicates can occur in this position. Compare:
        (i) *John finished dropping cups/dying
So, the generalization is that if a predicate can occur in the complement position of *finish*, it is a telic predicate, but if a predicate does not occur in this position, it does not mean that it is an atelic predicate. I thank Maaike Schoorlemmer for bringing this to my attention.
[8] Verbs like *start, finish, stop,* etc. are often referred to as 'aspectual' or 'phase' in the sense that they single out some particular temporal subpart of an eventuality, namely, its beginning, completion or end.

adverbials of *in an hour*-type. What happens when they occur with the 'wrong' type of a predicate is that the resulting interpretation differs considerably from the 'usual' cases. Consider (9):

(9)   a. Mary drove a car in an hour
         b. Mary ran a mile in an hour
         c. Mary drove a car for an hour
         d. Mary ran a mile for an hour

(9)a, the sentence with an atelic predicate, must be interpreted as 'Mary started driving a car in an hour', where *in an hour* specifies a duration of a 'gap' between Mary's driving and some other relevant (previous) activity. In principle, this interpretation is not banned with the telic predicates either (cf. (9)b), but it is a 'secondary' reading, not the default one. The most prominent interpretation of (9)b is that it took Mary an hour to run a mile, but this reading is crucially not available for (9)a.

In (9)d, a telic predicate is modified by a durational adverbial. The interpretation of this sentence must be iterative: the reading we get is that Mary kept running a mile over and over again and was doing it for an hour. This is not a very natural interpretation, primarily for pragmatic reasons, but it is definitely a possible one. (9)c, however, although allows for the reading just described, is most naturally interpreted as describing a single eventuality of driving that lasted for an hour, the reading that (9)d cannot get.[9]

I now turn to the illustration of how the tests work in Russian. The main tests that have been used above for English, when applied to Russian data, show that there is, indeed, an apparent difference between perfective and imperfective verb forms with respect to telicity. I will illustrate it now using two verbs, the perfective form of *čitat′* (to read), *pro-čitat′*, and imperfective *iskat′* (to look for).

- Adverbial modification

As illustrated in (1), telic predicates in English allow for modification by 'frame' adverbials, whereas atelic ones take a duration adverbial of the *for an hour*-type. The examples in (10) show that the imperfective *iskat'* in (10)a takes a duration adverbial, while the perfective form *pročitat'* ('to PF-read') patterns with telic predicates and takes a frame adverbial ((10)b):

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[9] The question of why the facts we observe when testing a certain phenomenon are such as they are is very difficult to answer. Sometimes the explanation has nothing to do with the way the test is used, sometimes is has. Of course, ideally, we should always know how the tests work and why they give particular results. But, on the other hand, if there is no *explanation* for a test yet, it should not be a reason to stop using it. This is not a perfect situation, but linguistic differences have to be demonstrated and this is what tests are for.

(10)   a. Petja iskal knigu *za čas/čas
             Peter IMP-look.for-pst.sg.masc. book-ACC *in hour/ hour
             Peter looked for a book *in an hour/for an hour
         b. Petja pro-čital knigu za čas/ *čas
             Peter PF-read-pst.sg.masc. book-ACC in hour/ *hour
             'Peter read a book in an hour/*for an hour

- Conjunction test

The conjunction test makes use of the conjoined temporal prepositional phrases, like 'on Monday and on Tuesday', etc. The sentence is unambiguously interpreted as describing two different eventualities if a telic predicate is used (cf. (2)b above), whereas the 'continuous' interpretation is possible with atelic predicates (the English example in (2)a. Now consider the Russian examples:

(11)   a. Petja iskal knigu v ponedel'nik i vo vtornik
             Peter IMP-look.for-pst.sg.masc. book in Monday and in Tuesday
             'Peter looked for a book on Monday and on Tuesday'
         b. Petja pročital knigu v ponedel'nik i vo vtornik
             Peter PF-read-pst.sg.masc. book in Monday and in Tuesday
             'Peter read a book on Monday and on Tuesday'

Although it might be pragmatically strange, Peter, in principle, could be involved in the activity of looking for a book for two days continuously, so that the whole sentence in (11)a can report on just one eventuality. This is not the case in (11)b, where the interpretation is not ambiguous: it has to be two different eventualities, two 'book-readings'. Thus, again, the examples here show that the perfective verb form patterns with telic predicates, the imperfective one with atelic.

- Progressive test

The progressive test shows that only atelic predicates can license the inference from past progressive to simple past sentences. This was demonstrated for English in (3). As (12) below shows, the sentence with the perfective form ((12)b), again, gives the same result as the sentence with a telic predicate in English (cf.(3)b). The Russian sentence with the imperfective form ((12)a) patterns with an atelic predicate in English (cf.(3)a):

(12)   a. Kogda pozvonila mama, Petja iskal knigu → Petja uže iskal (ėtu) knigu
             When called mom, Peter look.for-IMP-pst.sg.masc book →
             Peter look.for-IMP-pst.sg.masc. (this) book
             'When mom called, Peter was looking for a book →
             Peter already looked for a book'

b. Kogda pozvonila mama, Petja čital knigu -/→
   Petja pro-čital (ėtu) knigu
    When called mom, Peter read-IMP-pst.sg.masc. a book -/→
    Peter PF-read-pst.sg.masc. (this) book
   '*When mom called, Peter was reading a book -/→ Peter read a book*'

It should be noted that it is not easy to apply this test to Russian for several reasons. First, one has to make sure that the imperfective aspect, which the progressive in English uniformly translates into, has the 'right' interpretation. As was already pointed out in the introductory chapter, the correlation between the Russian imperfective and English progressive is one-sided. Imperfective aspect can have other interpretations, it does not necessarily get a progressive reading. To impose a progressive reading, one has to use 'when'-clauses, as in (12).

Secondly, the relation between progressive and imperfective considerably complicates testing imperfective predicates in Russian. In particular, it seems like the entailment for imperfectives, like (12)a, always trivially holds. Note, however, that this would only be true if imperfective did not have readings other than progressive. If this were the case, than for any imperfective predicate we would get something comparable to the English example in (13):

(13)   Peter was looking for a book → Peter was looking for a book

(13) is, of course, a tautology. However, Russian imperfective can also have the meaning of the English present perfect or simple past. I am going to discuss this issue in detail in chapter V. For now, the conclusion is that the progressive test can be applied to Russian imperfectives, given that the progressive interpretation is excluded for the sentence on the right hand side. I will use the adverb *uže* 'already' in the Russian examples which does not, in principle, exclude a progressive reading, but brings out the difference between present perfect (or simple past) and progressive meanings of the imperfective in Russian in the same way it brings out the difference between them in English:

(14)   a. John has already looked for a book (John already looked for a book)
         b. John was already looking for a book

In (12)a, the reading comparable to (14)a is easily obtained and this allows me to use the progressive test for Russian imperfective predicates. If the sentence with the past imperfective form can only get a progressive interpretation, it will always be explicitly mentioned.

As for the predicates with perfective verb forms, they can be easily used in the progressive test, given that there is a correspondence between past perfective forms

in Russian and simple past forms in English.[10] This is illustrated in the example below:

(15)   My po-zvonili kogda ty prišel
         we PF-call-pst.pl when you PF-come-pst.sg.masc.
         a. '*We called when (=after) you came*'
         b. '*We had called when (=before) you came*'

The verb form used in the main clause in (15) (i.e. *pozvonili* 'called') is perfective. As indicated by the translations, this form can get the interpretation of either simple past or past perfect in English. Leaving the latter aside for the moment, (15) shows that past perfective forms in Russian can get the simple past interpretation and, therefore, their use in the progressive entailment in (12) is justified.

Thus, when applying the progressive test to Russian, I am going to use imperfective and perfective forms in the right hand part of the entailment: this is the way to test their telicity properties. If not mentioned otherwise, the examples with an imperfective past form and the adverb *uže* should be interpreted similar to (14)a.

The final note about this test concerns the use of the demonstrative determiner *this* in (12). Since Russian does not have articles, it seems to be the only way to fix the reference of the relevant noun phrase. This has to be done, here and in the English examples that I provided earlier in the section. This is one of the conditions that should be met in order to use the test properly: the denotation of the internal argument should remain the same. If this condition is not met, the entailment trivially works (or rather, does not work) and the telicity of a predicate does not matter for the result of the entailment:

(16)   a. Peter was reading 'Crime and Punishment' -/→ Peter read 'Idiot'
         b. Peter was driving a Ford -/→ Peter drove a BMW.

Now let me turn to the telicity tests that I have chosen not to use in this work. The examples of the present perfect entailment test in (6) and the complement of 'finish' test in (7) were given earlier for English, but these are not going to be used in this work. As for the present perfect entailment test, this is just a 'present tense' version of the progressive entailment test illustrated in (3) for English and (12) for Russian. Given that both versions of the entailment test give similar results for English, it should not matter which one is used for the Russian examples, hence, the more commonly used past progressive test has been chosen here.

As for the complementation test, in Russian only imperfective verbs can appear as complements of both *finish* and *stop*, or any other phase verb for that matter. Thus, this test, when applied to Russian, clearly shows the difference between perfective and imperfective forms. Therefore, it will be used as an (im)perfectivity diagnostic in chapter II. Should the difference between perfective and imperfective

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[10] All the correspondences between Russian and English will be reassessed again in chapter V, especially section V.3.6.

amount to the one between telic and atelic predicates, then the test can be used in Russian in exactly the same way as it is used in English. As I intend to show in chapter II, there is no correspondence between (a)telicity and (im)perfectivity and this is the reason why this test cannot be directly applied to Russian.

The results of testing perfective predicates in Russian seem to be the same as the results that the tests yield for telic predicates in English. The observed facts point to the following generalization: perfectivity in Russian is a way to mark telicity. Therefore, if a verb is in the perfective form, it is a sign that we are dealing with a telic predicate. I will devote much more attention to this generalization in the following chapter, where I will show that a substantial body of data proves that this generalization is wrong.

We have seen with the help of various tests that telicity is a linguistically relevant notion. However, it does not imply that we have an answer to the question of what it means to be telic yet. The first question to ask is how a telic predicate is formed. The second question is whether we can provide a strict definition of a telic predicate, as opposed to the various ways of illustrating its behaviour by using the tests.

Verkuyl's theory of compositional aspectuality (Verkuyl 1972, 1993) answers the first question and I review this theory in the next section. It shows what the 'ingredients' of telicity are. After discussing this issue, I will turn to the question of a strict definition of telicity.

I.3. Compositional telicity: Verkuyl's approach

The process of telicity formation has always been at the centre of Verkuyl's research and the theory of compositional aspectuality developed in Verkuyl (1972, 1993, 1999) is now one of the most influential formal semantic approaches to the compositionality of telicity aspect.[11] His theory takes aspect formation to be 'atemporal'. In other words, his analysis abstracts away from almost all temporal properties of verbs, except for dynamicity, and aims at explaining *how* a telic or atelic interpretation is actually derived. What he argues against is the so-called 'holistic' interpretation of telicity, in which the telicity value of the whole predicate is defined without paying any attention to the process that leads to its formation.

Verkuyl (1993) focuses on providing an analysis of structural formation of the telicity value of a predicate or sentence. The basic scheme of aspectual composition is represented as in (17) (cf., Verkuyl, 1993; p.22):

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[11]As I pointed out in the introductory chapter, Verkuyl uses different terminology, namely, 'aspectuality' instead of 'aspect' and 'terminativity' instead of 'telicity'. In his analysis, there are two aspectuality values that can be derived: a predicate can be either 'terminative' or 'durative', which corresponds to 'telic' vs. 'atelic'. For the sake of uniformity and clarity of presentation, I will continue to use the same terminology throughout this work.

(17)

```
                    structural    [+T]
           VP ◄──────────────
              
              ╱╲         structural    +SQA
             ╱  ╲ ◄──────────────
           NP    VP    structural
                       ◄──────────────    [+T]
           ╱╲    ╱╲    lexical
          ╱  ╲  ╱  ╲ ◄──────────────    +ADD TO
        DET  N V   NP    structural
                   ╱╲  ◄──────────────    +SQA
                  ╱  ╲
                DET   N
         │    │  │  │    │
       Judith eat three sandwiches
```
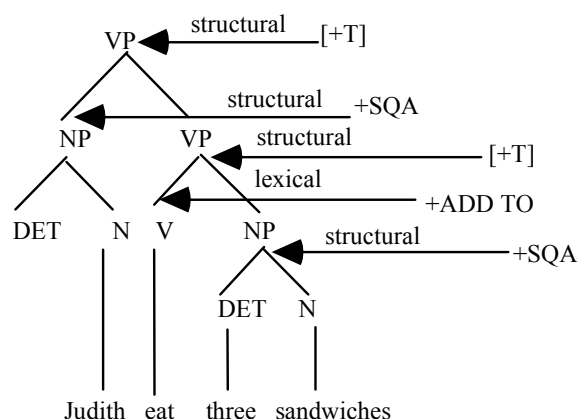
In this scheme, [+SQA] stands for "+specified quantity of A", where A is the denotation of an argument. It gets the [+]-value only if certain cardinality information is provided by a determiner. For instance, bare plurals are specified as [-SQA], whereas numeral phrases or definites like *three sandwiches* and *the girls* end up being [+SQA]. I will not discuss the [SQA] feature any further and will use examples with noun phrases that are clearly [+SQA].

The [ADD TO]-feature on a verb means additivity or, in other words, dynamicity or progress in time expressed by the verb (as opposed to stativity). This is the only lexical information available in this scheme. Verkuyl's classification of verbs at the lexical level, when compared to the one by Vendler, draws the line between states, on the one hand, and the other three classes (i.e., activities, accomplishments and achievements), on the other. The aspectual value is determined at every level of representation marked by an arrow in (17). The resulting value of ($\pm$ T[elic]) is the one corresponding to the highest VP-level in the above tree. Only "+" values on the subject NP, the object NP and the verb lead to the telic interpretation of the whole sentence.

Aspectual composition starts with a verb, which is lexically specified as [+ADD TO] if it is not stative. This is the way to represent dynamicity in Verkuyl's theory. If the verb is [-ADD TO], the predicate will be atelic, no matter what the argument specification is. A [+ADD TO] verb contributes a scale with numerical indices. The model makes use of indices, not intervals, to emphasize the atemporal nature of the aspectual formation. Indices are taken to be 'representatives' of intervals[12] in the sense that they represent the dense structure of intervals in very much the same way as we represent the dense structure of time in our everyday life,

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[12] There is also a special function that 'translates' them into intervals at the level of temporal representation.

using seconds, minutes, hours, dates, etc. Numbers at this level stand for 'compressed' time, and the structure provided by natural numbers is much simpler than the structure that would be provided by the scale of real numbers. Progress expressed by a [+ADD TO] verb develops along this scale and indices provide counting points (this is the intuitive meaning of 'additivity'). 'Real' time becomes important in Verkuyl's framework later in the process of the composition of the sentence meaning, in particular, when we deal with tense.

The opposition of tense *vs.* aspect is very important in this framework. In Verkuyl's view, when the aspectual value is set and the predicate is determined to be either [+T] or [-T], the system has to deal with this unit without changing any of its properties. When the unit (i.e. a predicate with the assigned telicity value) is formed, we can no longer peek inside it, as it were. The temporal system has to accommodate it, whether or not the aspectual value is 'convenient' for the temporal mechanism or not. Anticipating what is to come, I can say that this claim is going to be very important for my purposes in the following presentation, especially in chapters III, IV and V. Adjusting the terminology, Verkuyl's postulate about the independence of predicational aspect of all the temporal information amounts to saying that telicity aspect is independent from viewpoint aspect. This claim will be argued for in chapter V.

An index system introduced by a verb is always unbounded, just as the set of natural numbers is. Thus, it follows from the theory that there are no verbs that provide a bounded scale by themselves and the [+ADD TO] property of a verb, i.e. its dynamicity, is never enough to derive telicity, which is always associated with a bounded scale. This job is done by (internal) arguments.[13] Information expressed by an object DP is to be "adjusted" to this scale. Suppose we analyze the sentence *Judith ate three sandwiches*. The verb *eat* is a [+ADD TO] verb, so it provides an indexed scale of development of any eating event. This information is tuned to the cardinality information of the object NP *three sandwiches* and the scale is modified. Suppose index 1 corresponds to the consumption of the first sandwich, index 2 means that the second sandwich has been eaten. Finally the third sandwich disappeared in Judith's stomach at some index 3. Internal argument divides the scale contributed by the verb into three "relevant parts" represented by three indices (1, 2, 3). In this way, the scale gets a boundary, since the particular event of eating three sandwiches stops exactly at the moment when the last of these sandwiches is consumed. Then what we have is a function *l*, which is a function from a set of indices to a set of sets of objects, sandwiches in this case (cf. figure 40 in Verkuyl, 1993:299):

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[13] In Verkuyl's analysis, the [+/-SQA] value of the external argument is also important for deriving telicity, but I will abstract away from the contribution of the external arguments here. Actually, this is still a controversial issue for Slavic languages (Dimitrova-Vulchanova 1996).

(18)

$$\{\{s1\}\}\qquad \{\{s1\},\{s2\}\}\qquad \{\{s1\},\{s2\},\{s3\}\}$$

$$l(0)\qquad\qquad l(1)\qquad\qquad l(2)\qquad\qquad l(3)$$
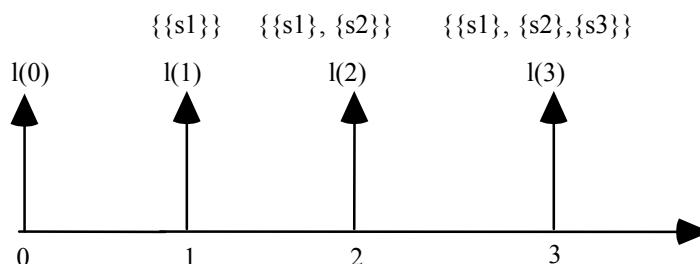
This is only one of the possible representations for the sentence *Judith ate three sandwiches*. The sentence itself does not provide any information as to how the sandwiches were eaten, so it might happen that at index 1 in (18) two sandwiches are consumed, then there would be only one additional index 2, corresponding to the consumption of the third sandwich. Judith might have eaten all three sandwiches at once, in which case just one index would be provided, just as for a sentence *John walked to the store*, where the only index corresponds to the location (=the store) that John reaches having covered a 'walking path'. The important point is that the scale of numerical indices gets bound independently of the way the sandwiches are eaten, it only matters for the actual number of indices.

The scale will be divided into a finite number of intervals only by a [+SQA] object, otherwise it will be cut into a number of undetermined parts. This is the case with, for instance, bare plurals like *sandwiches*.

Thus far, what we have at the level of the VP is a *path*, i.e. a set of spatio-temporal positions determined by the verb and its internal argument. There is also a notion of 'actualization' (Verkuyl 1998), which tells us whether the whole path or just a part of it is 'actualized' in real time.[14] Finally, the homogeneity property follows from a notion of *filter*, which is defined in terms of Generalized Quantifier Theory.

There is a fully developed logical machinery behind this theory, provided in Verkuyl (1993), which I skipped here, giving preference to a rather informal presentation. However, what has been just presented is enough to give the reader a general idea about how the process of deriving telicity works in Verkuyl's framework.

Recall that two questions were posed at the end of the previous section. The question about how a telic predicate is formed has been just answered. Now it is time to address the remaining one and thereby provide a strict definition of the notion of telicity.

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[14] The actualisation function is discussed in section II.2.1.1.

I.4.   *Defining telicity*

There are two major proposals in the literature as to how the semantic notion of telicity should be defined. The first one (e.g., Depraetere 1995 and many others) is very ontologically oriented and relies heavily on the notion of the *end-point* of an eventuality. In essence, the 'end-point' approach aims at defining telicity in terms of temporal properties of eventualities, namely, their (reaching of) a temporal limit or end point. I will review it in section I.4.1. The second approach, which I will call the 'homogeneity approach', gives the definition of an (a)telic predicate based on the property of *homogeneity* as formulated in Vendler (1967). This definition is the one which will be adopted in the present work. The discussion of the homogeneity approach is presented in section I.4.2.

I.4.1.   *The 'end-point' approach*

The first important question that arises in the discussion of telicity concerns the nature of the objects for which telicity is defined. There are, in principle, two options: one can choose between eventualities, the ontological entities, or predicates, the linguistic entities. If the choice is made in favour of eventualities, then the notion of an end point intuitively makes sense. If, however, we want to have a linguistic definition of telicity, it should apply to linguistic entities, i.e. predicates. But what is the end point of a predicate? The question, it seems, does not really have a reasonable answer. As a result, all approaches to telicity that define the notion in terms of end points, are *forced* to adopt the first alternative, i.e. to say that eventualities themselves can be telic or atelic. This, however, seems to lead to a deadlock, as will be explained below.

Let me first illustrate the conceptual side of the problem with an example from Russian. Suppose that the notion 'telic' is taken to refer to a certain property of eventualities, namely, their having an end point. For a language like Russian it means that perfectivity is considered a linguistic device to reflect this property in the language. As I have shown above, there is some evidence that supports this hypothesis at first sight. In Russian traditional linguistics this line is taken by, for instance, Russian AG and Maslov (1959). AG claims that any verb that denotes an eventuality with a potential temporal boundary can have both perfective and imperfective forms. The information of a potential end-point of a situation is, therefore, a part of a lexical meaning of a verb. When a perfective form is chosen, it signals that the end point of the eventuality described has been reached. For Maslov (1959), the possibility of having perfective and imperfective forms also depends on the inherent temporal properties of the eventuality a particular verb refers to. This means that whenever an eventuality has reached an end point, we expect a perfective form to feature in a sentence describing this eventuality. On this view, stative verbs like 'hate' or 'believe' have to be given some kind of special status in order to

explain the absence of their perfective forms with telic meaning.[15] For instance, one can stop hating one's colleague, but there would be no perfective form in Russian to refer to the end point of hating.

Moreover, there is another general question. Crucially, the notions of progress or development *never* exclude the possibility of having a point of termination. Therefore, whenever some idea of temporal progress is conveyed, an eventuality referred to has a potential end-point. In that case, in principle, a verb used in the correspondent predicate will have a perfective form with the telic meaning. But this is not true, even as a first approximation. Consider, for instance, two Russian verbs discussed above, i.e., *čitat'* (to read) and *iskat'* (to look for). They clearly do not belong to the class of 'statives',[16] but only the first one has a perfective form with the meaning 'to read something up to the end, to finish reading something', i.e. a perfective form referring to a telic eventuality:

(19)   a. *Petja pročital knigu, no ne zakončil eë
               Peter PF-read-pst.sg.masc. book, but not PF-finish-pst.masc.sg her
               '*?Peter read the book, but didn't finish it*'
          b. Petja poiskal knigu, no ne našel eë, poetomu ne perestal iskat'.
               Peter PF-look.for-pst.sg.masc. book, but not PF-find-pst.sg.masc. her,
               therefore not PF-stop-pst.sg.masc. look.for-INF
               '*Peter looked for the book but didn't find it, therefore he didn't stop searching*'

How can this difference be explained? The usual approach would be to say that the process of reading a book has (or at least can have) a *natural* end point, namely, the point when the item that has been read is read up to the end. In this case, by analogy, finding the item one has been looking for should also provide a natural end point for the search. Nevertheless, a perfective form with this meaning does not exist.[17] Of course, this does not mean that the process of looking for something can never be successfully or 'naturally' terminated.[18] Therefore, a very precise and accurate

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[15] Actually, it is a common opinion that statives cannot have perfective forms at all. Smith (1997), for instance, explicitly says that "the perfective is not available to statives in… Russian.." (ibid.:70). I will show in the next chapter that this is not the case. Full-fledged perfective statives do exist in Russian and they show all the major properties of both stativity and perfectivity.

[16] At least, not in the sense that verbs like *hate* or *believe* are stative.

[17] As example (19)b shows, there is a perfective form of the verb *iskat'*, i.e. *po-iskat'*. The *po*-forms in general will be discussed in much detail in chapter II, the reason being that they present a very big and important class of counterexamples to the telicity approach. At this point it suffices to say that the perfective form of *iskat'*, for instance, takes a durative adverbial, i.e. it behaves exactly like the imperfective form with respect to telicity:

(i)   Petja po-iskal knigu čas/*za čas
            S. PF-look.for-pst.sg.masc. book-ACC hour/*in hour
            'Peter looked for a book for an hour'

[18] A potential objection here would be that the item which is being looked for is not really affected by the process of looking and therefore cannot 'measure out' the situation of looking for something. Even if one finds this kind of reasoning conceptually plausible, it is shown in Jackendoff (1996) that there is no strict correspondence between affectedness of a direct object and telicity. I will shortly come back to this point

definition (rather than *intuition*) of the 'natural end point' is needed in order to show that the predicate '*look for a book*' would not have a 'natural end point' in the same sense as the predicate '*read a book*'. Apparently, it is not trivial to give such a definition, since it is still mysteriously absent in the literature.[19] This is a serious problem, which arises immediately when we start talking about eventualities 'out there' with potential, natural or any other kind of end points. As long as the notion of end point is undefined, one cannot define telicity in this approach either.

There is, however, a large amount of work on aspect explicitly or, more often, implicitly assuming the existence and naturalness of end points. The concept comes around by different names: telicity (Depraetere 1995, Filip 1993, Smith 1997 and earlier), (set) terminal point (Krifka 1989, Comrie 1976), boundedness (Declerck 1979). It has also been suggested (Depraetere 1995, Dahl 1981) that a distinction between *inherent (intended) endpoint* and a *temporal boundary* should be made. Depraetere (1995) puts it this way:

> "(A)telicity has to do with whether or not a situation is described as having an inherent or intended endpoint; (un)boundedness relates to whether or not a situation is described as having reached a temporal boundary"

She further tries to give a description of what it means to be telic and bounded (Depraetere 1995:2-3):

> "A clause is telic if the situation is described as having a natural or an intended endpoint which has to be reached for the situation as it is described in the sentence to be complete and beyond with it cannot continue. Otherwise it is atelic."
> "A sentence is bounded if it represents a situation as having reached a temporal boundary, irrespective of whether the situation has an intended or inherent endpoint or not".

An immediate objection to these definitions is that they merely describe intuitions. They do not help us to solve the problem illustrated above with the 'natural endpoints' of the eventualities described by the Russian predicates *čitat'* (to read) and *iskat'* (to look for).

Depraetere also tries to establish some kind of correspondence between agentivity (or intentionality) and telicity. However, it is easy to show that there is no such correlation. Agentive predicates can easily be atelic, as in (20)a, and, vice versa, telicity does by no means require the presence of agent in (20)b:

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later in this section.

[19] To the best of my knowledge, Hatav (1993) is the only work that provides a clear definition of an end point. However, this is different from the definition one would need here. The reader is referred to Hatav's paper for details.

(20)   a. Mary worked (for hours)
           b. The vase fell (in 2 seconds)

It has also been argued in Dowty (1979) and Verkuyl (1993) that agentivity is a separate criterion that applies 'across the board': all the aspectual classes are represented by both agentive and non-agentive predicates, no matter if the temporal-aspectual classification is rather coarse or fine-grained.

    Finally, let me just repeat some of the examples Depraetere has chosen to exemplify the notions of telicity and boundedness:

(21)   Sheila deliberately swam for 2 hours   (telic)
(22)   Judith played in the garden for an hour   (bounded)

It is hardly possible to see what exactly the distinction between these two examples is. Thus, (21) is said to be telic, i.e. it should have 'a natural or an intended endpoint which has to be reached for the situation as it is described in the sentence to be complete and beyond which it cannot continue', according to Depraetere's own definition of telicity. Does the adverbial modification by 'for 2 hours' make sure that the swimming cannot continue beyond that period of time? Suppose it does, then (22) should also be telic. Moreover, it remains absolutely unclear how exactly 'deliberately' in (21) helps for the purposes of telicity. Would the value of a sentence change into 'atelic' if Sheila had lost track of time and did not mean to swim for so long? It might become possible to answer at least some of these questions if the notions of 'telicity' and 'boundedness' were given some kind of semantic content. Otherwise, any attempt to differentiate between them is meaningless. Once again, this discussion illustrates why using the description of intuitive differences in the linguistic analysis is not enough to actually build up an analysis: defining the basic notions is essential.

    Another work that should be mentioned here is Tenny (1989, 1994). She proposes an aspectual theory which aims to provide some principles which map lexical conceptual structure and syntactic representation. The mapping rules are based on, constrained and regulated by aspectual properties. A verb at the lexical level has an 'aspectual grid' with a number of aspectual roles that are assigned to its arguments. A set of linking principles governs the mapping of an argument with a certain aspectual role onto a specific syntactic position. The main aspectual notion in Tenny's theory is *measuring out*, which basically substitutes for the property of 'having a (natural) end point'. When an eventuality is measured out, it is delimited, or, in the terminology adopted here, telic. The crucial role in the process of 'measuring out' is played by an argument of a verb, which is assigned the aspectual role 'measure'. A special linking principle makes sure that the 'measure' argument is mapped into a direct object position (Tenny's 'measuring out constraint of direct internal arguments'). Thus, the main burden of determining the aspectual properties of an eventuality lies on the direct internal argument. External arguments, however, are excluded from the process of measuring out and delimiting an eventuality. This

is also warranted by a special constraint, 'the non-measuring out constraint on external arguments'.[20] Tenny's analysis is not going to be discussed in much detail, but a short overview suffices to pinpoint the major problems with it.

One problem for this analysis has been noticed by Jackendoff (1996). He points out that Tenny's predictions with respect to direct internal argument and external argument do not appear to be empirically correct. Consider the following examples (taken from Jackendoff 1996:312-313):

(23)   John chewed/kneaded/jiggled/spun the loaf of bread for/*in an hour
(24)   John entered the icy water (very slowly)

In (23), the direct object does not measure out the event and, therefore, does not make it telic. (24) exemplifies the case where the only argument that might be seen as a measuring out one is mapped into the subject position.[21]

Furthermore, and most crucially, Tenny does not explicitly define the notion of 'measuring out'. This brings us back to the problem with end points discussed above, since introducing a new concept of 'measuring out' is by no means a solution to the problem, but just a substitution of one term by another. A theory based on an informal undefined notion simply cannot provide a rigorous account of aspectual phenomena.

Declerck (1979) argues that the only way to provide an adequate definition for telicity (boundedness in his terms) is to associate it with the notion of termination. He uses adverbial modification and the progressive tests, which were discussed above, along with the property of homogeneity, which will be discussed at length in the next section, to differentiate between bounded and unbounded situations. Declerck realizes that boundedness as it stands cannot be a property of a sentence or a predicate – it does not make much sense to say that a sentence has a terminal point. His conclusion is that '(un)boundedness is a characteristic of situations assigned to them by propositions'(Declerck 1979:765). However, he ultimately comes back to discussing the properties of the eventualities themselves, although the access to eventualities, as it were, is mediated by propositions, i.e. linguistic expressions. A sentence, then, can *represent* an eventuality as telic or atelic. His claim is that 'bounded expressions represent situations as terminating' (ibid.). This looks like an elegant way of eliminating the notion of eventuality from the aspectual analysis, but, nevertheless, there are problems with this formulation.

A question arises when a sentence presents an eventuality as bounded, i.e., the temporal boundaries are explicitly indicated in a linguistic expression, but at the same time the eventuality itself does not have to be bounded. Logically, it can continue beyond given temporal boundaries. In other words, this is a case of a discrepancy between the properties of a linguistic expression and the properties of an eventuality it describes. Consider (25):

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[20] Tenny also discusses the role of indirect internal arguments for providing delimitedness and has a special constraint for them, but I will not discuss it here.

[21] More examples of this kind are discussed in Filip (1993:129-136).

(25)   From 1994 till 1996 John lived in New York.

This sentence does not *entail* that John does not live in NY any longer. In spite of the fact that the sentence presents a situation as temporally delimited, the eventuality described by a predicate 'live in New York' does not have to terminate, and (25) can be continued as follows:

(26)   Then he applied for a job in California, but was turned down. So, he stayed in New York for the next ten years.

Moreover, the sentence in (25) does pass the progressive and the homogeneity tests, as illustrated below in (27) and (28) respectively:[22]

(27)   From 1994 till 1996 John was living in New York → From 1994 till 1996 John lived in New York
(28)   From 1994 till 1996 John lived in New York → From 1994 till 1995 John lived in New York

(27) illustrates that the inference from the past progressive to the simple past is licensed, and (28) shows that the predicate has the homogeneity property. These are both properties of atelic predicates. Thus, with respect to the tests, (25) behaves as a sentence with an atelic predicate.

      The example in (25) illustrates a very important point. First of all, it shows that even in the presence of an overt temporal expression that bounds the eventuality, or, rather, makes its linguistic description 'bounded', it does not necessarily mean that the properties and the temporal limits of an eventuality itself are changed or influenced in any other way. Secondly, (25) and the telicity test results in (27) and (28) also show that the properties of a *predicate itself* do not change in the presence of such a temporal expression either. I will come back to this last point in chapter III.

      However, there is a case where sentences with the predicates with explicitly defined temporal boundaries (i.e. predicates modified by temporal expressions of the type 'from 1994 till 1999') behave differently from sentences not featuring such expressions. Hatav (1997) shows that duration adverbials like 'for a year' and some other temporal adverbials influence the behaviour of sentences with atelic predicates in discourse. In particular, it has been observed (Hinrichs 1986, Kamp 1979, Partee 1984, Kamp & Rohrer 1983 and others) that in narrative discourse, sentences with telic predicates create a sequence interpretation, while sentences with atelic ones are interpreted as temporally overlapping. Hatav (1997:46) demonstrates that atelic sentences with *delimiters*, i.e. expressions such as 'for a year' or 'from 1994 till 1999', are also able, on a par with telic ones, to give rise to a sequence:

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[22] These are the tests that I introduced in section I.2 and that Declerck also uses in his paper.

(29)   [It was a lovely performance]. The entertainer told jokes for fifteen
             minutes, sang for half an hour and danced for another half an hour.

The sequence interpretation would not arise without delimiting expressions:

(30)   [It was a lovely performance]. The entertainer told jokes, sang and danced.

These examples show that linguistic expressions can, indeed, present an eventuality
as delimited or not, but it does not necessarily mean that the 'real' temporal
properties of eventualities themselves are influenced by or derived from the
properties of these expressions. In other words, there are eventualities and there are
linguistic expressions describing these eventualities, and both entities can get
temporally bounded *independently* of one another. It seems that the 'end point'
approach, whatever form it takes, inevitably gets stuck with this mismatch.

       The last couple of examples that I gave are going to be further discussed in the
subsequent presentation. I will come back to the particular phenomenon of sequence
interpretation created by sentences with delimiters later on in chapter III and chapter
IV. I will use these and similar examples to illustrate one of the crucial points to be
argued in the present work: duration adverbials do not change the type of the
predicate that they modify.

       To summarize briefly what has been said about the telicity approach so far, I
have shown that defining telicity as a notion which applies to eventualities leads to a
serious conceptual and empirical problem. The conceptual side of the problem is
that telicity as a property of eventualities crucially relies on an intuitive, vague and
undefined notion of a (natural) end point. If, however, the notion of telicity means
just being temporally bound and applies to predicates, then the mismatch with
delimiting expressions arises. The described eventualities should, in principle, have
an end point, which is explicitly specified by a linguistic expression, but, on the
other hand, they do not have to terminate: the situation may go on beyond the
determined temporal limits. The only way to overcome this problem is to look for a
different, strictly semantic (i.e. truth-conditional) definition of telicity, which is done
in the 'homogeneity' approach, discussed in the following section.

I.4.2. The 'homogeneity' approach

Vendler's (1967) work on verb classes turned out to have an enormous influence on
the linguistic research in the domain of aspect and aspectual classes.[23] There is
hardly any work on or related to aspect that does not refer to Vendler's well-known
classification. What varies is the attitude of the authors, ranging from full acceptance
to sharp criticism. Vendler (1967) distinguishes between 4 basic types of verbs:[24]

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[23] These are often called Aktionsarten in another terminological trend. Note that this is not exactly the
same use as in the Slavic aspectual tradition (see section I.1).
[24] Vendler keeps the distinction at the lexical level, therefore the use of the term 'a class of verbs' is fully

states (*love, hate, etc.*), activities (*walk, play, etc.*), achievements (*arrive, win, etc.*) and accomplishments (*build, break, etc.*) on the basis of their temporal properties. The underlying idea behind this classification is to create 'time schemata' which are somehow implied by the use of different classes of verbs. The original version of Vendler's 'time schemata' was explicitly formulated in terms of quantification over times (Verkuyl 1993:34,fn.25). The criteria that the classification is based on are extensively discussed both in Vendler's essay and in a lot of subsequent work on this subject (Dowty 1979, Hinrichs 1985, Verkuyl 1993 and many others). There are two basic criteria: continuity (*vs.* punctuality) and homogeneity (*vs.* heterogeneity). Vendler uses the temporal property of continuity or duration in time to distinguish between states and achievements, which are evaluated at time *instants*, from activities and accomplishments, which are evaluated at time *stretches*. This property is important for progressive formation in English. Accomplishments and activities ((31)a,b) sound natural in the progressive, whereas states and achievements ((31)c,d)are either ungrammatical or require some special kind of interpretation:

(31)   a. John is building a house.
           b. John is playing.
           c. *John is loving his mother.
           d. ??John is winning the race.

According to the second criterion, the property of *homogeneity*, achievements and accomplishments can be grouped together as opposed to states and activities. The essence of the homogeneity property, as Vendler (1967:101) states it, is the following:

> "running… goes on in time in a homogeneous way; any part of the process is of the same nature as the whole. Not so with running a mile or writing a letter; but they [i.e. the predicates 'run a mile' or 'write a letter', O.B.] proceed to a terminus which is logically necessary to their being what they are."

The resulting classification is represented in the table below:

	homogeneous	*non-homogeneous*
continuous	activities (e.g. *drive a car*)	accomplishments (e.g. *build a house*)
punctual	states (e.g. *hate a colleague*)	achievements (e.g. *recognize a friend*)

Note that the homogeneity property distinguishes between states and activities, on the one hand, and achievements and accomplishments, on the other. These are

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justified in this context.

exactly the classes of predicates that have been distinguished by the basic telicity tests in section 1. The generalization is given in (32):

(32)   A predicate is telic iff it is not homogeneous.

Homogeneity does not exclusively apply to the verbal predicates. The distinction between mass and count nouns is usually made on the basis of the same property. Therefore, homogeneity can be viewed, in a very general way, as a property determining some characteristics of the referential qualities of a predicate. The parallels between verbal and nominal domains that illustrate this point are very well known and are often drawn in the literature (Bach 1982, Hinrichs 1985, Krifka 1989, Jackendoff 1987, Filip 1993, Dowty 2002 and many others). Atelic predicates in the verbal domain and mass predicates in the nominal domain refer homogeneously. For example, both parts and sums of the denotation of 'milk' are also referred to as 'milk', whereas a part of 'a glass of milk' is not the same as 'a glass of milk' and the sum of the denotations 'a glass of milk' plus 'a glass of milk' is referred to not as 'a glass of milk', but 'two glasses of milk'. A similar situation occurs in the domain of verbal expressions. Some parts and sums of running are also described as running, but parts of 'build a house' cannot be described by the same predicate and the sum of the denotations of 'build a house' and 'build a house' is not referred to by 'build a house', but by 'build two houses'. The reader should keep in mind that homogeneity in this approach is not perceived as an attribute of the objects of the real world, but as a characteristic of the linguistic entities, i.e. nominal and verbal predicates.

To sum up, for each predicate P, P is homogeneous iff all 'parts' and 'sums' of the interpretation or denotation of P can be also described as P. This definition is sometimes broken up into two parts: divisibility and cumulativity. The former is the statement about the 'parts' of the denotation of P, the latter says that the 'sums' of P should also be denoted by P. A stricter version of homogeneity (adopted in, e.g., Filip 1993) requires both divisibility and cumulativity conditions to be met.

There are some interesting questions, which arise with respect to the notion of homogeneity; these by no means point to a fatal problem, but rather bring up some important issues. One of them is that, for instance, noun phrases like *a ribbon* or *a chain* seem to be divisible, at least to a certain point, but not cumulative. Still, grammatically they behave like non-homogeneous noun phrases. Another interesting fact is that some quantified noun phrases show one of the properties (i.e. divisibility or cumulativity), but not both. For instance, noun phrases with quantifiers such as *a lot of, many, much* seem to be cumulative, but not divisible. Conversely, quantifiers like *a few, little* yield divisible, but not cumulative predicates. Unfortunately, quantificational issues fall outside the scope of this thesis.

In this work, I will follow Bennett & Partee (1972/78) in assuming the definition of homogeneity for verbal predicates based on their *subinterval property*. Bennet & Partee's (1972/78:14) definition is given below:

"Subinterval verb phrases have the property that if they are the main verb phrase of a sentence which is true at some interval of time *I*, then the sentence is true at every subinterval of *I* including every moment of time in *I*"

Crucially, this definition applies to linguistic expressions, not eventualities or any other ontological entities. One and the same eventuality from the observed reality can be referred to in different ways. Suppose, for instance, that Mary's jogging on Monday morning is a fact of real life. On different occasions and depending on the intentions of a speaker, this eventuality can be described by a number of different sentences, some of them can be those listed in (33) below:

(33)   a. Mary was jogging this morning
           b. Mary ran 4 miles this morning
           c. Mary had a nice jog this morning
           d. Mary jogged in the morning

The eventuality that is brought to our attention is the same, but the linguistic expressions that are used to describe it are different. It is very unlikely that the properties of the eventuality itself differ depending on what kind of a predicate is chosen. The predicates, on the other hand, are different. In particular, they differ in one important way, namely, with respect to homogeneity. Homogeneity distinguishes the predicates in (33)a and (33)d, which have this property from the ones in (33)b and (33)c, which lack this property.
     A definition of homogeneous predicate P is given in (34):

(34)   P is homogeneous iff $\forall x, \forall y (P(x) \& (y \subset x) \rightarrow P(y))$

The temporal character of Vendler's criteria that were originally used to distinguish between different classes of verbs opens up the possibility to develop a classification of predicates in terms of temporal, or interval semantics. Interval semantics evaluates sentences directly at temporal intervals (in other words, it takes *time* as a primitive notion) and formulates all the temporal properties of predicates and sentences in terms of certain properties of temporal intervals. I will adopt this framework here, but postpone discussing it in detail until Chapter IV.
     There are some problems with Bennett & Partee's definition of a subinterval property that have not gone unnoticed.[25] Suppose we are talking about a sentence '*Mary ran in the park (yesterday)*'. Abstracting away from the temporal adverb for a moment, if this sentence is true at an interval I, then it should, according to Bennet & Partee's definition, also be true at every moment *t*, such that *t*∈*I*. This is too strong a requirement, as has been often pointed out in the literature: a moment of

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[25] See, for instance, Hinrichs (1985), Verkuyl (1993), Filip (1993), Kamp & Reyle (1993) and the literature cited therein. For the elaboration and development of analyses along the same lines Bennett & Partee(1972/78) see Taylor (1977), Dowty (1979), Reinhart (1986, 2000).

time is not sufficient to state the truth conditions of a sentence. If we manage to single out some moment at which Mary starts lifting her left leg from the ground, we just do not know whether Mary is running or walking or jumping. This is why we have to pick a *relevant* interval of time (Dowty 1979). For a period of time smaller than this minimal interval, the predicate can be neither true no false, it just does not apply, therefore it remains undefined with respect to the truth value. Actually, the predicates that can be evaluated at temporal instants are only stative predicates, i.e. those that do not involve any temporal change. For instance, *like classical music* or *believe in miracles* are such predicates.[26] It is not the case, however, that these predicates cannot be evaluated at temporal intervals. This means that if the particular definition of Bennett & Partee is re-written in such a way that it does not require a verb phrase to be true at every moment of time included in a given interval, it should be applicable to all predicates. I will provide a modified definition in chapter IV, but the notion of a minimal interval has to be valid in any case, and defined as an interval for which the truth conditions can, in principle, be stated.

Furthermore, activity predicates like 'run/walk in the park', 'breathe', etc. seem to allow for gaps. If Mary, for instance, was running in the park for two hours, she might have got tired at some point and had sat on a bench for, say, 10 minutes. Was she running in the park at this particular 10-minute interval? The answer is no. Or, in other words, the sentence '*Mary ran in the park for two hours*' turns out to be false, if the interval we want to evaluate the sentence at coincides with a 10-minute break that Mary had. This is another problem with Bennett & Partee's definition. Intuitively, however, even if there is a gap of 10 minutes within the interval of 2 hours, the sentence '*Mary ran in the park for two hours*' should be true if the running activity indeed took place. A theory based on the notion of homogeneity should account for this fact.

Consider now our example sentence with the temporal modifier 'yesterday': *Mary ran in the park yesterday*.[27] Suppose 'yesterday' denotes an interval I, then we can pick two subintervals, I' and I'' such that $I' \subseteq I$ and $I'' \subseteq I$. Assume further that I' corresponds to 'yesterday before dinner' and I'' to 'yesterday after dinner'. We know that Mary went running in the morning, so the running period is included in I', i.e. our sentence is true at I' and false at I''. Then what is the value of a sentence at I? If it is true at I, then, according to Bennett & Partee's definition, it is also true at every subinterval of I. But we know that there is an interval, namely, I'', such that the sentence is false at this interval. Notice again, that we do not seem to have any problem as to stating the truth conditions of a sentence: the sentence '*Mary ran in the park yesterday*' should come out true even if Mary did not spend the whole day running in the park. But we would definitely not want to say that the sentence '*Mary ran in the park*' should be true at *every* subinterval of I(yesterday).

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[26] Dowty (1979) actually suggests that the relevant property of this class of predicates is that they are stage-level, in the sense of Carlson (1977/1980).
[27] The problem I am going to discuss now was also raised by Kamp & Reyle in a different context (K&R, 1993:500-504).

My purpose here has been to mention the problems with the definition given in Bennett & Partee (1972/78). I will come back to the last two issues discussed above in chapter IV, where I intend to show for the same example, i.e. *Mary ran in the park yesterday*, that solutions to these problems can be provided.

I.5. *Concluding remarks*

Let me now give a brief summary of this chapter and provide certain 'missing links' between some of the sections.

In this chapter, I have introduced the notion of telicity, one of the central notions in the field of aspect. The validity of the telic/atelic distinction has been demonstrated with the help of the telicity tests: the adverbial modification test, the conjunction test and the progressive test. Homogeneity has been introduced as a property of predicates and a way of testing homogeneity was provided in section I.2.

However, telicity as a linguistic notion also has to be defined in strict semantic terms. Generalizing over a lot of work on aspect, I have made a distinction between the end-point approach and the homogeneity approach to the definition of telicity. The former was discussed in section I.4.1 and it was pointed out that this approach has to rely on ontological entities, i.e. eventualities, in one way or another. I have argued against the direct application of the notion of telicity to eventualities. If, however, this approach defines telicity over predicates, as opposed to eventualities, and takes the properties of a predicate to reflect the properties of an eventuality described by this predicate, then it gets stuck with a mismatch. Specifically, if a predicate is modified by a temporal delimiter, it supposedly becomes telic because a delimiting expression would provide an explicit end-point. However, it is only the eventuality itself that can get an end point, not a predicate describing it. The problem is that modification of a predicate by a temporal delimiter does not necessarily mirror the fact that the eventuality described by this predicate is also temporally delimited and cannot continue beyond the boundaries specified by a linguistic expression. Thus, I have rejected the end point approach because its ontological orientation leads to a deadlock.

One of the most important issues of this work has already been touched upon, namely, it was pointed out that the presence of temporal delimiters does not influence the properties of a predicate. The results of the telicity tests point to the conclusion that if a predicate was originally atelic, the modified predicate remains atelic. Further discussion of this issue is postponed until chapter III.

In section I.4.2, I have argued for adopting a definition of telicity in terms of the homogeneity property, following the proposal of Bennett & Partee (1972/78), among others. I pointed out some tricky problems that arise for this approach and the explanation which I still owe to the reader is postponed until chapter IV. The question now is how does Verkuyl's theory of compositional aspectuality, discussed in section I.3, and the homogeneity approach relate to each other?

Although Verkuyl (1993) extensively criticizes the homogeneity approach, in my view the two theories are not incompatible. On the contrary, in a sense they complement each other. Verkuyl's argument against the homogeneity approach is that the subinterval property, since it is defined for predicates or verb phrases, does not leave any room for a compositional analysis of telicity and, therefore, blocks any further insights into our understanding of the aspectual matters. This is exactly where one important fundamental difference between the homogeneity approach (e.g., Bennett & Partee 1972/78) and Verkuyl's (1972, 1993) system lies.

The difference concerns the basic principle underlying the aspectual structure of a predicate at the VP level. The first principle is homogeneity, which defines the distinction between telic and atelic predicates. However, homogeneity is not a structural notion in the sense that it does not *explain how* the interaction of the properties of a verb and its complement leads to the formation of one or another type of a predicate, but the result of this interaction is *stated* at the VP level in terms of homogeneity. This is the main point of Verkuyl's criticism of the homogeneity approach. Verkuyl's system makes use of another principle, *additivity* or *cumulativity*, which allows for a clear explanation of *how* the aspectual structure is built up. Let me explain this in more detail.

As has been already said, in Verkuyl's system the process of aspectual formation starts out with a lexical verb. For the purposes of illustration, I abstract away from the class of [-ADD TO] verbs, which is a class of non-dynamic verbs. The process of deriving aspectual structure of a VP is schematically represented in (35) below:

(35)   Verkuyl's aspectual composition:

      a. $V_{[+\text{ADD TO}]}$

      b. $V_{[+\text{ADD TO}]} + \text{COMP}$

      c. $V_{[+\text{ADD TO}]} + \text{COMPL}$

      d. $V_{[+\text{ADD TO}]} + NP_{[-\text{SQA}]}$

      e. $V_{[+\text{ADD TO}]} + NP_{[+\text{SQA}]}$
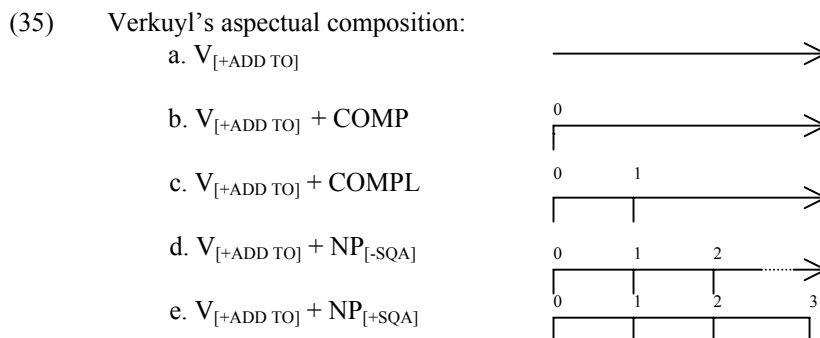
Technically, the building of aspectual structure begins with a simple representation of dynamicity ((35)a). The information provided by a complement of a given verb starts to be taken into account at the stage of (35)b: depending on the properties of the complement, the scale is divided into some parts that are represented by indices 1, 2, etc. This process goes on as in (35)c, but note that the part of the structure in (35)b is maintained and is still 'available' in (35)c. In principle, if a complement does not provide any information about where the procedure of adding structure to the basic dynamic scale in (35)a stops, as it happens with, for instance, bare plural

complements (*eat sandwiches)*, the process of building up the structure can virtually go on infinitely long, as depicted in (35)d. If, however, a complement conveys cardinality information like in *eat three sandwiches*, the structure building stops when the aspectually relevant information provided by a complement is fully accommodated. At this point, a *discrete unit,* a VP, is formed ((35)e). This unit corresponds to a telic predicate. It is not possible to look into its internal structure anymore. In a way, a telic VP can be compared with a natural number, which stands for a real interval or represents an interval in real numbers, but is not an interval *itself.* A process that leads to the formation of a telic predicate is *cumulative*, the structure is being *added to* the basic lexical information provided by a verb.

The homogeneity approach, as opposed to Verkuyl's theory, only looks at (35)d or (35)e, and states the relevant differences between predicates at this level. It operates with intervals, which makes it harder to express the idea of a *discrete unit* which corresponds to a representation of a telic predicate in Verkuyl's system. Nevertheless, Verkuyl's theory can be compared to the homogeneity approach at the predication level. If this level is the point of our perspective, both theories yield the same empirical results:[28] a predicate which comes out telic in one framework, will necessarily be telic in the other and vice versa.

This result allows me to make the following choice: I will maintain the notion of homogeneity as a diagnostic property of telicity, keeping in mind the objections put forward by Verkuyl (1993). However, the construction of predicational/telicity aspect is not going to be the focus of this thesis. Thus, I will abstract away from (which does not mean forget about) the process of telicity *formation*. The synthesis of the two approaches, namely, Verkuyl's compositional theory and the homogeneity approach, can *both* explain how a telic predicate is formed *and* provide the required diagnostics and the definition of telicity. A precise execution of this idea, however, has to be examined and worked out in a separate study.

To conclude, in this chapter I have provided the definition of telicity that will be used in the present work. The next logical step is to apply this definition to Russian data and investigate the role of telicity in the aspectual system of Russian. This is going to be done in the next chapter.

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[28] This observation was confirmed by Henk Verkuyl (p.c.).

Chapter II

Perfectivity in Russian in terms of telicity: testing the hypothesis.

In the previous chapter, some tests were presented to show the difference between telic and atelic predicates. This chapter starts with discussion of the tests used for distinguishing between perfective and imperfective aspectual classes in Russian (section II.1). After the tests have been established, I move to the main issue that will be the focus of this chapter: the relation between perfectivity and telicity. Essentially, it comes down to the question whether perfectivity can be defined in terms of telicity. The hypothesis formulated and tested in section II.2 is that perfectivity and telicity are equivalent. If this hypothesis were right, the main implication would be that perfectivity in Russian is a way to derive or mark telicity. In order to prove the equivalence between perfectivity and telicity, two relations should hold: *telicity → perfectivity* and *perfectivity → telicity*. The first implication is examined in section II.2.1, the second one is discussed in detail in section II.2.2. On the basis of the empirical data, I am going to argue that telicity is neither a sufficient nor a necessary condition for perfectivity. In the last section, the results achieved in this chapter are compared to the results of Schoorlemmer's (1995) study of the Russian aspectual system. Although Schoorlemmer's conclusions are similar to mine, my interpretation of the data will be different from hers.

II.1. How to differentiate between perfective and imperfective: the tests.

Although native speakers of Russian usually do not have any problem establishing the aspectual value of any given verbal form, it is useful to demonstrate that there are linguistic tests that can be used to show the distinction between perfective and imperfective forms. Just as in the previous chapter, where the telicity tests were discussed, now I would like to provide the diagnostics that illustrate different behavior of the perfective and imperfective aspectual classes in Russian. Two such diagnostics are discussed here: participle formation, which is morphologically determined by aspect, and complement clauses of 'phase' verbs.

II.1.1. *Participle formation and passive formation*

The participle formation test is usually considered important as one of the possible ways to identify the aspectual value of a verb form morphologically (e.g., AG, Zaliznjak 1977). There are four prenominal participial forms in modern Russian, classified according to two criteria: tense and voice. The table below presents the four participial forms of the verb *uvolit' (PF) – uvol'njat' (IMP),* 'to fire, sack'. The relevant derivational morphemes are italicized in each participial form.

Table 1: Participle forms in Russian

	active	**passive**
present	uvol'nja-*jušč*-ij *firing*	uvol'nja-*em*-yj *being fired*
past	uvol'nja-*vš*-ij uvoli-*vš*-ij *having fired*	uvol-*en*-nyj *having been fired*

As can be seen from the table, the past active participle form can be derived from both imperfective and perfective verb stems, whereas all the other participial forms are derived from either perfective or imperfective verb forms. The present participles, both active and passive, are always imperfective. The derivation of present passive participles is further limited to transitive verbs and, moreover, is very idiosyncratic. The past passive participle formation is restricted to perfective aspect only and is also conditioned by the transitivity requirement. This is the only participial form that can be used in a predicative position, while all the other participles can only function as nominal modifiers:

(1)   a. *Director byl uvol'njajuščij sekretaršu.
            director was fire-act.part.pres.-sg.masc secretary-ACC
            '*The director was firing the secretary*'
         b. *Director byl uvol'njavšij sekretaršu.
            director was fire-act.part.pst.-sg.masc. secretary-ACC
            '*The director have been firing the secretary*'
         c. *Sekretarša byla uvol'njaema direktorom
            secretary was-fem. fire-pass.part.pres.-sg.fem director-INSTR
            '*The secretary was being fired by the director*'
         d. Sekretarša byla uvolena[1] direktorom
            secretary was-fem. fire-pass.part.pst.-sg.fem director-INSTR
            '*The secretary was fired by the director*'

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[1]This is a so-called 'short' form of the participle, which has to be used in predicative position. If a participle is used as a modifier, a full form, presented in table 1, is always used. The form of the participle does not really matter at this point: the examples in ((1)a), ((1)b) and ((1)c) are ungrammatical anyway.

The aspectual restrictions that I am going to concentrate on here are those which concern the derivation of present active participles (PAP) and past passive participles (PPP).

PAP formation is limited to the imperfective verb stems:

(2)   IMP   PF
    a.   strojaščij   ??postrojaščij   '*building*'
    b.   govorjaščij   *skazaščij   '*talking*'
    c.   sporjaščij   *posporjaščij   '*arguing*'

This generalization is quite solid.[2] In standard speech, perfective PAPs have to be replaced by the past active perfective forms:

(3)   Studenty, *pročitajuščie   / pročitavšie   vsju literaturu,
         students *PF-read-act.part.pres.-pl / PF-read-act.part.pst.-pl all literature,
         budut osvoboždeny   ot   testirovanija.
         will-pl exempt-PPP-pl   from   testing
         '*The students who (will) have read all the literature will be exempted from taking a test*'

As for the PPP forms, they are usually derived from perfective verb stems.

(4)   IMP   PF
    a.   *govorenyj   skazannyj   '*having been said*'
    b.   *stroenyj   postroennyj   '*having been built*'

Schoorlemmer (1995) provides an extensive discussion of the PPP formation rule, which says that these participles can only be derived from perfective verb stems. She shows that this rule is not very strict and allows for exceptions. In particular, there are PPPs derived from imperfective stems and they are commonly accepted, also, for instance, by AG. In contrast, not all perfective verb forms allow for PPP formation.

As for the imperfective PPP forms, Schoorlemmer gives an overview of the literature where this issue is discussed, in addition to a list of fully acceptable imperfective PPPs such as *bityj* 'beaten', *šityji* 'sown', *krytyj* 'covered'.[3]

There are, on the other hand, perfective forms that disallow PPPs. Schoorlemmer's generalization regarding those perfectives that do form a PPP is the following: a PPP can be derived from a given perfective verb form only if two conditions are met, namely:[4]

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[2] There is certain minimal variation in acceptability of some of the perfective PAPs (for instance, (2)a), but these forms are considered strictly ungrammatical by the traditional analyses (e.g., Zaliznjak 1977). I am going to follow normative grammar in this respect.
[3] See Schoorlemmer (1995), section IV.1.3.1.
[4] I give a coarse-grained summary of this part of Schoorlemmer's dissertation here, the reader is referred to the book itself for more details and explanations.

- a perfective verb is transitive;
- a perfective verb is *paired*.

Perfective forms that do not fulfill these two requirements block the PPP formation. The notion of a *paired* verb is new and has not been mentioned yet, so let me explain which verbs are called 'paired'.

According to Schoorlemmer's theory, there are two classes of perfective verbs in Russian. The first class consists of those verbs which are lexically marked as [+pf]. Schoorlemmer calls them Aktionsart verbs. These verbs are discussed in section II.2.2.

The second group of perfectives is composed of perfective verb forms that derive the telicity of a predicate compositionally, which means that they obey all the rules of Verkuyl's (1993) compositional theory, discussed in section I.3. I have given some examples in chapter I to illustrate that the perfective predicate *pročitat' knigu* (PF-read a/the book) is, according to the telicity tests, telic. In the theory of Russian aspect that Schoorlemmer (1995) advocates, these verb forms do not have a lexical aspect feature. The analysis she proposes is syntactically oriented and relies on the presence of the aspectual functional projection AspP in the syntactic structure, which can project a [+pf] or [-pf] feature, depending on the telicity value of a given predicate. A verb form with no specified lexical aspect feature has to match the aspectual feature of the AspP. Thus, the verbs for which the aspectual feature is not lexically determined, can occur in both perfective and imperfective aspectual forms, and are, therefore, called *paired* verbs. Some examples of paired verbs are given in (5) below:

(5)   IMP   PF
    a.   delat'   sdelat'   *'to do, to make'*
    b.   čitat'   pročitat'   *'to read'*
    c.   zapisyvat'   zapisat'   *'to write down'*

Coming back to the PPP formation test, the class of perfective verbs that does allow for PPP formation is now identified as a class of transitive paired perfective verb forms, which is also the class, as Schoorlemmer argues, that derives compositional telicity.

Depending on a verb's ability to derive a PPP form, it can (or cannot) occur in a periphrastic passive construction. Russian has two types of passives: so-called reflexive passive and periphrastic passive. The latter is formed by the auxiliary *byt'* 'to be' and a PPP form. Obviously, if a PPP form does not exist, the periphrastic passive cannot be formed. Thus, the passive formation is restricted to exactly the same class of perfective verb forms that allow for the PPP formation: a class of transitive paired perfectives. Examples of the periphrastic passives with some of the verbs from (5) are given in (6):

(6)　　a. Statja byla pročitana vsemi studentami
　　　　article be-pst.sg.fem. PF-read-PPP-sg.fem. all-instr students-instr
　　　　'*The article was read by all the students*'
　　b. Upražnenija byli sdelany akkuratno
　　　　exercises be-pst.pl. PF-do-PPP-pl. accurately
　　　　'*The exercises were done accurately*'

Let me conclude this section by evaluating the consistency of the participle formation test. The formation of the present active participles (PAP) and the past passive participles (PPP) is aspectually restricted: the former class is derived from imperfective verbs, the latter mainly from the perfective verbs. The rule concerning the PAP formation is accurate and can be safely used as a diagnostic for imperfectivity, whereas PPP formation is not a very reliable test, since it allows for counterexamples in both directions. In particular, there are both PPPs derived from the imperfective verbs and perfective verbs that disallow PPPs. The PPP formation test can therefore only be used as an additional test for perfectivity, but the conclusion about the aspectual value of a given verb form cannot be drawn only on the basis of the presence or absence of the corresponding PPP form.

II.1.2. Complements of 'phase' verbs

The group of *phase* verbs (*aspectualizers* in Verkuyl's (1999) terminology) consists of verbs like *načinat'/ načat'* 'to begin IMP/PF', *prodolžat'/prodolžit'* 'to continue IMP/PF', *zakančivat'/zakončit'* 'to finish IMP/PF', *perestavat'/perestat'* 'to stop IMP/PF'. They can take either an infinitival or a nominal complement:

(7)　　a. Petja načal čitat' knigu
　　　　Peter begin-PF-pst.sg.masc. read book-ACC
　　　　'*Petja began to read a book*'
　　b. Petja načal knigu
　　　　Peter begin-PF-pst.sg.masc. book-ACC
　　　　'*Petja began a book*'

I will disregard nominal complements, since they are not relevant for my purposes. As for the infinitival complements, irrespective of the aspectual value of a phase verb itself, only imperfective forms can be used in a complement clause:[5]

(8)　　a. Petja načal čitat' /*pro-čitat' lekciju
　　　　Petja begin-PF-pst.sg.macs. read-IMP/*PF-read lecture
　　　　'*Peter began to give a lecture*'

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[5] For a possible syntactic account of this phenomenon see Schoorlemmer (1994).

      b. Petja zakončil stroit'/*postroit' dom
         Petja finish-PF-pst.sg.masc. build-IMP/*PF-build house
         '*Peter finished reading a book*'
      c. Petja prodolžal guljat'/ *poguljat'
         Petja continue-IMP-pst.sg.masc. walk/*PF-walk
         '*Peter continued walking*'

This is a very solid generalization and there are no exceptions to it.[6] Thus, I adopt this diagnostic for telling apart perfective and imperfective forms in the complement position of the phase verbs: only imperfective forms are grammatical in this context. In the further presentation of the Russian data, I will always implicitly rely on this test, although I am not going to provide a relevant example for every perfective form that appears in the text, in order to show that the form should indeed be classified as perfective.

II.2.   *Testing the hypothesis:*
perfectivity defined in terms of telicity

Taking into consideration that the telicity-based approach is one of the most well-known approaches to aspect nowadays, it is worthwhile to investigate hypothesis H1, given below, with respect to Russian:

H1:   The definition of perfectivity can be given in terms of telicity, i.e.
         telicity $\leftrightarrow$ perfectivity.

The hypothesis is given as an iff-condition, which implies that two generalizations are supposed to hold: all perfective predicates should come out telic and all telic predicate should be perfective. In other words, the only way to provide a *definition* of perfectivity in terms of telicity is to show that telicity is both a sufficient and a necessary condition for perfectivity. If at least one of these two requirements is not met, then hypothesis H1 is proven to be false. However, I think it is important to assess both parts of the generalization in question in any case, given the popularity of the telicity approach and the importance of the notion of telicity for aspectual issues.

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[6] Interestingly, one of the phase verbs, i.e. *načat'/načinat'* 'to begin PF/IMP', was also used as an auxiliary verb for the periphrastic future tense formation in Old Russian. In modern Russian, the periphrastic future tense with the only possible auxiliary, *byt'* 'to be' is also restricted to the imperfective aspect:
     (i)   Petja budet čitat'/*pročitat' etu knigu zavtra
            Petja will-3sg read-IMP/*PF-read this book-ACC tomorrow
            '*Petja will read this book tomorrow*'
I will discuss tenses in both modern and Old Russian in more detail in chapter V.

II.2.1. Telicity → perfectivity?

Let me first examine the statement that telicity always entails perfectivity. The actual generalization that I am going to check here is whether imperfectivity entails atelicity. These two statements are equivalent in a bivalued system, where either P or ¬P always holds.

The most well-known cases that are usually cited in order to show that this is not the case and the entailment *telicity→perfectivity* does not hold are those in (9) and (10). Schoorlemmer (1995) unifies them under the heading 'telic presupposition'. Consider the examples:

(9)   Ja ne pojdu v kafe, ja (uže) ela.
        I not PF-go-pres.1sg. in café, I (already) eat-IMP-pst.sg.fem
        '*I'm not going to a café, I have already eaten*'.
(10)   a. Kto zalezal na čerdak?
           who climb-IMP-pst.sg.masc. on attic
           '*Who climbed to the attic?*'
        b. Petja otkryval okno, poėtomu v komnate tak xolodno.
           Petja open-IMP-pst.sg.masc. window, therefore in room so cold
           '*Petja opened the window, that's why it's so cold in the room*'

In (9), the perfective form *po-ela* (PF-eat-pst.sg.fem.) could also be used without inducing any discernible change in the meaning of the sentence. Sentences in (10) with the imperfective forms strongly favor the reading in which there is nobody in the attic in (10)a, or the window is closed in (10)b at the present moment. If, however, a perfective form is used in either (10)a or (10)b, the implication is that the person who climbed into the attic is still there or the window is still open. The last pair of examples illustrates the use of the imperfective aspect that is often called 'annulled result' (cf. Smith 1997).

Both (9) and (10) are usually said to be telic on the basis of the following intuition: the sentences refer to completed eventualities, i.e. the eventualities described in these examples are understood to be over, not holding any longer:

(11)   a. Ja (uže) ela → Ja ne em (sejčas)
           I already eat-IMP-pst-sg.fem → I not eat-IMP-pres-1sg (now)
           '*I have (already) eaten → I am not eating (now)*'
        b. Petja otkryval okno → Petja ne otkryvaet okno (sejčas)
           Peter open-IMP-pst.sg.masc. window →
           Peter not open-IMP-pres-3sg window (now)
           '*Peter opened the window → Peter is not opening the window (now)*'

The fact that these sentences can refer to completed eventualities is not, in principle, very informative. Given the right context, any sentence in the past tense can do so, as was shown in chapter I. However, given the tests for and the definition of telicity in chapter I, all we have to do now is to see if imperfective predicates come out telic

according to these tests. First of all, in order to be telic, they have to be non-homogeneous. Nevertheless, they pass the homogeneity test:

(12)   a. Ja ela s 2 do 2.30 → Ja ela s 2 do 2.15
               I eat-IMP-pst.sg.masc.from 2 till 2.30. →
               I eat-IMP-pst.sg.masc. from 2 till 2.15
               '*I was eating from 2 to 2.30 → I was eating from 2 to 2.15*'
           b. Petja otkryval okno polčasa → Petja otkryval okno 15 minut.
               Peter open-IMP-pst.sg.masc. window half-hour →
               Petja open-IMP-pst.sg.masc. window 15 minutes
               '*Peter was opening/opened the window for half an hour →*
               Peter was opening/opened the window for fifteen minutes'

Note that in the examples above the reading that the imperfective gets is progressive. As I already mentioned in chapter I, this is a possible, but not the only reading that imperfective in Russian gets, as the following example illustrates:

(13)   Julja ela tri buterbroda
           Julia eat-IMP-pst.sg.fem. three sandwiches-ACC
           a. *Julia was eating three sandwiches (when I came in)*
           b. *Julia has (aready) eaten three sandwiches (and this is why she is not*
               hungry now)
           c. *Julia ate three sandwiches (every day)*

The English translations show, that for a Russian imperfective sentence taken out of context, three readings are available: a progressive reading ((13)a), a present perfect reading ((13)b) and a habitual reading ((13)c). Habituality is outside the scope of the present thesis, therefore I will not comment on this use of progressive in subsequent presentation.

       The homogeneity test always brings up a progressive reading. All progressive predicates are semantically atelic (see chapter IV), hence the homogeneity entailment is expected to hold for imperfectives with a progressive meaning.

       For another reading that is attributed to the Russian imperfective[7], namely, the English present perfect, it does not appear to be possible to check the homogeneity by directly applying the homogeneity test. The reason for it is that neither present perfect nor imperfective with this meaning easily accepts temporal modifiers like *between 3 and 4 p.m.* or *from 4 till 5 p.m.*:

(14)   a. ?*I have (already) eaten between 2 and 3 p.m.
           b. ?*Ja uže ela s 2 do 3.
               I already eat-IMP-pst.sg.masc.from 2 till 3

---

[7] The analysis of imperfective aspect that I propose in this work is given in chapter V.

Thus, imperfective predicates pass the homogeneity test, but only in their progressive use.

In what follows, I will try to concentrate on the present perfect use of imperfective. As I will show in chapter IV, there is no reason to assume that present perfect in English influences the telicity properties of a predicate. In particular, I am going to illustrate that the results of the progressive entailment are derivable from the definitions of (a)telicity, whereas the configuration for present perfect will be given in different terms. Given that my definitions are going to be formulated in general, not language-specific terms, this means that the present perfect reading of imperfective sentences in Russian should bring out the 'real' telicity type of a predicate. This is not the case with progressive, which does influence the telicity properties of a predicate it applies to.[8] Therefore, it is important to emphasize the present perfect reading of imperfective when it comes to the telicity tests.

Let me now move to the other telicity tests. The first test that was adopted in the previous chapter is the adverbial modification test. Its application to imperfectives gives mixed results:

(15)   a. Petja uže peresekal ėtot kanal za polčasa/*polčasa
         Peter already cross-IMP-pst.sg.masc. this channel in
         half-hour/*half-hour
         '*Peter (has) already crossed this channel in half an hour/*for half an hour*
         hour
      b. Petja uže putešestvoval po Indii *za dva goda/dva goda
         Peter already travel-IMP-pst.sg.masc. PREP India *in two years/two
         years
         '*Peter has already traveled/was already travelling in India*
         in two years/for two years'

As the above examples illustrate, imperfective forms can be compatible with both *in-* and *for an hour* type of adverbials. It should be mentioned here, that *polčasa* '(for) half an hour' in (15)a is not ruled out completely, but it, again, brings out the progressive interpretation and the translation for the Russian sentence in this case should be '*Peter has already been crossing this channel for half an hour*'. Crucially, though, *za polčasa* 'in half an hour' is grammatical in this sentence. Its use here shows that in another interpretation, the one of present perfect, the imperfective predicate in (15)a patterns with telic predicates, according to the results of the test.

As for (15)b, there is no possible interpretation of this sentence that could allow the use of the frame adverbial, i.e., *za dva goda* 'in two years'. Hence, (15)b is an example with the imperfective atelic predicate.

The examples that are more often found in the literature are sentences with imperfective verb forms that take *in an hour* type of adverbials and get a habitual interpretation, like, for instance (16):

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[8] The reader is referred to chapters IV and Vs, in particular, sections IV.3 and V.3, where I provide the definitions and give the explanations for the statements I just made in this paragraph.

(16)   Petja peresekal ėtot kanal za polčasa
           Peter already cross-IMP-pst.sg.masc. this channel in half-hour
           '*Peter used to crossed this channel in half an hour*'

This sentence is interpreted habitually, as suggested by *used to* in the English
translation. This interpretation is, indeed, available for almost all imperfective
sentences with a 'frame' adverbial. Since habituality is outside the scope of this
thesis, I am going to restrict myself to the so-called 'episodic' readings, like in
(15)a. In the presence of *uže* 'already', an episodic reading is easy to obtain.
      Thus, the results of the adverbial modification test are interpreted as follows:
there are both telic (e.g., (15)a) and atelic (e.g.,(15)b) imperfective predicates in
Russian.
      Consider now the results of the conjunction test:

(17)   a. Petja uže peresekal ėtot kanal v ponedel'nik i vo vtornik
             Peter already cross-IMP-pst.sg.masc. this channel in Monday and in
             Tuesday
             '*Peter already crossed this channel on Monday and on Tuesday*'
          b. Petja uže putešestvoval po Indii v maje i v ijune
             Peter already travel-IMP-pst.sg.masc. PREP India in may and in june
             '*Peter was already traveling/traveled in India in May and in June*'

The interpretation of these sentences is not the same. (17)a can only be interpreted
as describing two separate eventualities of crossing the channel, one of which took
place on Monday, another one on Tuesday.[9] This means that the predicate in (17)a
behaves like telic. If a predicate is atelic, the interpretational ambiguity between two
separate eventualities and one ongoing eventuality is expected, but the latter does
not seem to be available for (17)a. As for (17)b, it can be easily interpreted as
describing an ongoing activity of Peter's traveling in India for two months. The
results we obtain here are the same results that the adverbial modification test
provided: one imperfective predicate behaves like telic, another one like atelic. The
same predicates are classified as telic/atelic in both tests. The conclusion at this
point is that imperfective predicates can be both telic and atelic.
      There is, however, one more test, the progressive entailment test, that should be
applied to imperfective predicates. The results of this test are given below:

(18)   a. Petja peresekal etot kanal kogda načalsja
             Peter cross-IMP-pst.sg.masc. this channel when PF-begin-pst.sg.masc.
             štorm -/→ Petja uže peresekal etot kanal
             storm -/→ Peter already cross-IMP-pst.sg.masc. this channel
             '*Peter was crossing this channel when the storm began* →
             Peter already crossed this channel'

---

[9] In the English translation of this sentence, simple past tense has to be used because of the restrictions
present perfect imposes on possible temporal modification.

    b. Petja putešestvoval po Indii kogda načalas'
      Peter travel-IMP-pst.sg.masc. PREP India when PF-begin-pst.sg.fem.
      vojna → Petja uže putešestvoval po Indii
      war → Peter already travel-IMP-pst.sg.masc. PREP India
      '*Peter was travelling in India when the war began →*
      Peter already travelled in India'

Let me first explain the entailment in (18)a, since this is probably not the first natural reaction of any native speaker. In (18)a, the 'progressive' interpretation of is very prominent. If the sentence could only get a progressive reading, the entailment would be trivial: *Peter was crossing this channel when the storm began → Peter was crossing this channel'*.[10] The interpretation that blocks the entailment in (18)a is the 'present perfect' reading induced by *uže* 'already'. This reading is harder to get, but, nevertheless, it can be obtained. If I had to literally translate the example into English, I would have to say '*Peter was crossing this channel when the storm began -/→ Peter has crossed this channel'*. This entailment is blocked in English and the intuition is exactly the same in Russian. Since past progressive → present perfect is not a 'standard' set-up of the test, the English translations in (18) are given in their traditional form.

    Thus, the sentence in (18)a behaves like a sentence with a typical telic predicate, because it blocks the entailment from past progressive to simple past. This result is always achieved with telic predicates. This is also consistent with the results of the other telicity tests for the imperfective predicate *peresekat' kanal* 'cross a/the channel'. As for (18)b, its predicate shows all the signs of being atelic. (18)b licenses the entailment to imperfective past in Russian, on both progressive and present perfect readings. Hence, this predicate should be classified as atelic.

    To sum up the results thus far, I have just shown that, according to the telicity tests, imperfective predicates in Russian are not always atelic. The only way to demonstrate it was to bring out the non-progressive interpretation of Russian imperfective. It was done with the help of adverb *uže* 'already', which can be successfully used in English with present perfect, simple past or progressive. Needless to say, there are differences in the interpretation of a sentence, in both English and Russian, depending on which of the possible meanings this sentence gets. Since *uže* 'already' in Russian makes it easier to access all the readings of an imperfective sentence, it was used in the examples above. The relevant reading in the examples above that one should focus on is the present perfect interpretation.

    The only test that does not support the results achieved in this section is the homogeneity test. I attribute this to the fact that temporal modification of the type used to test homogeneity always leads to a progressive meaning of a given imperfective sentence, blocking all the other readings. Since progressive predicates are always atelic, the results of the homogeneity tests are expected in this case.

    My conclusion concerning the telicity status of imperfective predicates in Russian is that the predicates with imperfective verb forms semantically can be both

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[10] Cf. the discussion in section I.2.

telic and atelic, as shown in (15) through (18). This means that the entailment *imperfective → atelic* does not hold. This amounts to saying that telicity does not entail perfectivity. Therefore, the first part of the tested hypothesis, H1, has just been refuted, i.e., (19) holds:

(19)   Telicity -/→ Perfectivity

Thus, in principle, H1 can already be discarded. It has just been proven that telicity is not a sufficient condition for perfectivity, hence a strict definition of perfectivity in terms of telicity (i.e. as an iff-condition) cannot be given.

    However, I think it is important to examine the second part of the hypothesis as well, especially because it is a more common assumption that perfectivity does indeed entail telicity. I am going to discuss this issue in section II.2.2. Before turning to this question, let me show that the compositional theory of Verkuyl (1998) captures the generalization in (19).

II.2.1.1 Compositional telicity in Russian-1

In Verkuyl's theory of compositional aspectuality, what matters for the derivation of telicity is the property of dynamicity, lexically determined for verbs, and the structural properties of internal arguments.[11] If a dynamic verb is combined with a [+SQA] argument, the resulting predicate is telic.

    Let us go back to English for a moment. It has been shown on many occasions that the lexical properties of a verb cannot, in the majority of cases, be the only factors that play a role in the derivation of a telic predicate. Verbs that are usually classified as accomplishments in the sense of Vendler,[12] such as *to build*, do not necessarily give rise to the telicity of a predicate. As has often been noticed in the literature (Verkuyl 1972, Hinrichs 1986, Dowty 1979, and many others), the interpretation of this type of verbs easily shifts between accomplishments and activities. It is the information brought in by their internal arguments that is the crucial source for obtaining a telicity value at the predicate-argument level.

    Consider now a contrast between English and Dutch:

(20)   a. *Judith ate three sandwiches* when I came in
            b. *Judith at drie boterhammen* toen ik binnenkwam
                Judith ate three sandwiches when I in-came
            c. *Judith at drie boterhammen op* toen ik binnenkwam
                Judith ate three sandwiches up when I in-came

---

[11] As I have mentioned in chapter I, I am going to abstract away from the contribution of external arguments to the derivation of telicity, but will always keep the external argument [+SQA], so it does not influence the argumentation.
[12] Vendler's classification is given in section I.4.2.

Compare the italicized parts of these sentences. (20)a shows that English fully obeys the laws of compositional telicity and if a [+ADD TO] verb is combined with a [+SQA] argument, the value of a predicate is telic. It is indicated by the interpretation of the whole sentence in (20)a, which can only be understood as describing two sequential eventualities, i.e. Judith's eating sandwiches followed the speaker's coming in. The Dutch counterpart of (20)a, (20)b, combined with a when-clause, can allow for a progressive interpretation in which the eventualities described by the predicates 'eat three sandwiches' and 'come in' overlap.[13] In order to rule this interpretation out, some additional morphological means have to be employed in Dutch, such as a particle *op* ('up') in (20)c, so that the predicate becomes clearly telic and the two reported eventualities are interpreted as a sequence (i.e. first I come in, then Judith ate three sandwiches). This suggests that in the Dutch example (20)b, the value of the predicate is 'indeterminate' with respect to telicity, although its ingredients are exactly the same as in the English example (20)a: a [+ADD TO] verb and a [+SQA] internal argument.

In order to capture the difference between Dutch and English exemplified in (20), Verkuyl (1998) suggests the following modification of the compositional analysis: in addition to the notion of path, which I have discussed in section I.3, the *actualization* function is introduced, which determines which part of the path structure is going to be actualized in real time. There is a semantic operator, ASP, with a set of possible values $\{\subset, \subseteq, =\}$ which, when a path is formed, gives further 'instructions' as to whether the whole path is actualized. If this is the case, the value '=' is chosen for the operator, and only in this case can a predicate be telic. Actualization of a part of the path structure is determined by the value '$\subset$' and leads to atelicity, and, finally, if the value of the operator is '$\subseteq$', either the whole path or a proper part of it can be actualized and the operator allows for both telic and atelic predicates. The compositional model, enriched by such an operator, is meant to capture the aspectual phenomena of Germanic, Romance and Slavic languages in a uniform way. Languages may differ with respect to the value they choose to use as the 'default' one, given that all the other requirements for the compositional telicity are met.

In this analysis, the difference between English and Dutch described above is captured by saying that the default aspectual value of ASP in Dutch is '$\subseteq$', which says that the entire path can be actualized, but it does not have to be the case. In English, however, the default value of the aspectual operator is '=', which accounts for definitely telic interpretation of the English sentences in the simple past tense, like in (20)a.

English also makes use of the '$\subset$'-value of ASP, the value introduced by the progressive operator ((21)a). Dutch has a periphrastic progressive construction with the same properties ((21)b) as the English progressive. A progressive predicate can never be telic, as shown in (21) with the help of the adverbial modification test:

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[13] As reported in Verkuyl (1993:9)

(21)   a. Judith was eating three sandwiches for an hour/*in an hour
           b. Judith was urenlang /*in een uur drie boterhammen aan het eten

Let me now turn to Russian. The first thing that comes to mind is that in Russian, imperfective sentences in the past tense should be compared to the past tense sentences in Dutch, given the conclusion in the previous section that imperfective predicates in Russian can be both telic and atelic. Note, however, that the translation of (20)b into Russian does not allow for any other reading except a progressive one, as opposed to the Dutch example:

(22)   Julja ela tri buterbroda kogda ja vošla
           Julia eat-IMP-pst.sg.fem. three sandwiches-ACC when I
           PF-come.in-pst.sg.fem.
           '*Julia was eating/*ate/*had eaten three sandwiches when I came in*'

This, however, has to do with the fact that another reading that imperfective in Russian can get is comparable to the English present perfect, which is not allowed in the context provided by (20)/(22) (cf. example (13) above). Contextual information is essential for determining the reading of a sentence with an imperfective predicate. Telicity, on the other hand, is an intra-sentential notion, it is a property of the predicate and not of the whole sentence, so that in order to establish the telicity value, context is irrelevant. Thus, if Russian data are captured by Verkuyl's theory, it seems that the value of the ASP operator for imperfective in Russian should really be comparable to the default value of this operator in Dutch.

This is exactly Verkuyl's (1998) proposal concerning Russian (as well as Slavic languages in general). In Russian, ASP has two possible values, perfective and imperfective. The imperfective operator is characterized as '⊆'. This means that no strict correspondence between imperfectivity and telicity is predicted by this system: imperfective predicates can be telic, which corresponds to the full actualization of a path, or atelic, i.e. the path structure does not to be fully actualized. Verkuyl's imperfective operator is permissive enough to allow for all the readings of (13). This result is the same as the one obtained earlier in this section by applying different telicity tests to imperfective predicates. Thus, there is one more indication that Verkuyl's theory and homogeneity theory give the same empirical results.

However, there is one case when the predictions of these two theories differ. Verkuyl (1998) argues that the perfective operator in Russian is associated with the '=' value of ASP. In other words, the perfective operator requires full actualization of a path. Then, whenever the perfective aspect is used, Russian is predicted to behave like English (20)a or Dutch (20)c, which amounts to saying that the perfective operator requires a predicate with a perfective verb to be telic. Whether this is a correct prediction will be examined in the next section.

II.2.2. Perfectivity → telicity?

Since the correlation *telicity* → *perfectivity* has already proven to be wrong, the other part of generalization H1, i.e. *perfectivity* → *telicity*, cannot save the validity of H1, even if it holds. Nevertheless, I consider it important to check both entailment relations between perfectivity and telicity. One reason for doing this is that an assumption that perfective predicates are always telic is a rather common one. Another reason, which is more important for my purposes, is that establishing the precise relation between perfectivity and telicity (or the absence of it) is essential for the claim I am going to advocate in the subsequent chapters: (a)telicity and (im)perfectivity are aspectual phenomena of different levels and should be treated independently.

In chapter I, where the telicity tests were introduced, I presented some Russian examples, which showed that perfective marking on a verb can yield a telic interpretation of a predicate. The examples are repeated below for convenience:

- Adverbial modification

(23)   Petja pro-čital knigu za čas/ *čas
        Peter PF-read-pst.sg.masc. book-ACC in hour/ *hour
        '*Petja read a book in an hour/*for an hour*'

The predicate in (23) with a perfective verb form is compatible with the frame adverbial but not with the duration adverbial, which is typically the case with telic predicates.

- Conjunction test

(24)   Petja pročital knigu v ponedel'nik i vo vtornik
        Peter PF-read-pst.sg.masc. book-ACC in Monday and in Tuesday
        '*Peter read a book on Monday and on Tuesday*'

The interpretation of (24) with a perfective form of the verb is unambiguous: it describes two different reading eventualities. This result is achieved only with telic predicates.

- Progressive test

(25)   Kogda pozvonila mama, Petja čital knigu -/→ Petja pro-čital (etu) knigu
        When PF-call-pst.sg.fem mom, Peter read-IMP-pst.sg.masc. book -/→
        Peter PF-read-pst.sg.masc. (this) book
        '*When mom called, Peter was reading a book -/→ Peter read a book*'

(25) shows that the sentence with the perfective verb form in the main clause does not pass the progressive entailment test, exactly like the telic predicates in English.

In the light of these examples, an immediate suggestion that comes to mind is that perfectivity in Russian is, indeed, a device to mark/derive telicity. However, I am going to argue against this hypothesis on the basis of the evidence presented in the next section.

II.2.2.1. Perfectivity is not a telicity marker

In chapter I, a precise definition of telicity based on the homogeneity property was given. Should all the predicates with perfective verb forms be telic, they are also predicted to be non-homogeneous, according to this definition. And since there is a way to test whether this is the case, this is what I am going to do next.[14]

I have given some examples with perfective verb forms that pass the telicity tests above. It can be also shown that the predicate that was used in these examples, *pročitat' knigu* (PF-read book) is not homogeneous:

(26)   Petja pro-čital knigu za čas -/→ Petja pro-čital knigu za polčasa
         Peter PF-read-PST.sg.masc. book-ACC in hour -/→
         Peter PF-read-PST.sg.masc. book-ACC in half-hour
         '*Peter read a book in an hour -/→ Peter read a book in half an hour*'

The group of examples that I am going to present now constitutes a solid counterargument to the hypothesis that perfectivity of the verb form guarantees the telicity of a given predicate.

         A. 1st group: *po-* and *pro-* verbs.

Let me discuss the class of perfective forms of verbs that are derived by means of prefixes *po-* and *pro-*.[15] This is a very productive derivational pattern, especially with intransitive verbs. These prefixes are often called 'temporal' since they bring about some sense of duration. The second prefix, *pro-*, normally requires the presence of an explicit duration temporal expression. Consider now the examples:

(27)   a. Petja iskal   knigu
            Peter look.for-IMP-pst.sg.masc. book-ACC
         b. Petja po-iskal   knigu
            Peter PF-look-pst.sg.masc. book-ACC
            '*Peter looked for a book*'

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[14] See also Borik (2000), where the same question is addressed.
[15] Schoorlemmer (1995) classifies perfective forms with these two prefixes as 'temporal Aktionsart verbs'. Prefix *pro-* does not always have a temporal meaning, relevant for the discussion of the counterexamples in this section. Cf, for instance, (23) through (26), where *pro-* does not have a temporal interpretation and the predicate is telic.

(28)   a. Petja sidel   v tjur'me 5 let   / do starosti
               Peter sit-IMP.pst.sg.masc. in prison   5 years   / till old.age
          b. Petja pro-sidel   v tjur'me 5 let   / do starosti
               Peter PF-sit.pst.sg.masc.   in prison   5 years / till old.age
               '*Petja was in jail for 5 years/ until he was old*'

In both (27) and (28), an imperfective verb form is given in the examples in (a) and a perfective form in (b). In the examples that follow, I am going to parenthesize a prefix to show that there is no difference between a perfective and imperfective form with respect to a given test/property.

First of all, it can be demonstrated that the perfective predicates with *po-* and *pro-* verbs pass the homogeneity test, similar to the predicates with their imperfective counterparts:

(29)   a. Petja (po)iskal knigu polčasa → Petja (po)iskal knigu 15 minut
               Peter (PF-)look.for-pst.sg.masc. book-ACC half-hour →
               Peter (PF-)look.for-pst.sg.masc. book-ACC fifteen minutes
               '*Peter looked for a book for half an hour*→
               Peter looked for a book for fifteen minutes'
          b. Petja (pro)sidel   v tjur'me pjat' let →
               Peter (PF-)sit-pst.sg.masc. in prison five years →
               Petja (pro)sidel   v tjur'me dva goda
               Peter (PF-)sit-pst.sg.masc. in prison two years
               '*Peter was in jail for 5 years*→ *Peter was in jail for 2 years*'

According to the definition of telicity adopted in this work, it means that the predicates just tested, although featuring perfective verb forms, do not come out as telic. The homogeneity test above shows that these predicates all have the homogeneity property and should, therefore, be classified as atelic. The result is further supported by the rest of the telicity tests:

- Adverbial modification

Previous examples have already shown that the type of adverbial that *po-* and *pro-* perfectives take is the 'for an hour' type, which is compatible with atelic, not telic predicates.

(30)   a. Petja (po)iskal   knigu polčasa/*za polčasa
               Peter (PF-)look.for-pst.sg.masc. book-ACC half-hour /*in half-hour
               '*Peter looked for a book for half an hour/*in half an hour*'
          b. Petja (pro)sidel   v tjur'me pjat' let/*za pjat' let
               Peter (PF-)sit-pst.sg.masc. in prison five years/*in five years
               '*Peter was in prison for five years*'

- Conjunction test

(31)   a. Petja (po)iskal knigu v ponedel'nik i vo vtornik
               Peter (PF-)look.for-pst.sg.masc. book-ACC in Monday and in Tuesday
               '*Peter looked for a book on Monday and on Tuesday*'
           b. Petja (pro)sidel   v tjur'me v maje i v ijune.
               Peter (PF-)sit-pst.sg.masc. in prison in May and in June
               '*Peter was in prison in May and in June*'

(31) illustrates that there is no difference in interpretation depending on the verbal aspect: all sentences with perfective and imperfective predicates can be interpreted as reporting on one ongoing eventuality, which is the interpretation available only for atelic predicates.

- Progressive entailment

(32)   a. Kogda pozvonila mama, Petja iskal knigu →
               When PF-call-pst.sg.fem mom, Peter look.for-IMP-pst.sg.masc. for a
               book
               → Petja po-iskal knigu
               Peter PF-looked for book
               '*When mom called, Peter was looking for a book* →
               Peter looked for a book'
           b. Kogda priexala   mama, Petja sidel   v tjur'me pjat' let →
               When PF-arrive-pst.sg.fem mom, Peter sit-IMP-pst.sg.masc. in prison
               five years →
               Petja pro-sidel v tjur'me pjat' let
               Peter PF-sit-pst.sg.masc. in prison five years
               '*When mom arrived, Peter was in prison for five years* →
               Peter was in prison for five years'

The progressive entailment test in (32) shows that, independently of the aspectual value of a verb form, all the sentences pass the test, which confirms the atelicity of the predicates of these sentences.

Thus, all the tests yield one and the same result: given the semantic definition of telicity in terms of (non-)homogeneity and the telicity tests, the predicates with the perfective *po-* and *pro-* forms do not show any sign of being telic. If this kind of uniformity is achieved, there can hardly be any reason to doubt the results. What these examples just showed is that perfective marking on a verb does not guarantee the telicity of the whole predicate.

Schoorlemmer (1995:101) points out that the predicates with perfective *po-* and *pro-* express some limited duration, so that the eventuality that is referred to is actually terminated, which is typical for sentences with telic predicates, but not with atelic ones. She provides the following example to illustrate this intuition:

(33)   a. Vasja proslušal muzyku do utra
             Vasja PF-listened-to music-ACC until morning
             '*Vasja spend all night listening to music*'
         b. Vasja igral upražnenija do utra
             Vasja played-IMP exercises until morning
             '*Vasja was playing exercises until morning*'

Schoorlemmer's claim is that (33)a implies that Vasja is no longer listening to music, whereas in (33)b the implication that Vasja is no longer playing the exercises is absent. Her intuition about (33)b is right, but in the case of (33)a, we are dealing only with a weak inference, not a strict entailment. This sentence, for instance, can be continued as follows:

(34)   Vasja proslušal muzyku do utra i vse ešče
         Vasja PF-listen-pst.sg.masc. music until morning and yet still
         sidel v naušnikax kogda probilo polden'.
         sit-IMP-pst.sg.masc. in earphones when PF-strike-pst.sg.neut. noon
         '*Vasja listened to the music until the morning and still had his earphones
         on when it struck noon*'

However, one should not rely on the inferences of completion that certain predicates bring out. It was argued in chapter I that sentences in past tense often refer to what we understand as 'completed' eventualities, irrespective of the telicity properties of a predicate of a sentence. For the Russian sentence in (33)a, this means that its status should by no means be determined by a weak completion implicature, given that more accurate ways of testing the telicity of the predicate in this sentence are available. This predicate must be classified as atelic.

     At this point, a note on the prefix *pro-* should be made. As I said earlier, the verbs derived by means of this prefix usually require explicit reference to the duration of the eventuality described.[16] Thus, the sentence below is ungrammatical without such reference:

(35)   Petja prosidel v tjur'me *(pjat' let)
         Peter PF-sit-pst.sg.masc. in prison *(five years)
         '*Peter was in prison *(for five years)*'

Given that the presence of a temporal expression in (35) is obligatory, one might wonder if the expression 'five years' can be considered a proper argument of the verb *pro-sidet'* (PF-sit-INF). However, the obligatoriness of this expression is a rather weak argument in favour of its status: as will be shown in section II.2.2.2, internal arguments in Russian can be optionally realized (e.g.,(66), (68)), so there is no strict relation between the obligatoriness of a given expression and its argument

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[16] This is a sloppy formulation, especially in the light of the forthcoming proposal that temporal modifiers of this type do not limit the duration of an eventuality itself. See chapter IV for the refinements.

status. Moreover, there is no obvious selectional relation between the temporal expression and the verb. This type of modification is not restricted to *pro-* verbs, the expression 'five years' in (35) is just the common duration *for*-adverbial in Russian, which can be combined with all atelic predicates. Finally, *pro-* verbs are compatible with the whole range of syntactically different temporal expressions with no consequences for the semantic interpretation. This is illustrated below on an example with the transitive verb *ždat'* 'to wait':

(36)   Petja (pro)ždal mamu dva časa/ s polunoči do utra/ očen' dolgo
          Peter (PF-)wait-pst.sg.masc. mom-ACC two hours / from midnight till morning/very long
          '*Peter waited for mom for two hours/from midnight till the morning/very long*'

Considering the range of possibilities which can be used to express the temporal specification, it becomes even more implausible that these temporal expressions are actually the realizations of an internal argument of a verb: to the best of my knowledge, there is no other case of a possible variation in the argument structure where the range of alternatives varies from a numeral phrase (suppose this is what *dva časa* 'two hours' syntactically is) to a plain adverb like *dolgo* 'long, for long time'. Finally, all arguments have to be assigned a theta-role to be interpretable, but there is no conceivable theta-role in the existing inventory (i.e. agent, patient, theme, experiencer, etc.) that could possibly be assigned to a temporal expression in (35) or (36). To invent a special theta-role for this particular case in Russian is an absolutely unmotivated step.

     Schoorlemmer (1995) also argues against the argument status of temporal modifiers in sentences with *pro*-verbs. If these temporal expressions were true arguments, they would be expected to undergo passivization and relativization with *kotoryj* 'which'.[17] Moreover, if the *pro*-verbs had a direct internal argument, they would be expected to allow for secondary imperfectivization, according to Schoorlemmer's analysis. None of these predictions is borne out. (37) shows the ungrammaticality of the passive periphrase of (36), (38) further illustrates that the relativization of a temporal phrase is impossible and (39) is an ungrammatical example with an alleged secondary imperfective counterpart of *pro-ždat'*:

(37)   *Dva časa byli proždany Petej
            two hours be-pst.pl PF-wait-PPP-pl Peter-INSTR
(38)   *S polunoči do utra, kotorye Petja proždal mamu
             from midnight till dawn which Peter PF-wait-pst.sg.masc. mom-ACC
(39)   *Petja prožidal mamu každyj večer očen' dolgo
            Peter wait-SI-pst.sg.masc. mom-ACC every night very long

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[17] See Schoorlemmer (1995), section IV.1.5 for more details.

Compare the results of testing the transitive perfective verb form *pro-čitat'* (PF-read):

(40)   Kniga byla pročitana ot korki do korki
          book be-pst.sg.fem. PF-read-PPP-sg.fem from crust till crust
          '*The book was read from the beginning till the very end*'
(41)   Kniga, kotoruju Petja pročital
          book which Peter PF-read-pst.sg.masc.
          '*The book, which Peter read*'
(42)   Petja pročityval vse knigi po neskol'ku raz
          Peter read-SI-pst.sg.masc. all books PREP several times
          '*Peter read all the books several times*'

Thus, I conclude this interlude about the status of the temporal expressions with *pro*-verbs by saying that there is extensive evidence against their argument status.

It is time to go back to the main topic of this section, the discussion of the second part of H1. The question that was posed at the beginning of this section was whether telicity is a necessary condition for perfectivity.

In principle, the tested entailment can be refuted now, since there is a whole systematic class of exceptions to it, as has been just shown. As a last piece of evidence, confirming that the class of *po-* and *pro-* verbs is not a weird class of something like semi-perfectives or very special perfectives, I illustrate, in (43)b and (43)c, that these verbs are ruled out in the complement position of the 'phase' verbs, just like 'regular' perfectives ((43)a):

(43)   a. *Petja načal pročitat' knigu
             Peter PF-begin-pst.sg.masc. PF-read-INF book-ACC
             '*Peter began to read a book*'
          b. *Petja prodolžal prosidet' v tjur'me
             Peter continue-IMP-pst.sg.masc. PF-sit-INF in prison
             '*Peter was still in prison*'
          c. *Petja perestal poiskat' knigu
             Peter PF-stop-pst.sg.masc. PF-look.for-INF book-ACC
             '*Peter stopped looking for a book*'

Although the discussion of the tested correlation between perfectivity and telicity can end here with the conclusion that it is false, I would like to briefly talk about two other groups of perfective forms. The group which is discussed next, the 'beginning' verbs, turns out to be rather problematic for the telicity approach, whereas the last group, consisting of the perfective degree achievements, is a well-known 'troublesome' group in English, but not in Russian.

        B. 2nd group: 'beginning' verbs

Schoorlemmer (1995) singles out, in addition to temporal Aktionsart verbs, yet
another 'quirky' group of perfective verb forms in Russian, 'phase Aktionsart verbs'
in her terminology. This group consists of perfectives formed by means of special
prefixes that focus on some particular temporal stage, or 'phase' of an eventuality,
i.e., its beginning (prefixes *za-*, *po-*) or end (prefixes *ot-*, *do-*). In English, verbs like
begin, start, stop, finish are always used in the cognate cases. I will focus on one
particular subgroup of this type of verbs, the ones with the prefix *za-*, expressing the
meaning of the beginning of an eventuality described. From now on, I will refer to
the group of perfectives with prefix *za-* in this particular meaning as 'beginning
verbs'.

        Predicates with this type of perfective verb forms are not homogeneous,
according to the results of the homogeneity test:

(44)   Kompjuter zarabotal za čas -/→ Kompjuter zarabotal za polčasa
            computer PF-work-pst.sg.masc. in hour -/→
            computer PF-work-pst.sg.masc. in half.hour
            '*(The) computer started working in an hour -/→*
            (The) computer started working in half an hour'

However, when the telicity tests are applied to this class of perfectives, the results
are somewhat intriguing. Let me start the discussion with the progressive test.

        • Progressive test

(45)   a. Kogda prišel Petja, kompjuter rabotal → Kompjuter zarabotal
            when PF-come-pst.sg.masc. Peter, computer work-IMP-pst.sg.masc. →
            computer PF-work-pst.sg.masc.
            '*When Peter came, the computer was working → The computer worked'*
        b. Kogda prišlo pis'mo, Petja pel → Petja zapel
            when PF-come-pst.sg.neut. letter, Peter sing-IMP-pst.sg.masc. →
            Peter PF-sing-pst.sg.masc.
            '*When the letter arrived, Peter was singing → Peter sang'*

As (45) illustrates, the 'beginning' verbs pass the progressive test, licensing the
entailment, and therefore patterning with atelic predicates.

        Note in passing, that a possible objection to the use of this test as I have
presented it would be to say that *za-pet'* (PF-sing) is not a legitimate perfective pair
of *pet'* (sing-IMP). There are a number of different perfective forms that can be
derived from the imperfective 'base' verb *pet'* (sing).   Some of the possible
derivatives are listed below:

(46)   pet' (sing-IMP)   za-pet' (PF-start-singing)
                             po-pet' (PF-sing)
                             na-pet' (PF-sing, hum a tune)
                             s-pet' (PF-sing)
                             do-pet' (PF-sing (something till the end))

But notice that all the perfective verbs listed here have the same imperfective 'counterpart'. There is no other imperfective form available which could be used in the progressive test. The setting of the progressive test adopted here does not mean that the perfective and imperfective forms of a tested verb are considered an aspectual pair in the traditional sense of the word (cf. Isačenko 1960). I wish to stay away from the (not very fruitful) debate of what does and what does not constitute a 'true' aspectual pair. Therefore, I consider the use of the verb forms in (45) as being correct and the test itself as fully legitimate. Thus, the results achieved by the application of the progressive test contradict the results of the homogeneity test applied earlier: according to the latter, the predicates with beginning verbs should be telic, whereas the former points to the opposite conclusion.

Now consider the conjunction test.

- Conjunction test

(47)   a. ?Kompjuter zarabotal v ponedel'nik i vo vtornik
            computer PF-work-pst.sg.masc. in Monday and in Tuesday
            '*The computer started working on Monday and on Tuesday*'
         b. *Petja zapel v ponedel'nik i vo vtornik
            Peter PF-sing-pst.sg.masc. in Monday and in Tuesday
            '*Peter started singing on Monday and on Tuesday*'

The conjunction test is hard to apply in the case of the predicates with 'beginning' verbs, since the sentences in (47) sound very odd with this kind of temporal modification. There are probably pragmatic reasons for this: you start doing something once. The repetition of 'start singing' in, for instance, English, is similarly anomalous: ?*Peter started singing/working on Monday and on Tuesday.* Russian sentences improve if the *i…i* ('and…and'/'both…and') construction is used, as in (48):

(48)   Kompjuter zarabotal i v ponedel'nik, i vo vtornik
         computer PF-work-pst.sg.masc. and on Monday and on Tuesday
         '*The computer started working on Monday and on Tuesday*'

This sentence is felicitous in the following situation. Suppose your broken computer was fixed on Sunday and the system administrator calls you back on, say, Wednesday, to check if everything is fine. Reporting on your computer's condition, you can say (48). The interpretation of a sentence in this case unambiguously involves the description of two separate eventualities, one is taking place on

Monday, the other one on Tuesday. Note that the modification concerning the conjoined temporal phrases does not influence the results of the test. (49) is an example with an imperfective verb form, therefore, atelic predicate, and has a possible interpretation of describing one ongoing eventuality, as it should be in the case of atelic predicates:

(49)   Kompjuter rabotal i v ponedel'nik, i vo vtornik
          computer work-IMP-pst.sg.masc. and on Monday and on Tuesday
          '*The computer worked on Monday and on Tuesday*'

The result of the application of the conjunction test is not particularly helpful in resolving the issue of telicity value of the predicates with beginning verbs: according to this test and the homogeneity test, these predicates are telic, but according to the previously discussed progressive test, they should be atelic.
      Let me now apply the last test in the inventory, the adverbial modification test.

      •   Adverbial modification

(50)   a. Kompjuter zarabotal za čas/*čas
             computer PF-work-pst.sg.masc. in hour/*hour
             '*Computer started working in an hour/*for an hour*'
          b. Petja zapel za minutu/*minutu
             Peter PF-sing-pst.sg.masc. in minute/*minute
             '*Peter started singing in a minute/*for a minute*'

As for the adverbial modification test in (50), the first thing to be noticed is the type of interpretation the examples get. Due to the lexical semantic properties of this class of verbs, 'in X time' measures the duration of the so-called 'preparatory stage'.[18] In other words, the interpretation of, for instance (50)a, is 'it took one hour for the computer to start working'. This interpretation is comparable to the reading that arises when this type of adverbials is combined with an atelic predicate:[19]

(51)   a. The computer worked in an hour
          b. My dog ran in a split second

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[18] This term is borrowed from Kamp & Reyle (1993).
[19] One potential objection is that the beginning verbs should not be related to the cases in (51), but rather to (i):
      (i)   a. The computer started working in an hour
               b. My dog started running in a split second.
The rich morphological system of Russian makes it possible to derive verbal stems that comprise the meaning of a whole expression 'start V-ing' in English. Russian also has lexical verbs corresponding to 'start', 'begin', etc. in English, but there is no possible way to express the English 'start singing' as one item, whereas it is definitely an option in Russian. Nevertheless, I do not consider this objection as a potential threat, because the English examples in (51) can definitely be translated into Russian (50).

However, unlike atelic predicates in English, the predicates with beginning verbs in Russian are ungrammatical with another type of temporal adverbials, i.e. *for an hour* type, as shown in (50).

I interpret the results of the adverbial modification test as ambiguous. On the one hand, the predicates with beginning verbs do not imitate the behaviour of atelic predicates since they disallow modification by *for an hour* type of adverbs, but on the other, the interpretation of *in an hour* with the Russian predicates in question definitely suggests that they cannot be considered plain telic.

To sum up, my conclusion about the predicates with beginning verbs is that their behaviour is indeterminate. They cannot be classified as atelic because they are not homogeneous, do not allow for *for an hour* adverbials and are interpreted like telic predicates in the conjunction test. On the other hand, I would also think twice before committing myself to their unambiguous telicity. The first reason for this doubt is that the predicates with beginning verbs pass the progressive test, whereas telic predicates do not (cf.(45)). The second reason is that the interpretation of the *in an hour* adverbial expressions in, for instance, (50), is comparable to the interpretation frame adverbials get with atelic predicates. My conclusion is that the status of these predicates is indeterminate with respect to telicity.

C. 3rd group: degree achievements

The last group of examples that I want to discuss involves a class of verbs that are usually referred to as 'degree achievements' (Dowty 1979), henceforth DAs. This class, consisting of verbs like *to broaden, to age, to grow, to widen*, etc., is notoriously difficult to handle in any aspectual theory. Let me briefly illustrate, on the basis of English data, what the problematic issues are.

The heart of the problem is that in English, DA predicates pattern with both telic and atelic predicates when tested for telicity:

- Adverbial modification

(52)   a. Peter lengthened the rope in ten minutes
        b. The tree grew for two years

As (52) shows, DA predicates are compatible with both *in an hour* and *for an hour* type of adverbials, i.e. they show ambiguity with respect to their telicity properties according to the results of this test. The interpretation that the adverbial gets in (52)a is exactly the same as with a telic predicate *read a book in an hour*, the adverbial in (52)b is interpreted like with an atelic predicate *work for an hour*.

- Conjunction test

(53)   The workers widened the road on Tuesday and on Wednesday

The interpretation of this sentence is ambiguous: it can refer to an eventuality of widening the road which continued through Tuesday and Wednesday, or it can refer to two different eventualities. This ambiguity characterizes atelic predicates.

- Progressive test

(54)   The workers were widening the road → The workers widened the road

(54) presents a valid inference from a past progressive to a simple past sentence, exactly like atelic predicates. Thus, according to the conjuction test and the progressive test, DA predicates are atelic, whereas the results of the adverbial modification test suggests that their status is uncertain.
       As for the homogeneity test, consider (55):

(55)   a. The tree grew for two years -/→ The tree grew for one year
        b. The workers widened the road in two days -/→ The workers widened the
           road in one day

(55) illustrates that DA predicates do not pass the homogeneity test, i.e. they should be considered telic. But then how can the results of the previous tests be explained?
       This is exactly where the ambiguous nature of DAs becomes most apparent. The entailment in (55) does not go through because DA predicates can be understood as including some kind of implicit measure, say, two meters. When a measure phrase is overt, a DA predicate immediately becomes telic, also with respect to the adverbial modification, conjunction and progressive tests. The relevant examples are given in (56), (57) and (58).

(56)   The tree grew two meters in/*for two years[20]
(57)   The workers widened the road two meters on Tuesday and on Wednesday

The sentence in (56) is understood as reporting on two separate eventualities of widening the road by three meters on Tuesday and on Wednesday.

(58)   The workers were widening the road two meters -/→ The workers widened
        the road two meters.

It is not my purpose to provide an account of these facts here. What I am aiming at is examining the same phenomenon in Russian. Given that the English DA predicates are somewhat problematic for a theory of telicity, one may expect the same group of predicates to show unstable or ambiguous behaviour in Russian as well. However, I will now show that in Russian, DA predicates with perfective verb forms are clearly telic, even in the absence of an explicit measure phrase.

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[20] 'For two years' becomes grammatical in the following example:
        (i) The tree grew two meters every year for two years.

Let me start with the homogeneity test.

(59)   Derevo vyroslo za dva goda -/→ Derevo vyroslo za god
       tree PF-grow-pst.sg.neut. in two years -/→ tree PF-grow-pst.sg.neut. in year
       '*The tree grew in two years -/→ The tree grew in a year*'
(60)   Dorogu rasširili za dva dnja -/→ Dorogu rasširili za den'
       Road-ACC PF-widen-pst.pl. in two days -/→ road-ACC PF-widen-pst.pl.
       in day
       '*The road was widened in two days -/→ The road was widened in one day*'

According to my own judgements, these predicates are, indeed, non-homogeneous, and the results of this test are the same when explicit measure phrase is present in a sentence:

(61)   Derevo vyraslo za dva goda na pjat' metrov -/→
       tree PF-grow-pst.sg.neut. in two years on five meters -/→
       Derevo vyraslo za god na pjat' metrov
       tree PF-grow-pst.sg.neut. in year on five metes
       '*The tree grew five meters in two years -/→*
       The tree grew five meters in one year'
(62)   Dorogu rasširili na kilometr za dva dnja -/→
       Dorogu rasširili na kilometr za den'.
       road-ACC PF-widen-pst.pl in kilometer in two days -/→
       road-ACC PF-widen-pst.pl. on kilometer in day
       '*The road was widened a kilometer in two days -/→*
       The road was widened a kilometer in a day'

The results obtained in (61) and (62) are not unexpected, given the unambiguously telic behaviour of this type of predicates in English (cf. (55)). For many native speakers of Russian, including myself, the sentences in (59) and (60) are always understood as including an implicit measure phrase, which explains that the results of the homogeneity test with and without an explicit measure phrase are the same. Thus, the Russian DA predicates with perfective verb forms turn out to be telic. This result is also supported by the rest of the tests. (63) shows that DA predicates in Russian are compatible with the 'telic' type of adverbials, i.e. *in an hour* adverbials:

(63)   Derevo vyraslo za dva goda/*dva goda
       tree PF-grow-pst.sg.neut. in two years/*two years
       '*The tree grew in two years*'

The Russian DA predicates with perfective verb forms exhibit atelic-like behaviour only with respect to the conjunction test: the eventuality of widening the road described in (64) can, in principle, be perceived as continuing throughout two days:

(64)   Rabočie rasširili dorogu v ponedel'nik i vo vtornik
         workers PF-widen-pst.pl. road-ACC in Monday and in Tuesday
         '*The workers widened the road on Monday and on Tuesday*'

However, all the other telicity tests clearly show that these predicates cannot be considered atelic. This result is also supported by the last test, the progressive entailment test. The inference in (65) is not licensed, so the predicate *rasširit' dorogu* 'to PF-widen a/the road' comes out telic:

(65)   Kogda ja vernulas' domoj, rabočie rasširjali dorogu -/→ Rabočie rasširili
         dorogu
         when I PF-return-pst.sg.fem. home, workers widen-IMP-pst.pl. road-ACC
         -/→ workers PF-widen-pst.pl. road-ACC
         '*When I came home, the workers were widening the road -/→*
         The workers widened the road'

DA predicates with perfective verb forms in Russian were the last group of cases I wanted to discuss in this section. My conclusion concerning this group is that, contrary to the expectations that might arise on the basis of the ambiguous behaviour of DA predicates in English with respect to telicity, Russian DA predicates with perfective verb forms can be classified as telic.

Let me now summarize the discussion of the relation between perfectivity and telicity which has been the main topic of the present section. The hypothesis that has been investigated here is H1, which states that there is a one-to-one correspondence between telicity and perfectivity:

H1:   The definition of perfectivity can be given in terms of telicity, i.e.
            telicity ↔ perfectivity.

In section II.2.1, the first part of the generalization H1 was tested and it turned out that telicity is not a *sufficient* condition of perfectivity, i.e. telicity -/→perfectivity. In the present section, another condition was examined, i.e. whether telicity is a *necessary* condition for perfectivity, and the answer to this question is also negative. The most compelling counterexamples to the latter are the predicates with perfective verb forms formed by means of prefixes *po-* and *pro-*, which is a very productive pattern in Russian. I have shown that according to all the telicity tests, including the homogeneity test, these predicates are always atelic. I have also pointed out a questionable case for the second part of hypothesis H1, the predicates with so-called 'beginning' verbs, which show unstable behavior with respect to telicity. Since both parts of H1, i.e. *telicity → perfectivity* and *perfectivity → telicity* were proven to be wrong, the hypothesis in H1 is hereby rejected.

II.2.2.2. Compositional telicity in Russian-2

As I pointed out at the end of section II.2.1, in Verkuyl's theory of compositional aspectuality, all perfective predicates in Russian are expected to be telic due to the '=' value of a perfective operator. It has just been shown that there is no correlation between perfectivity and telicity. In order to fully complete the discussion of the relation between perfectivity and telicity, now in the framework of Verkuyl (1993/1998), let me now review the predictions that Verkuyl's theory would make if the implication *perfective → telic* were shown to be correct. In this section, I intend to show that these predictions would not be empirically accurate. This question has also been raised in Schoorlemmer (1995) and the conclusions here will be the same, but the interpretation of the results will differ.

The theory of compositional telicity, as formulated in Verkuyl (1993), makes two strong predictions concerning internal arguments of telic (or terminative) predicates.[21] First, an internal argument, whether it is a direct object or a prepositional object, is required to be realized. If there is no internal argument that provides a boundary for a path, then the resulting VP cannot, in principle, be aspectually telic. If it could, it would mean that the telicity was already warranted at a lexical level, due to the lexical properties of a verb, but Verkuyl argues against this option. Second, compositional telicity requires this argument to be interpreted as [+SQA], otherwise the predicate has to be atelic.

Now I am going to provide some examples from Russian that show (i) that the presence of internal argument is not necessarily required if a verb form is perfective and (ii) that a direct internal argument of some perfective verbs can receive a generic interpretation, i.e. be [-SQA] in Verkuyl's terms.

As for the first point, it is largely true that perfective transitive verbs have an obligatory direct object, which can be optionally realized with imperfective forms:

(66)   a. Ona ela (sup)
                she ate-IMP soup
                '*She ate/was eating soup*'
             b. Ona s'ela *(sup)
                she PF-ate soup
                '*She ate the soup*'

However, there are also unergative verbs and they easily appear in perfective forms. If an unergative verb is perfectivized, its argument structure does not necessarily change, which means the corresponding perfective form remains unergative. The examples of such unergative aspectual pairs are given in (67):

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[21] Later versions of the theory of compositionality of aspect as in, for instance, Verkuyl 1999, make the same predictions.

(67)   IMP   PF
          ulybat'sja   ulybnyt'sja   *to smile*
          krasnet'   pokrasnet'   *to blush, redden*
          obedat'   otobedat'   *to dine, have dinner*

Moreover, there exist potentially transitive perfective forms that can be used intransitively, which proves that in Russian, there is no strict correlation between the aspectual form of the verb and obligatory realization of its internal arguments:

(68)   a. Orkestr za-igral (val's)
              orchestra PF-play-pst.sg.masc. (waltz-ACC)
              'The orchestra started playing (waltz)
          b. Deti po-čitali (knigi)
              children PF-read-pst.pl (book-ACC.pl)
              '*Children read (some books)'*

The arguments in parentheses are optional, exactly like in the case of the imperfective form of *est'* 'to eat' in (66)a. Thus, the first requirement of the compositional aspectual theory is not fulfilled: there are perfective verbs which do not require the presence of an internal argument.

     As for the second prediction, i.e. if there is an internal argument, it can only get a [+SQA]-interpretation, this seems to be consistent with the data as well:

(69)   a. Petja čital stat'i/literaturu
              Peter read-IMP-pst.sg.masc. articles/literature-ACC
              '*Peter was reading/read articles/literature'*
          b. Petja pro-čital stat'i/literaturu
              Peter PF-read-pst.sg.masc. articles/literature-ACC
              '*Peter read the articles/the literature'*

In the absence of articles in Russian, there are no formal clues available here which would tell us anything about the interpretation of a direct object. However, when translated into English, a definite article has to be used in the case of (69)b, i.e. the sentence with a perfective form of a verb (Schoorlemmer, 1995). In other words, the aspectual value of the verb in (69)b influences the interpretation of its direct object and requires it to become [+SQA].

     This is not always the case, however. In (70), for instance, a generic interpretation of the internal argument is available:

(70)   Petja raz-delil ljudej na dobryx i zlyx.
          Peter PF-divide-pst.sg.masc. people on kind-ACC.pl and mean-ACC.pl
          '*Peter divided people into kind and mean'*

Optionally, *vsex* 'all' can be added as in 'all the people'. According to Verkuyl (1993), this would make an object [+SQA], but the point is exactly that the presence

of 'all' is not required. The interpretation of the direct object *ljudej* ('people') in (70) is exactly the same as in the corresponding sentence with an imperfective verb form in (71):

(71)   Petja delil ljudej na dobryx i zlyx
         Peter divide-IMP-pst.sg.masc. people on kind and mean
         '*Peter divided people into kind and mean*'

In this example, 'all' also can be optionally used, so that the direct object becomes the [+SQA] phrase 'all the people'. In other words, (70) and (71) are absolutely parallel as far as the interpretation of the direct object is concerned, despite of the different aspectual forms used in these sentences.

The predicate in (71) is similar to the predicate in (69)a. The latter is an example of an imperfective, therefore, atelic predicate, which allows for a generic interpretation of the internal argument *literaturu* 'literature'. Consequently, a generic interpretation is available for the internal argument in (71). However, there is no difference between the reading that a direct object can get in (70) and (71), which means that generic interpretation should also be available for *ljudej* 'people' in the former.

The availability of a generic interpretation for direct objects of perfective verbs becomes even more evident in the non-past tense:

(72)   a. V sentjabre griby pojavjatsja, togda i solit' budem
             in September mushrooms PF-appear-pres.3pl, then and salt-INF
             be-pres.3pl
         b. V sentjabre griby pojavljajutsja, togda i solit' budem
             in September mushrooms appear-IMP-pres.3pl, then and salt-INF
             be-pres.3pl
             '*In September mushrooms appear/grow, we'll salt them then*'

Again, the parallelism between the interpetation of a direct object[22] *griby* ('mushrooms') in both (72)a and (72)b is clear: both sentences are statements of 'general truth' and *griby* in both cases is interpreted generically.

(73) is the last example illustrating the same point, i.e. the availability of a generic interpretation for a direct object with some perfective verb forms. In this sentence, perfective aspect is as felicitous as imperfective and the direct object *erundu* ('nonsense') can only be interpreted generically:

(73)   On tebe vsegda erundu nagovorit/govorit!
         he you-DAT always nonsence-ACC PF-tell-pres.3sg./tell-IMP-pres.3sg
         'He'll always tell you nonsense!'

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[22] As in many other languages, the verb *appear* in Russian is unaccusative.

To sum up, a straightforward application of the compositional aspectuality theory to Russian makes strong predictions about the obligatory presence of internal arguments with perfectives and the necessary [+SQA] interpretation of these arguments. As it has just been demonstrated, the two predictions that the compositional theory of aspect makes are not borne out. The Russian data that have been presented here refute these generalizations.

II.3. Interpreting the results

The results that have been achieved in this chapter are not completely new. As I have already pointed out, Schoorlemmer (1995), in her careful and systematic study of Russian aspect, draws conclusions similar to mine. Schoorlemmer examines the correlation between perfectivity and telicity in Russian, assuming that there are two possible ways to derive perfectivity, either by lexical marking (corresponds to +[inh(erent)] feature) or by a compositional derivation a la Verkuyl (1993). Her system (Schoorlemmer 1995:128) is summarized in (74):

(74)   +[inh]   ⇒   perfective
        + imperfective trigger   ⇒   imperfective
        both   ⇒   *
        neither   ⇒   compositional aspectuality:
                                                +telic   ⇒   perfective
                                                -telic   ⇒   imperfective

imperfective triggers: • habituality
                                • telic presupposition
                                • negated modals

The imperfective triggers listed above always require the verb form to be imperfective. Thus, in the presence of habitual adverbs like *always* or *usually*, the verb form must always be imperfective. It has already been argued in, for instance, Verkuyl (1993, 1999) that habituality is a phenomenon that has to be analyzed at a level different from telicity. To state it in Verkuyl's terms, habituality is in the realm of 'outer' aspect, whereas telicity is 'inner' aspect.[23] Inner aspect is essentially the same as predicational aspect and the same as telicity, because the value of telicity is always established at the basic level of the predicate-argument structure, roughly, at the level of the (extended) VP. Everything that comes later and is related to the aspectual properties of a sentence, is already in the field of outer aspectuality. As long as habituality is not interpreted as an operator changing the telicity value of a predicate, treating habituality as an imperfective trigger is fine. Schoorlemmer does not relate imperfective triggers to the aspectual value of a predicate, so this part of her system ensures that imperfectivity and (a)telicity work separately.

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[23] The terms were clarified in the introductory chapter.

Both negation and modality are outside the scope of this study, so I won't comment on the third imperfectivity trigger identified by Schoorlemmer, namely, negated modals. The 'telic presupposition' cases were discussed in section II.2.1, where it was shown that the intuitive characterization of some of these cases as telic was correct. However, the telicity tests that were adopted in chapter I help us make this point much stronger. The independence of imperfectivity and atelicity can be proven more accurately if we rely on the results of the tests and not only on the intuitive implication of 'completion' which can, in principle, be easily cancelled.

Schoorlemmer also identifies two 'troublesome' groups of perfectives, that do not obey the rules of compositional telicity: phase Aktionsart (e.g., 'beginning' verbs) and temporal Aktionsart (*po-* and *pro*-perfectives). These two groups were both discussed in section II.2.2. in detail, but it is the second one that constitutes the most convincing counterexample to the claim that perfectivity always entails telicity. Schoorlemmer's solution was to assume that these perfectives carry an inherent aspect feature. The rest of perfective forms derive compositional telicity in the sense of Verkuyl (1993), unless (one of) the so-called imperfective triggers are present.

Thus, in principle, I agree with the generalizations that Schoorlemmer makes, but I do not always agree with her interpretation of the data. Let me focus on her assumption that perfectivity can be marked inherently.

At this point, two logical possibilities present themselves: adopting Schoorlemmer's solution essentially means breaking up the class of all perfective forms into two groups, say, PF1 and PF2. This basically destroys the hope to define perfectivity in a regular uniform way. I think that this option should be rejected on principled grounds. Pursuing this alternative may eventually lead to an accurate classification of different types of perfective verb forms, but it is not going to open up a way of explaining what it means to be just perfective, and not perfective-1 or perfective-2. I opt for a consistent treatment of perfectivity and, therefore, reject the claim that there can be inherently marked perfectives. Since telicity is now a well-defined notion, any given predicate can always be tested with respect to telicity and a negative result just means the negative value for telicity. Taking into account the results of this chapter, it means that perfectivity and telicity are different phenomena and there is no one-to-one correspondence between the two. This re-opens a possibility to provide a uniform definition of (im)perfectivity, which I will propose in chapter V.

This discussion brings us to one of the crucial points that I want to make in this work: the independent treatment of (a)telicity and (im)perfectivity. Schoorlemmer's generalizations, as I have already said, are precise and accurate, but in my view what constitutes a problem for her analysis is the intimate relation between (a)telicity and (im)perfectivity that she wants to save. As I have argued in this chapter, there is no reason to assume that there is any correlation between perfectivity and telicity (cf. refuted H1). This conclusion validates my next step.

In the present work, following Verkuyl (1993,1999) and Reinhart (2000) I will argue for a strict separation of telicity/predicational aspect and the viewpoint aspect or (im)perfectivity (Verkuyl's 'outer' aspectuality, Reinhart's perspective) and,

consequently, for a theory in which (a)telicity and (im)perfectivity should not even be accounted for in the same terms, but treated independently from each other. A theory of viewpoint aspect that makes such division possible is going to be presented in chapter IV and V.

Before doing that, however, in chapter III, I am going to discuss some other attempts to unify the two aspectual domains into one and argue against them. In the second part of the next chapter, I am not going to rely on the data from Russian, thereby making the issue of the relation between telicity and viewpoint aspect rather general.

Chapter III

Main theories of aspect [part 2]: the point of view approach

In chapter I, one of the most influential approaches to aspect, the telicity approach, was introduced and discussed. Since, as was argued in the previous chapter, this approach cannot provide a satisfactory account of all the relevant Russian data, the potential of another existing approach, based on the notion of viewpoint, should be explored. The main purpose of the present chapter is twofold. First of all, I will introduce the viewpoint approach, and the notion of viewpoint (section III.1). Secondly, and more importantly, I will argue that a clear distinction should be made between telicity aspect and viewpoint, or perspective aspect.[1]

In this chapter, it will be shown that in the absence of a sufficient distinction between perspective aspect and telicity/predicational aspect, we cannot create an accurate, exhaustive and, at the same time, testable theory of aspect. Any analyses of the aspectual phenomena in Russian that do not make a clear division between two types of aspect, run into inevitable problems that would not arise if the relevant distinction were made. This conclusion provides a basis for the separation of two aspectual domains, the idea that will be pursued in subsequent chapters. My claim in chapter V concerning Russian aspect will be that the perfective/imperfective aspectual opposition belongs to the 'outer' aspectual domain and therefore, should be explained in terms other than telicity. Reinhart (2000) suggests that the differences in point of view should be formulated and captured in terms of Reference time (chapter IV), the notion that defines perspective in her approach. Thus, the goal of this chapter is to argue, following the ideas of Reinhart (1986, 2000) and Verkuyl (1993, 1999), that the point of view approach to aspect should be formulated in such a way that is fundamentally different from the formulation of the telicity aspect.

To remind the reader of the conclusions of chapter I, it was argued that in order to successfully apply the notion of telicity in aspectual theory, it has to be properly

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[1] In the present chapter, I will use the terms 'viewpoint aspect' and 'perspective aspect' interchangeably, mainly because the former is much more common in the literature. However, I will ultimately opt for the latter, since, as will become clear in the following chapters, this term directly refers to the main theoretical notions used to account for this type of aspect.

defined. The definition assumed in the present work is based on the homogeneity property.

In principle, the same reasoning applies to the notion of viewpoint. In order to use it properly, the notion must be defined. However, as has already been mentioned, this is exactly the weakest point of the viewpoint approach: the basic notion on which it relies is either undefined, or just 'metaphorically' described. I will provide a definition of viewpoint, but this question is postponed until chapters IV and V. I will, however, critically examine a recent tendency to develop an analysis of viewpoint aspect based on the part-whole relation (e.g. Filip 1993).

III. 1. The notion of viewpoint

The viewpoint approach to Slavic aspect can be called 'traditional' in the sense that the difference between perfective and imperfective in Russian and, more broadly, in Slavic, is often informally stated in terms of this approach. The intuitive characterization of the notion of viewpoint leaves some room for interpretation of what is meant by 'viewpoint' and, consequently, of what the difference is that underlies the aspectual opposition in Russian. Let me start with a well-known example of a 'metaphorical description' of aspectual differences in Russian. This is a quote from Comrie (1976:4):

> "… the perfective looks at the situation from outside…., whereas the imperfective looks at the situation from inside…"

The crucial words in this informal description are '*from outside*' and '*from inside*'. This is exactly how a speaker's point of view or *perspective* on a certain eventuality can be stated. The idea conveys the implication that aspect in Russian is determined by a way of looking at eventualities from different standpoints, chosen by the speaker. Note also that perfective and imperfective aspectual forms are often interchangeable, if the context permits it, and the difference in interpretation that results from using different aspectual forms sometimes does not affect the truth conditions of a sentence. Thus, one should expect some freedom of choice in this area.

However, if there is a way to formalize the notion of viewpoint, then the rules determining the speaker's choice can be formulated so that it stops being arbitrary. The absence of sufficient formalization of the notion of viewpoint is, therefore, the most serious problem with this approach. Yet, the difference in viewpoint should be essential for choosing the aspectual value. This is the main insight of the viewpoint approach to aspect, which I am going to preserve in the account of aspectual differences in Russian that will be proposed in chapter V.

If this is the basic intuitive idea behind the whole approach to aspect, it seems that all the supporters of the point of view approach should share this intuition. Nevertheless, as will be illustrated in this chapter, this insight is lost in some formal

accounts. The reason why it happens is that what I will call 'mixed' approaches dominate the field. The main problem for 'mixed' approaches is that they do not sufficiently differentiate between two types of aspectual phenomena: telicity and viewpoint aspect.

Many researchers (Dahl 1981, Depraetere 1995, Filip 1993 and others) suggest that telicity and viewpoint aspect should be distinguished. However, a way of stating this distinction explicitly is usually not provided and, therefore, even though the difference is claimed to be important, it remains rather unclear. A more common position is to look at the point of view approach as 'complementary' to the telicity one (Smith 1997). The general reasoning in this case goes as follows: there are some aspectual facts, for instance, in Russian, which the telicity approach cannot handle. In that case, whatever the 'leftovers' of the telicity theory are, they are analysed in terms of the difference in point of view. This part, even if the semantics of telicity is provided, either remains informal or is described in terms of the same linguistic notions that are used in the telicity approach (e.g., Filip 1993). I will call this type of approach 'mixed'. Informally, the essence of the mixed approach can be stated, again, in Comrie's (1976:16) words:

> "….perfectivity indicates the view of a situation as a single whole, without distinction of the various separate phases that make up that situation; while the imperfective pays essential attention to the internal structure of the situation".

As can be seen from this quote, there are two things that get mixed up, and this, I believe, is a general problem for many different implementations of the viewpoint approach. One thing is the perspective of a speaker, i.e. speaker's internal or external view on a situation. As I have already said and as I will continue to claim in the following chapters, this is what should be captured by the viewpoint approach. Another thing is the internal temporal structure of an eventuality, which is often analyzed in terms of the part/whole relation. This relation is the topic of the next section.

III.1.1. The point of view approach and a part/whole relation.

The accounts of Russian aspect based on the notion of viewpoint often claim that perfective aspect introduces some kind of 'holistic' interpretation, i.e., a described eventuality is represented 'as a whole' (e.g., Forsyth 1970, Filip 1993).[2] Whether imperfective is the absence of the totality property or rather a neutral form, i.e., undetermined with respect to 'totality', is not often explicitly stated. Klein (1994, 1995) argues against the 'totality' approach at length and I will now examine some of his arguments.

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[2] The characterization of aspects as presenting a situation 'in totality' goes back to Černy (1877), as reported in Klein (1994).

The first objection that Klein puts forward is that the definition of perfective aspect as presenting a situation in 'totality' is intuitive and metaphorical, and, therefore, far from being strict. As I have already said, this criticism is well-founded, but in the present thesis, the notion of viewpoint is going to be formalized (see chapter IV).

Klein's second objection against the 'totality' view is that it is difficult to justify the use of the imperfective aspect in (1) if imperfectivity is defined as 'non-totality':

(1)   Velikan Rodosa vesil sto tonn
             colossus Rhodes weighed-IMP 100 tons
             '*The colossus of Rhodes weighed 100 tons*'

Klein observes that it is hard to see how this situation, described by a predicate with an imperfective verb form, fails to present the situation as 'total'. Here, we hit upon the same basic problem that was discussed with respect to the telicity approach: it is essential what kind of entity is characterized as 'total'. Most often (Smith 1997, Filip 1993), it is stated that a *situation* is viewed 'as a whole' when perfective aspect is used. If this is the case, the problem that Klein indicates here cannot be solved in a satisfying way.

I completely agree with Klein's point concerning example (1). The heart of the matter is that in this interpretation of the notion of viewpoint, the relevant aspectual differences are defined for *eventualities*. As I argued in chapter I, the relevant fundamental distinctions cannot and should not be applied to eventualities. A major shortcoming of the existent analyses of Russian in terms of 'totality' is that what is characterized as 'total' is the situation or eventuality itself. This is what I will argue against.

Nevertheless, the part/whole approach to aspect has recently become more popular, especially given the tools that were developed to formalize the part-of relation in event semantics (cf., especially, Krifka 1989, 1992, 1998). Two specific analyses of Slavic aspect in terms of the part/whole relation will be discussed next: Smith (1997) and Filip (1993/1999).

III.1.1.1. Smith (1997)

Smith (1997) develops a two-component theory of aspect. The first component determines a situation type of a sentence. This part of Smith's theory will not be discussed in detail, except for saying that five situation types are distinguished: states (*know the answer*), activities (*walk in the park*), accomplishments (*build a house*), semelfactives (*knock*) and achievements (*win a race*). The temporal properties that determine a situation type are dynamism, durativity and telicity. Accomplishments and achievements are telic situation types, all the other types are atelic.

It is the second component of Smith's aspectual theory that I want to concentrate on here. The temporal scheme of a given sentence is determined by its situation type and the *viewpoint*, another module of the theory. The viewpoint information is "an independent lens on the situation" (Smith 1997:126) and is superimposed on the situation type. Smith distinguishes three types of viewpoints: perfective, imperfective and neutral. The last type is not important for the present discussion, so I will restrict myself to the first two types.

The formulation of viewpoint aspect in Smith (1997) is a straightforward example of a mixture of the properties of an eventuality itself and the speaker's perspective on it. She explicitly defines perfective viewpoint as presenting a situation "as a whole" (Smith 1997:66), while the "imperfective viewpoints present part of a situation, with no information about its end-points" (Smith 1997:73). This is a general characterization of the viewpoint distinction, which should be valid crosslinguistically, thus, among other languages, in Russian. The actual formulation of the basic meaning of the imperfective viewpoint immediately points to a problem. In section I.4.1, I argued against the end point approach to defining telicity. My objections, however, were of a general character and the purpose of that section was to show that the notion of end-point should not be used in any aspectual theory at all. Smith's definition of the imperfective viewpoint is given in terms of *end-points* of a *situation*. Based on the argumentation in section I.4.1, this theory belongs to the class of aspectual approaches that should be fully reformulated, because it characterizes ontological categories, but not linguistic expressions.

In principle, the discussion of Smith (1997) could stop here, but I would like to mention another relevant point. It concerns the discussion of the imperfective viewpoint, since my principled objection to Smith's analysis concerns associating imperfective in Russian with progressive in English. Smith's definitions of different viewpoints essentially repeat the ones by Comrie (1976) given earlier in this section as an illustration of a mixed approach. If the perfective aspect in Russian is used to represent an eventuality as a whole, while imperfective is concerned only with the internal (temporal) structure of it, excluding the endpoints, then one possible interpretation of the second quote from Comrie (1976) is that the aspectual opposition in Russian boils down to the progressive/non-progressive opposition in English. This is exactly the line of reasoning taken by Smith. She provides the following examples to demonstrate different viewpoints (Smith 1997:xiii):

(2)   a. John and Mary built a rock garden last summer
          b. John and Mary were building a rock garden last summer

According to Smith, both sentences report on the same eventuality and have the same value of the situation type aspect, which is determined for a tenseless predicate *build a rock garden*. The situation type of this predicate is an accomplishment. The two sentences in (2) are distinguished by different viewpoints: (2)a is characterized by the perfective, and (2)b by the imperfective viewpoint. This, however, means that imperfective viewpoint is basically identified with progressive. Therefore, this

theory advocates an option of directly relating the imperfective viewpoint to the progressive interpretation, thereby predicting a one-to-one correspondence between imperfective and progressive.

As has already been pointed out, it is a well-established fact that for an adequate translation of the English progressive into Russian, only the imperfective verb forms in Russian can be used. In other words, there is a correlation between progressive and imperfective, but it is only a one-way correspondence.[3] Russian imperfective does not necessarily have a progressive meaning, as example (1) successfully illustrates. This observation is further supported by the example in (3):

(3)   Petja ubiral kvartiru
          Peter clean-IMP-pst.sg.masc. apartment
          '*Peter cleaned a/the apartment*'

This sentence can be a felicitous response to, for instance, a visitor's remark about the unusual tidiness of somebody's apartment, in which case imperfective aspect expresses the *relevance* of the eventuality described (i.e. Peter's cleaning the apartment) to the present moment, which is most successfully rendered by the English present perfect:

(4)   Petja has cleaned a/the apartment

In this situation, neither the internal structure of the cleaning eventuality nor the presence or absence of its endpoints has anything to do with the choice of aspect.

Smith (1997), however, realizes that her definitions of the viewpoints leave a whole range of data in Russian (cf. example (3)) unexplained. To account for all the non-progressive uses of the imperfective aspect in Russian, she introduces the notion of 'conventional' use. Conventional uses of the viewpoint aspects are not guided by the semantics of aspect, but by pragmatic rules. These rules are not precisely formulated and partly remain language-specific, but in general, as Smith points out, they obey two discourse principles. The first one is the minimality principle, according to which a speaker says as much as is needed, creating, therefore, a positive emphasis on a viewpoint of a situation. The second one is the maximality principle, which lets a speaker say as much as she wants. The use of this principle leads to the negative emphasis of the determined viewpoint. In particular, she attributes the following uses of Russian imperfective, some of which were already mentioned in chapter II, to the different kinds of 'convention rules' (the examples are from Smith, 1997: 238-239):

- annulled result
(5)   K vam kto-to prixodil
          at you someone come-IMP-pst.sg.masc.
          '*Someone was here /came for you (and left)*'

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[3] See chapter V for my analysis of this correlation.

• discontinuity
(6)   Ja uže zapolnjal anketu. Začem ešče raz?
         I already fill.in-IMP-pst.sg.masc. questionnaire. Why again time?
         '*I have already filled in the form. Why do I have to do it again?*'

• statement of fact
(7)   Ja govoril emu ob etom
         I tell-IMP-pst.sg.masc. him about it
         '*I told him about it*'

Whether all the classes distinguished in Smith (1997) should indeed be distinguished is a separate issue, although the question that arises immediately is what exactly the difference between (6) and (7) is. What should make one alert, though, is the fact that the conventional uses of the imperfective aspect in this theory are *three*, while it is used directly *only* in the progressive meaning, which 'excludes the endpoints of the situation'. Moreover, Smith provides no clear principles on which one can rely when deciding whether it is a conventional or direct use of a certain viewpoint aspect. She lists conventional uses, but does not point to any general idea as to what unifies them and how they can be determined.

The picture that emerges from the whole system is rather puzzling: given the definitions of perfective and imperfective viewpoints, everything that does not fit those definitions must be explained by means of conventional use. This is certainly a possibility, but not a very interesting one from a linguistic perspective, since the absence of a clear theory of conventional use leaves an array of unexplained facts still unexplained. Smith's theory aims at distinguishing two things: situation types and the viewpoint aspect. This is exactly what I am arguing for. However, it is not possible to achieve this goal within Smith's theory. The general problem with her approach stems from the mixed characterizations of situation types and viewpoint aspect: they are both described in the same terms. Accepting these kinds of definitions essentially guarantees the impossibility of making the two components of the aspectual theory independent. It also means giving up the hope of differentiating between the point of view and the telicity types of aspect, since the definition of a (telic) situation type in Smith's model relies on the same notions as the definitions of the viewpoints.

Along with the undefined notion of end point, Smith assumes vague pragmatic 'conventions', which, in her words, "depend partly on general cooperative principles of inference and partly on the pattern of a particular language" (Smith 1997:86). It would not be just to say that Smith's appeal to pragmatics is the source of the problem. Pragmatic conditions should be introduced to the aspectual theory, but they should also be defined.

In the next subsection I am going to give an overview of Filip (1993), an analysis of grammatical aspect developed for Czech, but general enough to allow us to check the predictions it makes when applied to other Slavic languages, in particular, Russian.

III.1.1.2. Filip (1993)

Filip (1993) does not appeal to the notion of viewpoint aspect. Using somewhat different terminology, she argues for the distinction between situation types (or eventuality types), on the one hand, and grammatical aspect ((im)perfectivity), on the other. Filip (1993) explicitly introduces the term 'holistic interpretation' into her analysis of aspect. Her theory is based on the semantics of the part/whole relation developed in Krifka (1989). The system she argues for is represented in (8) below:[4]

(8)

		aspect	
		[+PART]	[-PART]
homo-geneity	[+BOUNDED]	a part of a letter write a letter	a whole letter write a (whole) letter (up)
	[-BOUNDED]	be on the floor run on the beach	d.n.e.

In Filip's system, there are two relevant oppositions: the bounded/unbounded one and the partitive/holistic one. These oppositions are used to classify the domain of both nominal and verbal predicates, as shown in (8). The property underlying the first opposition is homogeneity. Filip (1993:202) defines a predicate as unbounded if it has the properties of cumulativity and divisibility:

(9)   P is cumulative $\leftrightarrow \forall$x, y (P(x) & P(y) $\rightarrow$ P(x $\cup$ y))
         P is divisible $\leftrightarrow \forall$x, y (P(x) & (y $\subset$ x) $\rightarrow$ P(y))

In the domain of verbal predicates, boundedness characterizes two classes of predicates, telic and atelic: unbounded predicates are atelic, bounded ones are telic.
     Another opposition is the partitive/holistic one, which is employed for the analysis of the perfective/imperfective distinction in the domain of verbal predicates.[5] Perfectively marked verbal predicates are [-PART] (Filip, 1993:277), imperfective aspect is indeterminate with respect to the [PART]-feature, which means that imperfective marking corresponds to either [+PART] or [-PART] value:

(10)   [PERFECTIVE ϕ] presents a situation as a single whole.
(11)   [IMPERFECTIVE ϕ] allows for the denoted situation NOT to be viewed
         in its entirety.

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[4] This table is based on Filip (1993:256). The abbreviation 'd.n.e.' reads 'does not exist'.
[5] For nominal predicates, the relevant classes would be classified according to the case feature in, e.g., Finnish: [+PART] nominal predicates bear Partitive case, [-PART] ones are marked by Accusative case.

The aspectual oppositions are further classified as follows (Filip, 1993:12):

(12)   grammatical aspect → perfective / imperfective
             imperfective → non-progressive / progressive

In the imperfective domain, only the progressive meaning corresponds to the [+PART] feature, whereas the non-progressive meaning(s) are characterized by [-PART], which is allowed due to the indeterminacy of imperfective aspect with respect to the [PART] feature. This set-up provides a way of avoiding the problem that Smith's analysis faces: imperfective in Filip's system is not directly associated with progressive, the latter being just one of the possible meanings of imperfective aspect. The theory does not have to appeal to any additional means, like Smith's conventional rules, to account for all possible interpretations of imperfective aspect.

The problem for Filip lies in the relation between perfectivity and boundedness that is established in her theory. Filip's system predicts that all perfective predicates are necessarily telic. Note that in the system that Filip advocates, which is given in (8) above, one combination of the features is impossible: there are no predicates bearing features [-BOUNDED] and [-PART] at the same time. This means, that all predicates classified as [-PART] are necessarily [+BOUNDED]. Given that the [-PART] feature is entailed by perfectivity[6] and all verbal predicates marked as [+BOUNDED] are telic, the prediction is that all perfective predicates are telic.

I argued against this particular correlation between perfectivity and telicity in section II.2.2, where I showed, on the basis of Russian data, that it simply does not hold. Filip (1993) does not discuss the Russian aspectual system, but the feature classification that Filip proposes is very general and, in principle, should be applicable to languages with similar aspectual models. Russian and Czech are quite similar as far as aspectual distinctions are concerned, so my expectation would be that the correlation *perfective → telic* does not hold for Czech either. One indication that this prediction is right is that Filip *explicitly* restricts the class of perfective predicates which confirm the prediction of her system to those which have 'incremental theme' arguments (Dowty 1990) or 'affected arguments' (Tenny 1994). This restriction brings us back to the conclusions of chapter II, where Schoorlemmer's generalizations were discussed.

There is a striking similarity between Schoorlemmer's (1995) and Filip's (1993) results for Russian and Czech respectively. Both proposals can be interpreted in the same way: they claim that there are two different types of perfectivity. Only one of these types is 'well-behaving', i.e. the perfective predicates of this class derive compositional telicity in Russian in Schoorlemmer's system and come out as [+BOUNDED], i.e. telic, in Filip's system. Furthermore, Filip actually defines this class as a set of verbal predicates with an incremental theme direct object. This, in

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[6] Note that perfective predicates constitute a subclass of all [-PART] predicates, since some imperfective ones can also be characterized as [-PART]. There are no [+PART] perfective predicates: this feature defines progressive.

turn, means, that the 'holistic' definition of the perfective operator applies only to a specific group of perfectives.

A legitimate question that arises at this point is what exactly the role of perfective aspect is when there is no incremental theme argument involved? Filip (1993) does not provide an answer to this question. Schoorlemmer (1995) suggests that those perfectives in Russian that do not derive compositional telicity are inherently marked as perfective. It was explained in section II.3 why this solution is not satisfactory. But the same can be said about Filip's system: it does not explain what perfectivity as a general phenomenon is about or how to define it. Filip's system just leaves a whole class of perfectives out of consideration and this points to one of the following conclusions: either there is a different kind of perfectivity involved for the predicates with non-incremental theme arguments, or the notion of perfectivity is just incorrectly defined.

As for Russian, the first option is highly implausible, given the fact that all perfective forms, independent of the presence and nature of their arguments are classified as perfectives by the tests from section II.1. Thus, there is only one conclusion that can be drawn: perfectivity in Russian cannot be explained by Filip's theory. The notion of holistic interpretation, at least the way it is defined in Filip's work, cannot provide a satisfactory account of the Russian data.

The general theory of the part/whole relation Filip's account is based on is further developed by Krifka (1998). Krifka's later version does not provide the means to solve the problem Filip's account faces when applied to Russian.

In Krifka's (1998) semantic model, different types of verbal predicates are all defined over the same semantic primitive, i.e. events. The relevant definitions are given below:[7]

(13)   a. A predicate P is cumulative iff
           $\forall X \subseteq U_P [CUM_P(X) \leftrightarrow \exists x, y [X(x) \& X(y) \& \neg x=y] \& \forall x,y [X(x)$
           $\& X(y) \rightarrow X(x \oplus_P y)]]$
         b. A predicate P is quantized iff
           $\forall X \subseteq U_P [QUA_P(X) \leftrightarrow \forall x,y [X(x) \& X(y) \rightarrow \neg y <_P x]]$
         c. A predicate P is telic iff
           $\forall X \subseteq U_E [TEL_E(X) \leftrightarrow \forall e, e' \in U_E [X(e) \& X(e') \& e' \leq_E e \rightarrow$
           $INI_E(e',e) \& FIN_E(e',e)]]$

The difference between quantized and telic predicates can be briefly illustrated as follows: a predicate '*swim a mile*' is quantized and telic, but a predicate '*swim for two hours*' is cumulative and telic. Thus, all quantized predicates are telic, but not all telic predicates are quantized. I will come back to this point once again in section III.2.1.

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[7] U_P in (13) stands for a set of entities (individuals), U_E stands for a set of events. The first two definitions apply more generally, i.e. to all sorts of entities in a semantic model. In (13)c, a predicate P applies to an event *e*.

If Krifka's theory is applied to Russian, then there are some correlations that can be established between the types of predicates in Krifka's approach and the aspectually different predicates in Russian. The definition of homogeneity that I adopted in chapter I, is similar to the definition of a cumulative predicate in Krifka's theory. Perfective predicates in Russian should be associated with Krifka's definition of telicity, since that would allow perfective predicates to be either cumulative (cf. *po-* and *pro*-verbs which, as I showed in chapter II, are atelic/homogeneous) or quantized (like, for instance, *pročitat' knigu* 'to PF-read the book', discussed in section II.2.2).

However, a telic predicate in Krifka's theory is defined in such a way that predicates with a specified duration are telic: a predicate P is defined as telic iff P applies to an event *e* and it does not apply to any subpart of *e* unless it is an initial and (at the same time) a final subpart of *e*. Consider now the example below:

(14)   Petja poel jablok
          Peter PF-eat-pst.sg.masc. apple-GEN.pl.
          '*Peter ate/have eaten (some) apples*

Suppose a perfective predicate *po-est' jablok* (PF-eat apples) applies to an event *e*. Then, according to the definition of telicity, it cannot apply to any subpart of *e*, unless it is *e* itself. But the predicate in question can be easily applied to a sub-event *e'*, where, for instance, only a part of the denotation of *jablok* (apples) is affected and the eating still goes on. Note that the predicate used to apply to *e'* in this case is *exactly* the same, i.e. *poest' jablok*. Therefore, the conclusion is that, in its original form, Krifka's (1998) aspectual theory cannot be applied to Russian without any further modification.

To sum up the discussion thus far, different accounts of viewpoint aspect, which analyze this type of aspect using the 'holistic' interpretation of perfectivity have been examined. I have shown that there are two sides to the problem that arises for this type of approaches: it either predicts an equivalence relation between imperfective and progressive (e.g., Smith 1997) or a strict correspondence between perfectivity and telicity (e.g., Filip 1993). In the latter case, the class of perfectives that obey this correlation can be defined, but then the question of what to do with the rest of perfectively marked predicates remains unanswered.

Note that in the theories that have been discussed in this section, viewpoint aspect and telicity aspect (or a situation type/predicate type) were defined over the same kind of entities, namely, eventualities in Smith (1997), predicates in Filip (1993). As I have already mentioned, I think this is a fundamental problem. In the next section, I will provide a more broad discussion of a generalized approach to aspect, abstracting away from Russian data. My aim is to show that a theory that operates with the same analytical tools to develop an account for different aspectual phenomena, i.e., viewpoint aspect and telicity aspect, inevitably runs into a serious problem.

III.2. *A generalized approach to aspect*

The most relevant issue for the discussion in this section is the treatment of delimiting adverbials like *for two years, from 5 till 7 p.m.* and so on, i.e., temporal expressions that denote duration. This topic was introduced in section I.4.1, where it was shown that there are some indications that 'delimited' predicates do not behave like atelic, but rather like telic ones. The observation that points to this conclusion comes from discourse. Let me repeat it here.

Delimiting adverbials influence the behaviour of sentences with atelic (i.e., homogeneous) predicates in discourse. In particular, it has been observed (Hopper 1982, Hinrichs 1986, Kamp & Roher 1983, Hatav 1997 among others), that in narrative discourse a string of sentences with telic (non-homogeneous) predicates create a sequence interpretation, whereas for sentences with atelic (homogeneous) predicates the interpretation of a temporal overlap arises. There is, however, an exception to this rule. As Hatav (1997:46) shows, sentences with *delimited* atelic predicates, such as *tell jokes for fifteen minutes*, give rise to a sequence interpretation:

(15)   [It was a lovely performance]. The entertainer told jokes for fifteen minutes, sang for half an hour and danced for another half an hour.

A sequence interpretation would not arise without delimiters:

(16)   [It was a lovely performance]. The entertainer told jokes, sang and danced.

As has already been said, the line of reasoning with respect to this phenomenon suggested in Verkuyl (1999) and Reinhart (2000) implies that delimitedness should be treated at a level different from telicity/predicational aspect. Reinhart further argues that the analytical tools for the analyses of the two classes of aspectual phenomena should be different. However, it has been proposed in the literature that the distinctions between different aspectual levels can be maintained in a theory that would use the same tools to account for all aspectual data. I will call such an approach a 'generalized approach' and will discuss one specific proposal, namely, de Swart (1998). It should be pointed out that the same type of approach is advocated in Kamp & Reyle (1993), but the execution of the idea is more elaborate in de Swart's analysis.

I will analyze the questions that arise with this line of research. The general character of the issues I will discuss indicates that it is not so much a specific execution of the generalized approach which is undermined, but the underlying issue of merging two types of aspectual phenomena that are different in nature.

III.2.1. De Swart (1998)

De Swart (1998) develops an analysis of aspectual composition in the DRT (Discourse Representation Theory) framework. She assumes that "the model-theoretic notions underlying Aktionsart and aspect are the same and can be captured by introducing states, processes and events as ontological entities into the model" (de Swart, 1998:348).[8,9]

Schematically, the model can be represented as follows:

(17)   [Tense [Aspect* [eventuality description]]]

As can be seen from (17), there are three levels of representation in de Swart's model, which can accommodate aspectual information. At the first level, the level of eventuality description, the basic type of eventuality is determined. The eventuality type is derived compositionally, along the lines of Verkuyl (1993) and Krifka (1989).

There are three possible types of eventuality description, corresponding to de Swart's three ontological primitives: states, processes and events. In de Swart's words, "there is a straightforward correlation between the aspectual class of an atomic eventuality description and the type of eventuality it denotes: stative sentences introduce states, process sentences refer to processes, and event sentences describe events" (de Swart, 1998:351). The distinction I focus on here is the one between states and processes[10] on the one hand, and events, on the other. Semantically, the property of homogeneity separates these two classes: states and processes are homogeneous, events are quantized. Although de Swart does not give a definition of a quantized/homogeneous type of an eventuality description, she refers to Krifka's work, and I therefore assume that she adopts the definition of quantized/homogeneous reference from Krifka. This allows me to establish the following connection: what I call a telic predicate in the present work corresponds to the eventuality description of an event type, or just an event in de Swart's model.[11]

The progressive entailment, a telicity test discussed in chapter I, is used to show that homogeneous and quantized eventuality descriptions license different semantic entailments (de Swart 1998:349):

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[8] A note on terminology is in order here. De Swart's term *Aktionsart* is equivalent to, for instance, Smith's *situation type* and refers to the aspectual class of a predicate determined at the level of eventuality description in her own model (see the main text, especially (17)). The term *aspect* refers to viewpoint or grammatical aspect. The reader is referred to de Swart's paper (1998:347) for further terminological clarifications.
[9] The same idea is pursued in Lindstedt (1984)
[10] In Bach's (1981) terms, these two groups form a bigger category of states, which is opposed to the category of events.
[11] Krifka's definitions were given in section III.1.1.2. The reader should be reminded once again that there is an important difference between my definition of telicity and Krifka's telic predicates. The predicates that are defined as telic (non-homogeneous) according to the definition adopted in chapter I, correspond to Krifka's quantized predicates.

(18)   a. Ann was running → Ann ran
             b. Ann was running a mile -/→ Ann ran a mile

The eventuality type of the predicate in (18)a is a process. It is a homogeneous type, therefore the inference from past progressive to simple past tense is licensed. The predicate in (18)b, however, is quantized, this is the event type, and the relevant inference is blocked.[12]

     At the next level of representation in (17), a number of aspectual operators can be applied to an atomic eventuality type. The main function of any aspectual operator is to map a set of eventualities of one type into another set of eventualities of the same or some other type. For instance, if the main type of an eventuality at the predicational level is an event, the application of a progressive operator maps it into a state. This process can be recursive, which is indicated by a Kleene star in scheme (17). This means that more than one aspectual operator can be applied to a given eventuality description. The English perfect and progressive are considered aspectual operators and their subsequent application to a predicate is illustrated in (19) (the example from de Swart, 1998:356):

(19)   a. Jane has been writing a letter
             b. [PRES [PERF [PROG [Jane write a letter]]]]

Furthermore, some aspectual information can be accommodated in the tense system (the highest level in (17)). This happens when tense operators are sensitive to an eventuality type they apply to. De Swart argues that this is the case with the French Passé Simple and Imparfait: the former "requires a quantized event description as its input", whereas the latter "is felicitous only if it applies to a non-quantized, homogenous description" (ibid.:369).

     After this brief general description of the model, I will focus on the level of aspectual operators and especially on one particular case which is addressed by de Swart, namely, the treatment of delimiting adverbials. Since de Swart explicitly states that "aspectual operators impose a certain view point on the eventuality description" (ibid:351), I have every reason to believe that the level of aspectual operations in her theory corresponds to my notion of viewpoint aspect.

     The class of delimiting adverbials, as has already been said earlier, comprises temporal adverbials like *for an hour, between 3 and 5, from august till December*, the semantics of which (at least in the aspectual literature) is often associated with determining temporal boundaries of an eventuality. The idea advocated in de Swart (1998) is that duration adverbials, i.e. *for an hour*-type, modify the basic type of the eventuality description (cf. also Vet 1980, Moens 1987 and Naumann 1995), i.e. they function like aspectual operators. In particular, duration adverbials are defined as operators that change the type of eventuality from either state or process into event. Thus, if the eventuality described by a sentence *Ann ran* comes out as a

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[12] Progressive entailment will be explained in section IV.3.3.1, but not in terms of de Swart's theory.

process at the basic level of the eventuality description, the eventuality described by a modified sentence *Ann ran for two hours* is an event.

As has already been mentioned, delimited predicates with *for*-adverbials appear to share some properties with telic predicates. In particular, they induce a sequence interpretation in narrative discourse, as in (15), which is otherwise found only with telic predicates. However, I am going to show that delimited predicates also have the properties of atelic predicates. In Krifka's (1998) system, their special status was captured by assigning them two properties: cumulative and telic.

Krifka's definitions are given in (13) above. The definition of a telic predicate crucially differs from a definition of a quantized predicate. A predicate P is telic iff P applies to an event *e* and it does not apply to any subpart of *e* unless it is an initial and (at the same time) a final subpart of *e*. There is a one-way correspondence between quantized and telic: if a predicate is quantized, then it is telic, but not the other way around. Let me illustrate this system with an example.

(20)   a. Peter walked
          b. Peter walked two miles
          c. Peter walked for two hours

In Krifka's analysis, the difference between (20)a and (20)b is stated in terms of cumulativity: the predicate in (20)a is cumulative, the one in (20)b is quantized. Both the homogeneity approach adopted here and Verkuyl's compositional aspectuality theory discussed in section I.3 give essentially the same result: the predicate in (20)a comes out as atelic/durative in these approaches, whereas the one in (20)b is telic/terminative. If a predicate is quantized, according to Krifka, it is also always telic, i.e. (20)b is both quantized and telic. The predicate in (20)c, however, is *not* quantized, but cumulative. Translating this statement into the terminology adopted in chapter I, (20)c is a sentence with a homogeneous, hence atelic, predicate. What Krifka defines as a quantized predicate, corresponds to a telic (i.e. non-homogeneous) predicate in my terminology, whereas his telic predicates should be associated with my delimited predicates.

Thus, according to Krifka's definitions, *walk for two hours* is a cumulative telic predicate, since no part of *walk for two hours* can be described by the same predicate, i.e. *walk for two hours*. It can be described by expressions like *walk*, *walk for a while* or *was walking*, but crucially not by the same 'full' (i.e., including a temporal modifier) predicate as in (20)c.

In de Swart's analysis, predicates with delimiters change their basic eventuality type from process or state (atelic predicates) to event (or telic predicate) after temporal modification has applied. Generally speaking, the semantic properties of the event types themselves should always be the same and there is nothing in de Swart's system that points to the opposite conclusion. This means that once an aspectual operator has determined the event type for a given input expression, the output is semantically undistinguishable from the event type determined at the level of eventuality description. Thus, if the *for*-adverbial operator derives an event type

from a homogeneous type (a state or a process), as, for instance, happens in the case of *Andrew swam for three hours*, we expect the semantic properties of the 'derived' event type to be exactly the same as of the event type of *Eve drew a circle*. This, in turn, means that the system does not provide the means to distinguish semantically between eventualities of a 'derived' event type and a 'basic' event type.

The test used by de Swart to support this analysis is the already familiar progressive entailment test. It shows that states and processes (i.e. homogeneous types) license the inference from past progressive to simple past, whereas events block it (de Swart, 1998:356):

(21)   a. Andrew was swimming $\rightarrow$ Andrew swam
          b. Andrew was swimming for three hours $-/\rightarrow$
             Andrew swam for three hours
          c. Eve was drawing a circle $-/\rightarrow$ Eve drew a circle

The delimited predicate in (21)b appears to pattern with an event predicate in (21)c. This is the only point relevant for my discussion here and its validity is investigated in detail in the next section. Needless to say, focusing on this particular point leaves unmentioned many insights provided by other aspects of de Swart's theory.

III.2.1.1. Delimiters as aspectual operators?

An important point of the discussion above is that the properties of the alleged events, which are *derived* from states and processes by means of an aspectual operation are expected to be the same as the properties of events whose status is determined at the level of eventuality description. Nevertheless, there is a clear difference between these two types of eventualities, brought up by the results of the adverbial modification test (in/for X time).

Recall that '*in* X time'-adverbials are actually compatible with both telic and atelic expressions. However, they can only get an 'inchoative' (i.e., it took X time for P to *begin* to be the case) interpretation with atelic predicates ((22)a), but strongly prefer the 'frame' interpretation (i.e., it took X time to P) in the case of telic predicates ((22)b), although the inchoative interpretation is not ruled out either:

(22)   a. After she got the permission, she moved in a year
          b. She built her house in a year

Consider now the examples in (23):

(23)   a. [Andrew swam a mile] in a week
          b. [Andrew swam for three hours] in a week
          c. (After he saw a cat,) [my dog ran] in a second.

The expression which 'in X time' applies to is taken into the square brackets in each example. In de Swart's terms, the bracketed information in (23)a is an event, in (23)b it is an event that was derived from a process by adverbial modification, and, finally, in (23)c the eventuality type is a process. If there was no difference between underived and derived events, the prediction is that the interpretation of 'in X time' in (23)a and (23)b should be the same, as opposed to (23)c.

Interestingly, the example in (23)b rather patterns with (23)c. The only interpretation (23)b can get is the following: Andrew had to take part in a swimming competition and he was bad at swimming long distances. As a training program, his instructor told him to practice for two hours every day. The first day, Andrew could swim only for 30 minutes, but after a week of training, he could swim for three hours. In other words, (23)b is interpreted as 'It took Andrew a week to start/learn to swim for three hours'. Similarly, (23)c means 'It took my dog a second to start running (when he saw a cat)', whereas (23)a can also mean 'It took Andrew a week to swim a mile', from which we may conclude that Andrew is a ridiculously slow swimmer.[13] Crucially, the interpretation that *in*-adverbials normally get when combined with the sentence of an event type, as in (23)a, is not available for (23)b. This suggests that we are dealing with a homogeneous eventuality type in this example.

The reading that the *in*-adverbial gets in (23)b shows that delimited predicates (or derived events) have at least some properties of homogeneous eventuality types. The question that arises now is whether they really have true event type properties. The test used by de Swart to illustrate the difference between events and states/processes is the progressive entailment tests and the result of its application to delimited predicates (e.g. (21)b) suggests that they, indeed, pattern with events. Let me repeat the relevant example here for convenience:

(24)   a. Andrew was swimming $\rightarrow$ Andrew swam
          b. Andrew was swimming for three hours -/$\rightarrow$
             Andrew swam for three hours
          c. Eve was drawing a circle -/$\rightarrow$ Eve drew a circle

De Swart describes the entailment results as follows (de Swart, 1998:357)

> "As far as the semantic inferences of sentences involving *for*-adverbials are concerned, they pattern with the event sentence in (15c) [(24)c above, O.B.], rather than with the process sentence in (15a) [(24)a above, O.B.].… measurement phrases make a predicate quantized. Thus *to swim* denotes a set of processes, but *to swim for three hours* denotes a set of quantized eventualities, i.e., events"

Native speakers who have shared their intuition with me on the entailment relation in (24), do not always accept the judgement of a blocked inference in (24)b. The

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[13] It might be that Andrew is a snail.

common intuition seems to be that there is a clear difference between (24)b and (24)c and they cannot be equated in terms of their judgements.

What complicates the judgements in (24)b is that the interpretation of delimiting adverbials in the past tense sentences suggests that the reported activity of swimming is 'completed'. In particular, the sentence *Andrew swam for three hours* implies that he didn't swim for more than three hours, whereas the corresponding progressive sentence lacks this implication. However, this inference can be easily cancelled, in which case the progressive entailment holds and the sentence modified by a delimiting adverb patterns with states/processes:

(25)   Andrew was swimming for three hours before we saw him $\rightarrow$
          Andrew swam for three hours before we saw him

In (25), the expression *before we saw him* provides an explicit temporal specification for both progressive and simple past sentences. It is not of any immediate interest to us whether Andrew went on swimming after we saw him or not. What is brought up to our attention here is the period of three hours during which Andrew was swimming. As illustrated in (25), when similar conditions are imposed on the progressive and the simple past sentences, the progressive entailment is licensed. This example, therefore, seriously undermines the validity of the entailment in (24)b.

For those native speakers who accept the judgement in (24)b, a very specific interpretation has to be forced in order to see that the entailment does not go through. Suppose it was Andrew's intention to swim for three hours, but the swimming pool was set on fire while he was swimming. This context forces the interpretation of an interrupted activity: Andrew intended to swim for three hours, but had to stop after, say, an hour because of the fire. In this case, the progressive sentence in (24)b does not entail the simple past sentence. Although this is definitely a forced interpretation, it is nevertheless conceivable for some speakers, and this is sufficient to state the condition in (24)b.

However, the interpretation that 'saves' (24)b is clearly intentional: Andrew was planning on swimming for three hours, but he was interrupted by an accident. If this particular interpretation is excluded, the result of the test is clearly different:

(26)   a. Andrew was working between 4 and 7 p.m. -/$\rightarrow$
             Andrew worked between 4 and 7 p.m.
          b. The computer was working between 4 and 7 p.m. $\rightarrow$
             The computer worked between 4 and 7 p.m.

In this example, which constitutes a minimal pair, the progressive entailment is more difficult to block in the (26)a. De Swart (1998) analyzes only one type of delimiting adverbials, namely, duration adverbials like *for X time*. However, other delimiting adverbials, like, for instance, *between 3 and 5*, have, in principle, the same semantic effect of delimiting the duration of an eventuality and, therefore, should not differ in

any crucial way from the contribution of 'for X time' adverbials. In their semantic analysis, the output condition must be preserved: delimiters in de Swart's (1998) theory should always yield an event. This seems to be confirmed by (26)a, but the intentional interpretation must be imposed in order to get this judgement. If, however, this particular interpretation is unavailable, like in (26)b, the progressive entailment is licensed and this judgment is very clear for native speakers. According to de Swart's theory, there should be no difference between (26)a and (26)b with respect to the progressive entailment test. In both cases, the relevant predicates are modified by a delimiting expression 'from 4 till 7 p.m', therefore, the basic eventuality type is expected to change from process to event. The actual results obtained in (26) hinge crucially on the availability of an intentional reading.

The modal interpretation of the English progressive (cf. Dowty 1979), to the extent that it exists, hardly bears on the interpretation of the delimiting adverbials in any possible way. If this special intentionality effect is banned, the progressive test shows that sentences modified by a delimiting expression specifying duration pattern with states/processes, not events. Even more importantly, if the effect of 'completion' is explicitly overruled, like it is done in (25), the results of the progressive test also change: the sentences with delimiting adverbials, which are supposed to always exhibit a prototypical event behavior, easily pass the progressive test, just like all sentences of the homogeneous eventuality type. De Swart's argument concerning the progressive entailment, therefore, rests on the easily cancelable completion implicature and on the semantics of progressive in English, but, crucially, not on the aspectual semantics of predicates per se.

Consider now the homogeneity property of delimited predicates. If they had the same semantic properties as basic eventuality descriptions of an event type, as proposed by de Swart, we would expect them to be non-homogeneous (or quantized). In de Swart's system, homogeneity is the basic property that underlies the distinction between events, on the one hand, and states/processes, on the other: eventuality descriptions of the first type are quantized, eventuality descriptions of the second type are homogeneous. However, it is not obvious that a predicate modified by 'for X time' adverbial, which is supposed to be an event, loses its homogeneity property. Thus, if no parts of *draw a circle* can be described by the same predicate, it is much less obvious that parts of swimming cannot be described by the predicate *swim*, whether it is temporally modified or not. Let me illustrate the problem with the help of a temporal modifier like 'between 5 and 7'. Consider the following examples:

(27) a. Andrew swam between 5 and 7 → Andrew swam between 5.30 and 6.
   b. Andrew swam a mile between 5 and 7 -/→
   Andrew swam a mile between 5.30 and 6.

In (27), the results of the homogeneity test in the form adopted in chapter I are presented. The difference between the two sentences is clear: (27)a entails that *Andrew swam* between 5.30 and 6, but (27)b does not entail that *Andrew swam a*

mile between 5.30 and 6. Thus, the delimited predicate in (27)a behaves exactly like a typical state or process, although it should have become an event according to de Swart's analysis.

However, this argument appears not to be valid in a specific setting of de Swart's approach, because in her theory, when the property of homogeneity is tested, the contribution of an adverbial modifier is taken into consideration. In other words, homogeneity is tested not for the predicate *swim*, but for a modified predicate *swim between 5 and 7*. The predicate *swim between 5 and 7* is viewed in this approach as a single derived predicate and it cannot refer to any subparts of its denotation, since the duration in any case would be different. Thus, it should be compared to telic predicates like *walk a mile*.

Nevertheless, there is still a difference between predicates in (27)a and (27)b which should be explained. This difference does not only come up as something unexpected in de Swart's model, but there is absolutely no principled way to derive it. More precisely, her theory can successfully account for the behavior of (27)b: the absence of the entailment in this case is predicted, since the predicate of (27)b is telic (or quantized, or of an event type) and there is no disagreement about this in different aspectual approaches. It is the example in (27)a that constitutes a problem for de Swart's proposal. The behavior of the predicate in this sentence remains unexplained: it should pattern with the predicate in (27)b, but it doesn't. It is for this reason that the theory is set up so that this way of testing the homogeneity property is no longer legitimate.

The entailment tested in (27) bears on establishing the truth conditions of the given sentences and cannot be just put aside or totally ignored. The difference between (27)a and (27)b must be explained by an aspectual theory making use of the notion of homogeneity. My conclusion is that the homogeneity test in its 'standard' variant remains valid and that de Swart's model cannot account for the results in (27).

Note again, that in Krifka's (1998) theory, the cumulativity (i.e. homogeneity) property of telic (i.e. delimited) predicates does not change or disappear. He captures the special status of delimited predicates by an additional characteristic attributed to them: they are also defined as telic (in Krifka's terms). I see it as an advantage of Krifka's analysis over the one proposed by de Swart.

To sum up, the main idea advocated in De Swart (1998) is that an aspectual system which operates with the same kind of primitive notions at all levels of representation is beneficial. It allows for all semantic operations to be defined in terms of these primitives and, at the same time, provides enough space to accommodate the aspectual operations of different types. The idea itself is by no means flawed. In fact, in some cases it is preferable to have one set of tools rather than two. De Swart's (1998) analysis is also developed in such a way that the resulting theory captures a lot of aspectual data.

In this section, I have discussed the treatment of duration and delimiting adverbials as operators that change a basic eventuality type. In de Swart's analysis, they apply to a homogeneous eventuality type (i.e., a process or a state) and yield a

quantized eventuality type, i.e., an event. What we expect in this case is that the events derived by adverbial modification, which takes place at the level of aspectual operations, behave *exactly* the same as the basic quantized eventualities whose type is established at the level of eventuality description (cf. (17)). I have argued that this is not the case.

As the first piece of evidence against the status of the derived eventuality types modified by a temporal expression as quantized (or of an event type), I discussed the interpretation that temporal adverbials of the 'in an hour' type get when combined with a basic event, a derived event and a basic process. The results are provided in (23) and show that, contrary to the expected behavior of the derived events, which should be exactly the same as the behavior of basic events, the former pattern with basic processes. In particular, the interpretation that the *in*-adverbial gets with the basic event in (23)a, is *not available* for the derived eventuality type in (23)b. Instead, (23)b gets the interpretation similar to (23)c, which is a basic process sentence, contrary to the predictions of de Swart's theory.

Secondly, and most importantly, the results of the progressive tests given in (21)/(24) that appear to support de Swart's hypothesis concerning temporal modifiers, turn out not to be so clear-cut. According to the analysis advocated by de Swart, the entailment from past progressive to simple past in English should be blocked for both sentences like '*Andrew was swimming for three hours*' and '*Andrew was swimming a mile*'. While this is definitely the case for the latter, I have shown that the judgments for the former depend on the cancelable implicature of completion brought about by a delimiting adverbial and on the availability of an intentional reading. Thus, the proposal that temporal modifiers change the eventuality type of a predicate is not really supported by the progressive entailment, which was the only test used in de Swart's analysis.

Finally, if the homogeneity test in the form adopted in this work is taken into account, the differences in the homogeneity entailment between derived event types and simple quantized (non-homogeneous) predicates, as illustrated in in (27), are not only lost, but there is no conceivable way of explaining why the predicates in (27)a and (27)b should differ at all. De Swart's solution for this problem is to discard these results and set up a new way to test homogeneity.

These three observations point to the following conclusion: the claim that delimiting adverbs, in particular, duration adverbials, change the type of eventuality introduced by a sentence into event (a quantized eventuality type) is not empirically correct. There are a number of differences between the sentences that introduce an event discourse referent at the level of eventuality description and the sentences that introduce the event referent at the higher level of aspectual operators. Their properties cannot be captured in exactly the same way.

De Swart argues that different levels of aspectual information should be distinguished, although the tools for the analysis of different aspectual phenomena should be the same. The purpose of this section was to demonstrate that certain types of operations that take place at different levels of representation cannot be captured using the same analytical tools. It is not sufficient to state the distinction

between several levels of representation of aspectual information, it is also necessary to give an account of them in fundamentally different terms.

I consider this a general and severe problem with the basic idea of providing a generalized account of all the aspectual phenomena. This means that there is every reason to pursue an alternative to the generalized type of approach. Such an alternative will be discussed in chapter IV.

III.3. Concluding remarks

In this chapter, the discussion of the viewpoint aspect was provided. The notion of viewpoint was introduced in section III.1, and some attempts to formalize it were discussed. The general problem for all the analyses of aspect presented in that section is rooted in the fact that viewpoint aspect was defined over the same type of entities for which a situation/eventuality type or a basic telicity type is established, i.e. either eventualities or eventuality descriptions (predicates). My conclusion, therefore, is that the point of view approach itself has to be refined.

In section III.2, the problem of not sufficiently distinguishing between the aspectual phenomena of different levels was discussed on the example of the analysis of temporal delimiting expressions in de Swart (1998), developed on the ideas of Kamp & Reyle (1993). I have argued that there is no evidence supporting the claim that delimiters change the basic eventuality/predicate type established at the predicational level. If, however, one is not forced to analyze these two phenomena in the same terms, the problems pointed out for de Swart's theory simply would not arise.

In general, the evidence against a unified theory of aspect operating with the same set of primitive notions at any level of aspectual composition is compelling and comes from different sources. It was already mentioned in the introduction, that the main idea that is going to be pursued in the present work is the strict separation of 'inner' and 'outer' aspect, or telicity and viewpoint aspect. This means, that this distinction should not only be clearly stated and assumed to exist, but the aspectual phenomena of different levels should be accounted for in different terms. Subsequently, the following question must be asked: if the distinction between viewpoint and telicity aspects is made, how should it be stated?

In the next chapter, the answer to this question is provided. I will present a theory of Reference time, which provides a way of making explicit the distinction between two levels of aspectual information.

Chapter IV

Reference time

One of the topics discussed in the previous chapter was the phenomenon of delimitedness. Delimiting temporal expressions, as has been shown, influence temporal interpretation of sentences in discourse. The examples that illustrate this are repeated here from chapter III:

(1)   [It was a lovely performance]. The entertainer told jokes for fifteen minutes, sang for half an hour and danced for another half an hour.

(2)   [It was a lovely performance]. The entertainer told jokes, sang and danced.

The relevant difference between (1) and (2) is that only the delimited predicates in (1) can trigger a sequence interpretation: the entertainer *first* told jokes, *then* sang and *then* danced. In (2), an overlap interpretation arises, i.e. telling jokes, singing and dancing eventualities are not temporally ordered. However, as has been argued earlier, having an indicated temporal boundary, which is usually done by delimiting expressions like 'for 5 years' or 'from January till May', does not change the basic properties of predicates or eventualities. This means that there should be another entity that delimiting expressions operate on.

The idea to relate delimitedness to the notion of Reference time was put forward in Reinhart (1986, 2000). On her analysis, which will be presented in detail in section IV.3, delimiting adverbials are treated like modifiers, but the modified entity is crucially different. Reinhart argues that delimiting adverbials do not operate on a predicate itself and, therefore, do not modify, change or influence the properties of a predicate. What delimiting adverbials are taken to restrict is actually the Reference time interval.

The notion of R(eference time) is going to be the main subject of the present chapter, since it plays a crucial role in the account of Russian aspect that I am going to propose in the present work (see chapter V). Reinhart notices that Reference time (or, more precisely, the relation between Reference time and Speech time) is the closest conceptual entity to the informal notion of 'perspective' or 'point of view' in the literature on aspect. Then the following connection is established: Reference time, which is already a well-known linguistic notion, is a tool to account for both

perspective, which underlines the point of view approach to aspect, and delimitedness, which is often considered to be relevant for aspectual theory at the discourse level.

In this chapter, I will 'trace' the development of the notion of Reference time, starting from a brief review of Reichenbach (1947) in IV.1. As will be shown in IV.2, there are two main areas in linguistics that use the notion of R-time: temporal semantics and discourse studies, especially those that focus on narrative progression principles, where the phenomenon of delimitedness becomes especially relevant. The rules of temporal organization of narrative discourse have been extensively discussed in the literature (e.g., Partee (1984), Hinrichs (1986), Dowty (1986), Hatav (1997) and Kamp & Reyle (1993) among many others). The challenge is, however, to define the notion of Reference time in such a way that it can be successfully applied in both areas without distinguishing several notions of R-time (like, for instance, in Kamp & Reyle (1993)). A theory of Reference time based on such a definition should capture both the basic properties of tense systems across languages and account for the fundamental facts discussed in the discourse literature on the temporal properties of narration. It will be shown, that the two uses of Reference time, the one for the tense systems (section IV.2.1) and the one for the discourse analyses (section IV.2.2), have existed independently. A unified treatment of Reference time based on the proposal of Reinhart (1986, 2000) is discussed in IV.3.

IV.1. The notion of Reference time

The concept of Reference time is well known in linguistics. It was introduced by Reichenbach (1947) and has been widely used in the literature on tense and aspect since then. Reichenbach himself does not give a definition of R, but illustrates its use in linguistic theory, and this is one of the reasons why R has always been the subject of reinterpretation.

The interpretation of R in the present work will be similar, but not identical to Reichenbach's original interpretation. Reichenbach (1947) is not explicit about the temporal nature of R-time: in his analysis, temporal expressions like *yesterday* or *in 1943* determine the R-time, which suggests that R-time is not really a temporal point (i.e., it is considered to be a moment of time), but the analysis of tenses developed in Reichenbach's work does not involve temporal intervals. In this work, however, I assume the temporal interval to be a semantic primitive. Following Bennett & Partee (1972/78), Dowty (1979) and others, R(eference time), as well as S(peech time) and E(vent time) are taken to be interpreted not as points, but as temporal intervals. This step will be discussed in more detail in section IV.3.

IV.1.1. Reichenbach (1947)

In "Elements of Symbolic Logic" Reichenbach proposes an analysis of the English tense system, based on three notions: S, which corresponds to the *point of speech*, E, the *point of event*, and, finally, R, the *point of reference*. There are two temporal relations that can be established between these entities: precedence and simultaneity. The intuitive interpretation of the first two notions seems to be relatively straightforward: S is the point in time which correlates with the time of the actual act of speech reporting on a certain state of affairs, which took place at some other point in time, referred to by E. This is the simplest way of establishing temporal relations that natural languages use: the placement of two related events on the time axis. Languages usually conceptualize real time as a vector directed from 'past' to 'future' and the basic linear relations (like, e.g., precedence) between different points on this axis are relatively easy to establish. The relation between S and E defines three basic temporal relations in natural languages: present, past and future. In Reichenbach's notation, simultaneity is expressed by comma, precedence by _.

(3)   a. I see John   S,E
        b. I saw John   E _ S
        c. I will see John   S _ E

However, operating with only two notions, E and S, a system of temporal relations for a language like English cannot be built. Reichenbach observes that it is not possible to give different representations for the following sentences on the basis of a direct relation between S and E:

(4)   a. Mary has seen John
         b. Mary saw John

Both sentences are interpreted as reporting on an eventuality that occurred in the past, i.e. prior to the Speech time. Therefore, the representation for both of them in terms of just S and E would be the same, namely E_S. To solve this problem, Reichenbach introduces the third notion, the Reference point, which is required in his analysis to distinguish between the two examples in (4), ascribing them the representations in (5)a and (5)b respectively:

(5)   a. E_R,S
         b. E,R_S

More generally, the reason for Reichenbach to introduce R was his wish to deal with so-called "complex" tenses, i.e. perfect tenses in English. He motivates this step as follows (Reichenbach 1947:288):

'From a sentence like 'Peter had gone' we see that the time order expressed in the tense does not concern one event, but two events, whose positions are determined with respect to the point of speech. … the point of the event is the time when Peter went; the point of reference is a time between this point and the point of speech'

The representation assigned to past perfect is given in (6):

(6)   I had seen John   E _ R _ S

Reichenbach also notes that, if not restricted, the system with 3 time points extensively overgenerates in the sense that the logical possibilities of ordering S, R and E allowed by the original system are not exhausted. To make the system more restrictive, he proposes to consider only two 'main' types of relations (ibid.:297):

'The position of R relative to S is indicated by the words 'past', 'present' and 'future'. The position of E relative to R is indicated by the words 'anterior', 'simple' and 'posterior', the word 'simple' being used for the coincidence of R and E'

This leaves us with 3x3=9 possibilities, which is too many for English anyway. Therefore, in Reichenbach's analysis some of the English tense forms receive several representations. It has been noted as a disadvantage of the system in, e.g., Verkuyl & Le Loux-Schuringa (1985), Vikner (1985). The tenses in English that receive more that one interpretation are Simple Future, Future Perfect and Future in the Past:

(7)   a. I will walk
              S, R _ E or S_ E, R or S_ R_ E
           b. Mary will have seen John
              E_S_R or E,S_R or S_E_R
           c. Mary would see John
              R_E_S or R_E,S or R_S_E

Note also, that in a sentence with Past Perfect, e.g., '*I had met him yesterday*', in Reichenbach's words, "what was yesterday is the reference point, and the meeting may have occurred the day before yesterday" (Reichenbach 1947:294). The function of temporal expressions with 'when', 'before' or 'after' is to *compare* the reference points of different clauses, i.e. to establish a certain temporal relation between them. Thus, it is also noted by Reichenbach that the R-times in complex sentences obey some rules. He considers two examples. The first one is *"How unfortunate! Now that John tells me this I have mailed the letter'*, where the reference point of the

sentence '*John tells me this*' coincides with the speech point and does not change with the sentence *'I have mailed the letter'*, justifying the use of the perfect tense:

(8)   *John tells me*   *I have mailed*
           E,R,S   E_R,S
       └────────── = ──────────┘

This is an example of the rule of 'the permanence of the reference point', in Reichenbach's words. In cases like *'He telephoned before he came'*, the two reference points are ordered *sequentially*. In other words, in the last example, the R-point of the first clause precedes the R-point of the second one:

(9)   *He telephoned*   *he came*
           E,R_S   E,R_S
       └────────── < ──────────┘

To conclude this section, I would like to point out again, that the notion of Reference time is introduced to account for the English tense system in Reichenbach's analysis, but he also notices that Reference times can be ordered and participate in establishing temporal interpretation of parts of complex sentences. The latter use of Reference time can be extended from complex sentences to a sequence of sentences, i.e., to discourse, and it is currently known as the phenomenon of Reference time movement.

IV.2. Reference time movement

There is general agreement about the importance of Reference time in the temporal analysis of narrative discourse. The crucial role that R plays in discourse studies is not a matter of controversy, but nevertheless, it would be useful to review some arguments that would justify the use of this notion. Consider, for instance, the following observation. If two reported eventualities share an R-time, which is specified by a temporal expression like *Sunday*, it is possible to get any ordering between them, including overlap:

(10)   On Sunday John's sister got married and he left for Africa.

In this case, John might or might not be at his sister's wedding, i.e. he might have left earlier, later or at the same time as his sister was getting married. There is nothing in a given discourse that would preclude either interpretation, because both eventualities share the same reference time, i.e. 'Sunday'. Notice, that in the 'real world' these two eventualities were probably chronologically ordered, but we cannot establish a linguistic sequence in (10).

Reference time appears to be a very useful tool in analyzing temporal dependencies that are established between sentences in discourse. It was noticed in, e.g., Kamp & Rohrer (1983) and Reinhart (1984), that for a sequence of sentences in a narrative text, if they all appear in the past tense form, it is not sufficient to say that the eventuality described in a given sentence occurred before the speech time, which is just the basic meaning of the past tense. In the cases like "*John went to the kitchen. He made some tea for his guests*" one has to provide not only the interpretation of every given sentence in isolation, but to establish the ordering of the eventualities reported to get the right temporal dependencies. A model that allows for doing that was developed in Kamp (1981), Partee (1984), Kamp & Reyle (1993) within Discourse Representation Theory (DRT). In this theory, sentences are not only evaluated with respect to Speech time, but are also accommodated into the preceding discourse. Every subsequent sentence brings about some new information, which has to be incorporated into the structure (discourse representation structure or DRS), which has been formed as a result of processing the information conveyed by the preceding sentences in a given discourse. This theory allows us to formalize certain relations between sentences and provides a means to model anaphoric and temporal dependencies in discourse. Each particular sentence in the past tense, for example, is given the truth conditional interpretation that requires the described eventuality to precede the Speech time. The sentence is further evaluated with respect to other sentences in discourse, and one of the relations that can be established as a result of this evaluation is temporal ordering.

The range of temporal relations that can be established between sentences can by no means be reduced to sequence and overlap. Lascarides & Asher (1993) develop a formal analysis of some discourse relations between propositions. I will focus only on one of them, namely, narration. The organization of a narrative text is always temporal: narrative texts report on a sequence of temporally ordered eventualities. Some studies on temporal relations in narrative discourse include Kamp & Rohrer (1983) and de Swart & Molendijk (1999) for French, Hatav (1997) for Biblical Hebrew.

The overview of Reichenbach (1947) in the preceding section shows that originally the notion of R was needed for two purposes: to interpret the tense forms and to help to 'hook up' parts of complex sentences and create sequences by ordering reference times. Kamp & Rohrer (1983) suggest that the rules for determining the temporal interpretation of a sequence of sentences should, in principle, be similar to the rules that deal with the interpretation of tense forms in complex sentences. In many cases R-time in Reichenbach's system is specified by contextual information, which points to the discourse-oriented character of this notion. Kamp & Rohrer use the past perfect as an illustration of how R actually works for discourse. The representation given by Reichenbach to the past perfect form in English is repeated in (11):

(11)   Mary had left *when I talked to John*.
          E _ R _ S

The italicized part of the sentence, i.e., the temporal subordinate clause, specifies the Reference time to justify the use of the past perfect in the first clause. Kamp & Rohrer (1983) note, that when the complex sentence 'breaks up' into two simple sentences, the interpretation remains the same:

(12)   I talked to John. Mary had left.

Thus, there is no relevant difference between (11) and (12). In both cases the sentence *I talked to John* provides a Reference point for the other sentence, which locates the eventuality of my talking to John before that R. The order of the sentences does not appear to be important. The sentence with the past perfect always needs a specified R-time to be interpreted. This is what has been called the 'parasitic' nature of the perfect (Hatav 1997).

Partee (1973) introduced the notion of 'temporal anaphor'.[1] Although she does not explicitly use the notion of R time, the 'anaphoric relations' that she considers are very closely related to the relations between sentences or a sentence and the preceding discourse that are explicitly accounted for in terms of Reference time in the current literature. She notices that in order to give the right truth conditions for the past tense sentences, they should be evaluated with respect to some contextually given temporal interval, not the whole period of time before the speech time. Consider, for instance, her famous example 'I didn't turn off the stove'. When such a sentence is uttered by a person who is driving on the highway, it does not have to be the case that the speaker never ever turned off the stove. The interpretation that we get is, rather, that turning off the stove did not take place in some contextually relevant temporal interval before the S-time, when the speaker was leaving home. This interval is an unspecified Reference time. Hinrichs (1986) discusses more cases of 'anaphoric' relations in temporal domains and provides an analysis in terms of Reference time. One of the cases that Hinrichs considers is the 'temporal anaphora' between simple past tense sentences, which results in a sequence or overlap interpretation.

The notion of Reference time in relation to the temporal interpretation of a succession of sentences, or, more specifically, in the narrative discourse, emerges in Partee (1984), Hinrichs (1986) and Reinhart (1984) among others. The analyses developed in these papers explain the temporal sequence in terms of Reference time *movement*: each sentence in the narrative sequence describes an eventuality that is located in a corresponding Reference time. Simultaneously, a new R-time is introduced into the discourse structure, which, in turn, includes the eventuality described by the following sentence and so forth.

Another fact that has been noticed and extensively discussed is that the aspectual type of the predicate of a sentence, i.e., its telicity properties, influences

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[1] The idea pursued in Partee (1973, 1984) is that the behavior of the temporal anaphor is identical to the behavior of pronouns. This analogy is supported by a solid body of facts, but there are, nevertheless, some important differences between temporal and pronominal anaphora. The details of this analysis do not appear to be crucially important for the present work; the interested reader is, therefore, referred to Partee's original papers for discussion.

the temporal interpretation of this sentence in a narrative discourse. We understand the succession of sentences in (13) as reporting on a temporally ordered sequence of eventualities. On the other hand, (14) is interpreted as a temporal overlap between the reported eventualities (i.e., they do not follow each other, but rather occur roughly at the same time):

(13)   The man arranged the stiff table linen, filled the two tumblers from a huge cut-glass pitcher, and set them in their proper places.

(14)   Jaime was building another boat. He sang happily as he worked, the muscles of his brown arms rippled in the sun, and crispy wood shavings made a carpet between his bare feet and the sand.

The difference between (13) and (14) (the examples are from Hinrichs 1986:67-69) is explained by the distinction between *events* (=eventive sentences) and *states* (=stative sentences). The former type contains a telic predicate, while the predicate in the stative sentences is atelic. It is a succession of eventive sentences, as in (13), that creates the effect of a sequence, or 'time movement' in narrative discourse, whereas stative sentences, as in (14), usually bring about a temporal overlap interpretation. The notions of *state* and *event* are taken to be primitive ontological notions in some work (e.g., Kamp & Reyle (1993), henceforth K&R). I will not follow K&R in this assumption, so for the time being, the reader should interpret both terms as referring to different types of sentences, not ontological categories.

   The observations concerning the interpretation of (13) and (14) have led a number of researchers to stipulate different representations for stative and eventive sentences to account for their different behavior in discourse. Since temporal relations in narrative texts are usually analyzed in terms of Reference time, different types of sentences are assumed to relate to the current R-time in different ways. This is the line of reasoning taken in Partee (1984), Hinrichs (1986) and K&R (1993).

   Let me now introduce the basic mechanism of R-time movement. In the presentation here, I will mostly rely on Partee (1984), who, in turn, provides a synopsis of a number of proposals, in particular, Hinrichs (1981), Kamp (1979, 1981) and Bach (1981).

   Suppose that all tenseless sentences can be classified into states and events, depending on the type of a predicate they introduce (or the type of the situation they describe). The crucial idea can be formulated as follows: an event *e* is said to be contained in a current reference time interval, whereas the relation is reversed in the case of states *s*: they contain the current reference time, as depicted in ((15)a,b):

(15)   Events are contained in their R, states contain it:
         a. $e \subseteq R$ for events
         b. $R \subseteq s$ for states

In the subsequent presentation I am going to use notations $[_R e]$ for (15)a and $[_s R]$ for (15)b. The inclusion relation in the notations is represented by using square brackets. Symbols *s* and *e* stand for 'state' and 'event' in these notations.

Depending on the framework, the R-time has either to be viewed as a semantically empty (i.e. contentless) event or as an interval, which can be accommodated into event structure using, for instance, the 'translation' mechanism, as proposed in Kamp (1979). The first sentence in a past narrative discourse cannot be interpreted without some default past reference time (Partee 1973), so there is always an initial R-time present in the discourse representation. As an illustration of how this approach works in general, consider now (16). A simple narrative discourse is given in (16)a, with the suggested DRS in (16)b (Partee 1984:254-255):

(16) a. Jameson entered the room (e_1), shut the door carefully (e_2), and
switched off the light (e_3). It was pitch dark around him (s_1), because the
Venetian blinds were closed (s_2).
b. DR (discourse representation):

$$
\begin{array}{|l|}
\hline
r_0 \ e_1 \ r_1 \ e_2 \ r_2 \ e_3 \ r_3 \ s_1 \ s_2 \ r_s \\
e_1 \subseteq r_0 \\
e_1 < r_1 < r_s \\
e_2 \subseteq r_1 \\
e_2 < r_2 < r_s \\
e_3 \subseteq r_2 \\
e_3 < r_3 < r_s \\
r_3 \subseteq s_1 \\
r_3 \subseteq s_2 \\
\\
e_1: \boxed{\text{Jameson enter the room}} \\
e_2: \ \dots. \\
\hline
\end{array}
$$
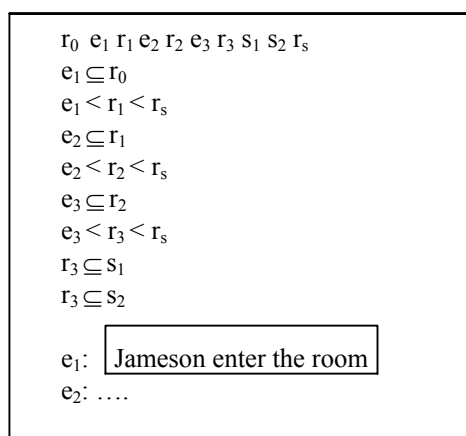
In (16)b, *r* stands for Reference time, r_s for Speech time. In the first row of (16)b, a number of discourse referents is listed. They can (i) be assumed to always be a part of discourse representation, like r_0, a default R-time, and r_s, Speech reference time;[2] (ii) be introduced by actual sentences or clauses (e_1, e_2, e_3, s_1, s_2); or (iii) be introduced during the construction of a representation (r_1, r_2, r_3). This representation is not very precise, but it serves the present purpose, which is to illustrate a basic mechanism of R-time movement. As can be seen, when an event reference is introduced, it is always contained in a current R-time and triggers the introduction of a subsequent R-time. Thus, e_1 is launched by the default R-time r_0, then a new R-time, r_1 is generated and the relative order between e_1, r_1 and r_s is established. The next event, e_2, is included in r_1 and the procedure repeats once again. At the point when e_2 is introduced into discourse, it is already known that e_1 precedes e_2 due to

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[2] As far as I can see, Speech reference time and Speech time are essentially the same notions.

the relative order of e_1 and r_1, which includes e_2. Both e_1 and e_2 precede r_s, i.e. it is a sequence of events that happened in the past. When the system encounters the first state, s_1, the R-time movement rule says that a current R-time should be included in this state and no new R-time should be introduced. This is why in the above representation s_1 and s_2 both include r_3, which was a current R-time when the first state appeared.

If the relations in (15) are assumed to hold, as in (16)b, then in the default case, a chain of events is interpreted sequentially: each event is contained in its reference time, the reference times are ordered.[3] The default interpretation, however, can be overruled under certain conditions, so that in principle, events can be interpreted as occurring simultaneously, e.g., *He read a letter and ate an apple (at the same time)*. It means that only eventive sentences can give rise to a sequential interpretation. This part of the generalization indeed holds. As for the stative sentences, there are tricky cases, namely, sentences with delimited predicates (see section IV.2.2.). However, the generalization in (15) really captures a lot of data, (16) being just one representative example of the application of rule (15). On the other hand, (15) is stipulative: it is derived from the description of the relevant facts, but not independently motivated. There are further problems with (15), which deserve special attention. They will be discussed in the next subsection.

IV.2.1. Tense issues

The first question that I want to consider with respect to (15) is whether or not it allows for a uniform representation of tenses. (15) is a central assumption in Partee (1984) and Hinrichs (1986),[4] and their primary concern is to analyze the discourse relations. Recall, however, that the R-time is the notion that was originally introduced for the representation of the tense system. On the assumption that we are still working with the same 'Reichenbachian' notion, the stipulation about states and events relating to the R-time in different ways seems to work for discourse effects, but would it work for the tense system? The question appears to be especially important when it comes to the representation of the present perfect.

First consider an 'easy' case, namely, the English simple past. Reichenbach's representation of it is repeated below:

(17)   E, R_S

Note that 'E' in this case is a primitive and it refers to an eventuality, which is a common term for both states and events. The representation is uniform, i.e., the type

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[3] It is also well-known that a neat sequence is not always established if the subjects of the sentences that constitute a narration are different:
          (i) John entered the room and switched on the lights. Mary closed the Venetian blinds.
[4] From now on I will refer to these two papers as Partee/Hinrichs analysis, keeping in mind that the unifying relevant feature for both approaches is the stipulation of different relations between the R-time and states *vs*. events.

of the predicate of a given sentence is not taken into account here. Moreover, in Reichenbach's representation, E, R and S are treated like points and now have to be translated into a representation based on intervals. The notion of temporal interval will not be properly introduced until section IV.3.1, so the reader has to take it for granted at this point, on the basis of a quite standard intuition about intervals. For events, the 'translation' of Reichenbach's representation in (17) into the framework of interval semantics is given in (18), where E, R and S all denote temporal intervals:

(18) $E \subseteq R \ \& \ R < S$

The analysis along the lines of Partee/Hinrichs is based on the assumption that stative and eventive sentences behave differently with respect to the current Reference time: states include R, but events are included in R. They do not discuss the tense issues, but if one wishes to unify the uses of R-time, one can consider some logical options. It appears that the system advocated in Partee/Hinrichs leads to different representations for one and the same tense, depending on whether a sentence in question is stative or eventive. For instance, the representations for the simple past tense in English should look like this:

(19)   a. $e \subseteq R \ \& \ R < S$ for events
         b. $R \subseteq s \ \& \ R < S$ for states

Similarly, for present (20) and future (21), two sets of representations should be given: one for events in each tense, the other one for states:

(20)   Reichenbach: E, R, S
        Partee/Hinrichs: a. $e \subseteq R \ \& \ S \subseteq R$ for events
                            b. $R \subseteq s \ \& \ S \subseteq R$ for states
(21)   Reichenbach: $S \_ R,E$[5]
        Partee/Hinrichs   a. $e \subseteq R \ \& \ S < R$ for events
                            b. $R \subseteq s \ \& \ S < R$ for states

The necessity to give two different representations for different types of sentences, although a disadvantage in comparison to any system with a uniform representation for the same tense, is not a fatal problem for the approach yet. Besides, in the representations given above it is obvious that the relation between S and R is the proper 'tense' relation, in accordance with Reichenbach (1947). Moreover, (19) predicts that the described eventuality does not hold at S in the case of events, which is also a desirable result. In order to discover a real problem, let us now look at the representation for the present perfect tense.

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[5] Note that in Reichenbach's system, future is associated with three different configurations, as illustrated in (7). Here, for simplicity's sake, I choose the representation in which R and E are simultaneous. It also provides better comparison with the representation for past tense.

The essence of Reichenbach's representation for the present perfect, repeated in (22)a, is that Reference time coincides with Speech time. As Reinhart (1986) argued, a translation of Reichenbach's representation into the framework of interval semantics, combined with the DRT insight that the basic relation between E-time and R-time is a subset relation (at least for events), should derive the representation for present perfect as in (22)b. This representation states that both E and S intervals are contained in the R-time, but E still precedes S.

(22)   a. Reichenbach   E_R,S
         b. Reinhart $E \subseteq R \ \& \ S \subseteq R \ \& \ E < S$

Since the early DRT did not offer an analysis for tenses within their framework, it may be assumed that it would be done along the same lines as in (22)b. Given the generalization in (15), a distinct representation for states in present perfect is needed, similarly to other tenses:

(23)   Reichenbach   E_R,S
         Partee/Hinrichs   a. $e \subseteq R \ \& \ S \subseteq R \ \& \ e < S$ for events
                               b. $R \subseteq s \ \& \ S \subseteq R \ \& \ s < S$ for states

However, as Reinhart (2000) pointed out, the representation for states in (23)b is contradictory, since all the requirements in the first, second and last conjuncts cannot be fulfilled simultaneously. The last conjunct in (22)b, i.e. E<S, is required to render the interpretation of the present perfect tense, which asserts that the described eventuality occurred prior to the S-time. When this applies to events in DRT framework, as in (23)a, the result is straightforward. In a representation for states, present perfect should also capture the fact that *s*(tate) precedes S-time, hence this condition (s<S) must be maintained in (23)b. However, if *s* must both contain its R-time and precede S-time, S cannot be contained in R at the same time.

Now let me turn to the representation of tenses in Kamp & Reyle (1993), especially because they assume, exactly like Partee and Hinrichs, that states and events bear different relations to the R-time. Their system does not derive contradictory or inconsistent representations for the present perfect tense. Nevertheless, as I hope to show, K&R face problems of a different character.

IV.2.2 Kamp & Reyle's (1993) representation of tenses

K&R give a representation for each sentence in the form of DRS, Discourse Representation Structure, a simplified version of which was given in (14b), which includes all temporal information, as well as the relevant aspectual information. Two types of relations have been determined for sentences in their DRSs that are important for our present purposes. The first one is the precedence relation (with an

option of equality) which is established for t (temporal location) with respect to n (*now*, or utterance time). The second one is an inclusion relation which is established between a temporal location t and the aspectual type of a predicate, similarly to the Partee/Hinrichs analysis.

K&R postulate two primitive aspectual notions: states and events (s and e). It is specified for each sentence what kind of primitive it introduces. Thus, the sentence *Mary wrote a book* introduces an event *e:Mary write a book*, but *Mary lived in Amsterdam* introduces a state *s:Mary live in Amsterdam*. The distinction intuitively corresponds to the telic/atelic type of predicates, but is formulated in completely different terms.

The different relations between states and events and their respective temporal location times t are also represented in a given DRS. The DRSs for events always contain '$e \subseteq t$', which reads 'e is included in t'. The DRSs for states feature 't o s', which means that t and s overlap. Intuitively, the temporal location t in this model comes close to the notion of Reference time, n obviously correlates with the Speech time. Note, however, that K&R need more than one theoretical tool to capture all the functions of Reference time. As they put it, Reichenbach 'wanted his notion of reference point to do too many things at once' (K&R,1993:594). Therefore, they break up the notion of Reference time into the Reference point (Rpt), which accounts for narrative progression in their analysis and the temporal perspective point (TPpt), which is needed for the analysis of past perfect. In combination with their notion of temporal location t, which seems to correspond directly to Reichenbach's R-time in the analysis of tenses, K&R's system needs three notions to replace Reference time. In principle, a model that operates with fewer theoretical tools and can capture the same collection of facts should be preferred on general conceptual grounds.

Let me concentrate on the representation of the 'tricky' tense, namely, present perfect in English. Generally, in K&R's model perfect is an aspectual operator that takes eventualities of any type as input and always yields a state as output.[6] The resulting state is an 'outcome' of some event that happened in the past, i.e. before 'now'. For a sentence like '*Mary has met the president*' it means that the event of Mary meeting the president happened in the past and immediately after that the state of Mary having met the president began. Below I provide DRSs for 3 sentences in the present perfect, taken from K&R, chapter 5, section 5.3.4.

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[6] This is also how perfect is treated in de Swart's (1998) analysis, discussed in section III.2.

(24)   DRS for 'Mary has met the president' (K&R, 1993:573)

```
n s t x e y

t = n
t ⊆ s
Mary (x)
e ⊃⊂ s
the president (y)
e: [x meet y]
```

This is the first representation. What the DRS for this sentence says is the following: there is an event *e* of Mary meeting the president and it abuts[7] the state which results from this event (i.e. the state of Mary having met the president), this state *s* overlaps with the temporal location time *t*, which, in turn, coincides with *n* 'now'. The presence of an event, which occurs before the state introduced by the present perfect is crucial in K&R's treatment of this tense. This will always work fine if the event is introduced in a DRS because of the aspectual properties of a sentence. If a sentence, however, introduces a state variable, then the event that 'abuts' this state has to be somehow stipulated. It brings us to the next two DRSs, which both represent stative sentences.

First of all, I should mention that K&R distinguish between stative sentences with and without temporal modification. As they claim, these two types of sentences have different interpretations. For (25), the sentence without temporal modification, K&R's interpretation is that the state described by the perfect tense, i.e. the state *s* of *Mary having lived in Amsterdam*, is the result of the termination of the state *s'* of *Mary living in Amsterdam*, so that *s'* precedes *s*.

(25)   DRS for 'Mary has lived in Amsterdam' (K&R, 1993:580)

```
n t s x s' e

t = n
s o t
Mary (x)
e = end(s')
e ⊃⊂ s
s': [x live in Amsterdam]
```

The DRS for this sentence says that there was an event *e* consisting of terminating the state *s'* of Mary living in Amsterdam. By postulating a special event of termination in the representation of stative present perfect sentences K&R achieve a

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[7] The 'abut' relation in the DRT renders the 'immediately before' meaning and is written as '⊃⊂'.

certain uniformity in the representation of present perfect: in both (24) and (25) there is an event that abuts the state described by a perfect tense, which holds at the utterance time. Their prediction is, however, that the sentence '*Mary has lived in Amsterdam*' without any temporal modification entails that Mary does not live in Amsterdam any longer. This seems to be the correct prediction in some cases, although the verb '*be*' in the present perfect does not appear to confirm it. Consider, for instance, (26):

(26)   (the conversation takes place in Paris, where Mary is originally from)
          I know Mary has been in Amsterdam. I don't think she's back yet though, she only comes home for Christmas.

The interpretation of this sentence allows for the state *s'* of Mary being in Amsterdam to hold at the moment of speech, which means that there should be no event of termination of the state of Mary being in Amsterdam in the DRS of this sentence.

In fact, it seems that with stative verbs like *hate* or *love* in the present perfect tense the implication that the described state of affairs does not hold any longer is a cancellable inference. Consider the following examples:

(27)   a. I've truly loved John. In fact, I still do.
          b. I've hated John with all my heart. Actually, I still hate him.

The contrast with eventive sentences is really sharp:

(28)   a. *I have eaten breakfast. In fact, I'm still eating breakfast.
          b. *I have written this memo. Actually, I'm still writing it.

Thus, K&R's requirement that in the present perfect sentences the state *s'* described by a stative predicate always terminates is too strong.

Now let me turn to the second group of stative sentences, namely, the ones with temporal modification. All sentences in the present perfect modified by delimiting adverbials like *for an hour* allow for the interpretation where the termination of the state described is *not required*. To account for this fact, K&R claim that it is the temporal modifier that gives rise to the ambiguity in the meaning of the sentence. The reading that is achieved depends on which part of the sentence is being modified, or, more precisely, on the place of the attachment of a temporal modifier. I illustrate this point on the example in (29):

(29)   DRS for 'Mary has lived in Amsterdam for 3 years' (K&R, 1993:586-7)

a.   b.

n t s x s' e mt

t = n
s o t
Mary (x)
e = end (s')
e ⊃⊂ s
three years (mt)
dur (s') = mt
s': [x live in Amsterdam]

n t s x s' e mt

t = n
s o t
Mary (x)
e = beg (s')
e ⊃⊂ s

dur (s') = mt
s': [x live in Amsterdam]

┐ | e'
e' < n
e' = end(s') |
   |---|
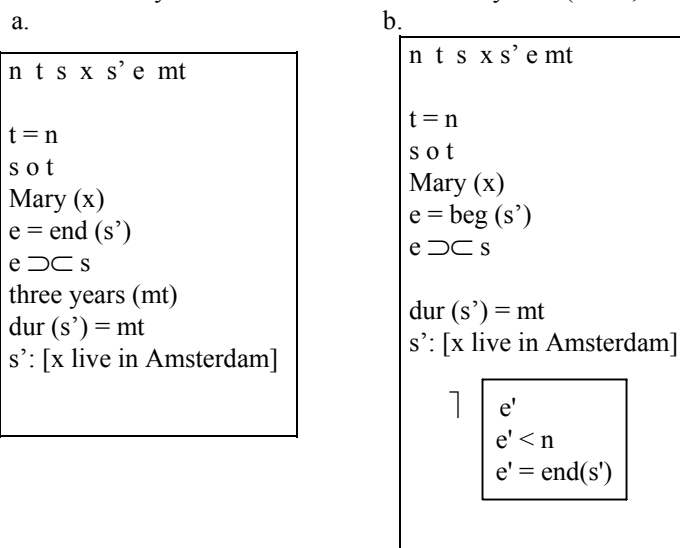
One possibility is that the temporal adverbial *for three hours* modifies the state of Mary's living in Amsterdam, *s'* in the DRS (29)a and attaches to the VP at the same level as the PP '*in Amsterdam*'.[8] In other words, the temporal adverbial here limits the duration of *s'*:*Mary lived in Amsterdam*. Semantically, *for three years* introduces a discourse referent **mt** (=amount of time), which measures the duration (cf. **dur**-function in the corresponding DRS) of a given eventuality.

    However, this representation yields a wrong empirical result. What is predicted is that Mary no longer lives in Amsterdam, but consider (30):[9]

(30)   Mary has lived in Amsterdam for three years and now she's got a PhD
         position at the University. So now she's staying in Amsterdam for 4 more
         years.

In order to avoid this problem, K&R claim that there is always the second reading available for stative sentences with temporal modifiers, which is represented in DRS (29)b. The temporal modifier this time attaches to a 'bigger' piece of structure,

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[8] In other words, the durative adverbial is treated like another argument of the verb '*live*'. As K&R admit, this assumption may be problematic for syntactic reasons. I have argued in the previous chapter that this assumption is indeed problematic for both syntactic and semantic reasons.

[9] K&R argue that this reading is a 'special' case and languages like German or French do not allow this use of perfect. However, the following example (provided by Patrick Brandt) shows that reading is available in German, too:
    (i)   Ich hab hier jetzt drei Jahre lang gewohnt und ich will hier wohnen bleiben
            I have here now three years long lived   and I want here live   stay
The sentence sound very natural in the situation when, for instance, a tenant's contract expires and there is a potential threat to be thrown out of the apartment, but the person still lives there and wants to stay longer.

somewhere at the level of the PERF operator. As K&R say, it is difficult to determine if the modifier in this case measures the duration of the state *s':Mary lived in Amsterdam*, just like in (29)a. They, however, assume it does, because there seem to be no other examples where the *for*-adverbial would measure the duration of the resulting state described by the perfect. In general, the DRS in (29)b says that "the perfect describes the result state **s** as starting *at the beginning* of the underlying state **s'** and as lasting for as long as three years, with the proviso that **s'** has not yet come to an end" (K&R, 1993:586-7).

To sum up, the system that K&R suggest, works according to the following algorithm. The first step is to establish whether a given sentence in present perfect introduce an event or a state discourse referent (*e* or *s*). In the former case, no more information is needed: the already introduced event primitive abuts the state that is described by a perfect tense (i.e. *have V-ed)* and this state holds at the utterance time. This case is illustrated in (19). If a sentence introduces a state, there is one more condition to be considered, namely, the absence/presence of a temporal modifier. If there is no modifier, like in (25), an additional event referent *e* is postulated. This event is associated with the termination of a state described by a tenseless predicate and abuts the resulting state, described by the perfect tense. If there is a temporal modifier, then further interpretational ambiguity arises. In any case, an additional event referent has to be introduced for stative sentences. If a state described by a perfect tense (*have V-ed)* does not hold at the utterance time, the procedure is the same as for sentences without temporal modification: the event is associated with the termination of the state described by a tenseless predicate, as in (29)a. If, however, a resulting state does hold at the utterance time, i.e., there is no termination of a state described by a predicate, then the additional event referent is associated with the beginning of the state. This was shown in (29)b.

Obviously, the different treatments of several types of sentences with the same tense form considerably complicate the analysis. My concern is that although K&R's theory is designed in a way that allows for capturing a lot of data, it gets more and more complex and quite unwieldy by the time all the relevant cases are accounted for.

One immediate question concerning their treatment of the perfect tense is the following: why is it the case that the possibility to associate an additionally introduced event referent with either the beginning or the end of a relevant state directly depends on the presence of a temporal modifier? This connection, as far as I can see, is completely arbitrary and there is no principled independent reason why it should exist. There is no theory-internal motivation either: nothing in K&R's model can predict such a close tie between these two entities. If we go back to the example in (25) and try to re-write the relevant piece of DRS such that the event *e* equals the beginning of state *s'*, i.e. *e=beg(s')*, the interpretation arises that K&R explicitly rule out: the sentence *Mary has lived in Amsterdam* would mean that Mary still lives in Amsterdam. This arbitrariness is, definitely, a serious flaw of K&R's system.

Moreover, the interpretational differences between present perfect sentences in English with and without temporal modifiers are not so strong and sharp. I have

provided some examples in (26) and (27) to illustrate that the so-called 'ambiguity' in the interpretation of stative present perfect sentences (the described state finished *vs*. not finished) is not really determined by the presence of a temporal modifier. These examples allow for an interpretation where a state described by a predicate holds at the utterance time. In other words, the state of Mary being in Amsterdam (as in (26)), and me loving or hating John (as in (27)) does not have to terminate. These facts point to the conclusion that one uniform representation of the present perfect tense is enough, providing that there is an additional independent distinction between telic and atelic predicates, which we need anyway, as was demonstrated in chapter I. These two classes of predicates trigger different entailments with respect to the present moment, 'now'. If this is the case, then K&R's system turns out to be extremely complicated for no apparent reason.

My other objection concerns the status of the additionally introduced discourse referent itself, an event in the case of present perfect stative sentences. The system forces us to introduce a random, arbitrary event that abuts (i.e. occurs before) a state of John living in Amsterdam in the case of a sentence like '*John has lived in Amsterdam for his whole life*'. It is absolutely irrelevant for the interpretation of a sentence to establish when John started living in Amsterdam. This information cannot be explicitly given in the sentence and this type of knowledge is not needed in the linguistic representation of a quite simple English sentence '*John has lived in Amsterdam for his whole life*'.

Finally, I would like to compare the representations of present perfect and simple present tenses in K&R's system. If we try to single out the common part in DRSs (24), (25) and ((29)a,b) given above, which should be exactly the general representation of the present perfect tense in English, the result that we get is (31):

(31)

n t s ……
$t = n$
$s \circ t$
…….

Note, that the first relation, the one between *t* and *n,* determines temporal morphology. If, for instance, in a given DRS *t* and *n* coincide, then present tense morphology should surface on a finite verb form. This is my interpretation of K&R's model, they themselves are not particularly specific about the issues of tense morphology. My conclusion is based on the fact that in the tenses like simple present and present perfect *t* and *n* always coincide, therefore present tense morphology shows up on a main or auxiliary verb respectively, whereas in the representation of the sentences with the past tense *t* always precedes *n*.

Now let us have a look at the representation that K&R give for the simple present.[10] They claim that all simple present sentences are of the stative type and give them the following interpretation:

(32)   DRS for 'Mary knows French' (K&R, 1993:538-9)

```
n  s  x  y

n ⊆ s
Mary (x)
French (y)
s: [x know y]
```

This is a shortened representation. In particular, the $n \subseteq s$ part should be written properly as $n = t$ & t o s. But K&R assume that both s and n are punctual. If s and n are not treated like punctual, $n = t$ & t o s, when shortened, gives only n o s, which is weaker than $n \subseteq s$. On K&R's assumption, however, $n = t$ & t o s can, indeed, be shortened to $n \subseteq s$, which is exactly the common part for all the present perfect sentences. Thus, the burden of differentiating between the simple present and the present perfect lies on the 'abut' relation and, again, depends on our abilities to be able to identify an event that abuts the state described by the perfect tense. Differentiating between two tenses really looks like too much of a job for a discourse referent that is just assumed to be present.

To summarize the content of this section, I started the discussion of the tense system here assuming, along the lines of Partee (1984) and Hinrichs (1986), different relations that stative and eventive sentences bear with respect to their R-times. I have shown that a straightforward application of this assumption to the system of tenses in English leads to a controversial definition of present perfect. K&R's system, also based on this assumption, has to create quite different complex representations for what appears to be the same tense, present perfect, in order to avoid inconsistencies. Later in this chapter, I will present a model that is empirically as strong as K&R's and has a conceptual advantage of regular predictability and, therefore, should and will be preferred to K&R's theory. Before that, one more issue need to be examined carefully, since it is directly related to the Reference time: the behavior of stative sentences in discourse.

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[10] For the discussion of present tense see K&R (1993:534-541).

IV.2.3. *States in a sequence*

The assumption that is still under discussion is that stative and eventive sentences behave differently with respect to the current Reference time: states include R, but events are included in R, as in Partee/Hinrichs analysis presented in the previous section. Now I would like to discuss one empirical problem with this generalization.

This system of relating different types of sentences to the current R-time is designed to account for the fact that eventive, but not stative sentences can create a sequence interpretation in narrative discourse. Although the generalization about the eventive sentences is correct, stative sentences can also give rise to a sequential interpretation under certain conditions. Consider (33):

(33)   John came home early and cooked dinner. He worked for a couple of hours. At 10 p.m. he saw his friends in a pub.

In this example, a state of working[11] is ordered with respect to a previous event (i.e. cooking) and the following event (i.e., meeting friends).

The fact that stative sentences can be interpreted sequentially has been recognized in the literature. It is, however, problematic for the Partee/Hinrichs' type of analysis for the following reason. If a state always includes the current R-time and does not introduce a new one, no Reference time movement effect is predicted in the case of stative sentences, hence, their appearance on the time line in a sequence is not predicted and remains unexplained. Hinrichs (1986) and Dowty (1986) develop the analyses of the R-time movement that could account for the sequential interpretation of stative sentences. Let me repeat an example that both Partee (1984) and Hinrichs (1986:68) use, to illustrate the problem further:

(34)   Jameson entered the room, shut the door carefully and switched off the light. It was pitch dark around him because the Venetian blinds were closed.

The last two clauses are both stative, since they both contain an atelic predicate. The problem is, however, that the first stative clause, *it was pitch dark around him*, is understood as if it appeared on a time-line, i.e. the state of it being pitch-dark follows the event of switching off the light.

Hinrichs (1986) proposes an account of R-time movement that does not seem to face this particular problem. Suppose there is a default R_0 which is the R the first clause of a given discourse establishes the relation to. In our particular example, the first clause describes an event, i.e. *Jameson entered the room*, which is contained, according to both Hinrichs and Partee, in the R_0 and introduces the new R, namely R_1. The second clause, i.e. *shut the door carefully* is an event, too. Let us label it e_2.

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[11] In Chapter III I have argued against the analysis that treats sentences with temporal modifiers as eventive.

It is included in the R_1 interval and also introduces R_2. The procedure repeats one more time, with *switched off the light* and we end up with the newly introduced R_3. The next sentence is, however, a state (s_1), so it is supposed to contain R_3 and not be contained in it. Since states do not introduce new Reference time, the next state, *the Venetian blinds were closed* also contains R_3. The DRS for this example was given in (16)b. Schematically, it looks like (35):

(35) $[_{R0} \; e_1] \; [_{R1} \; e_2] \; [_{R2} \; e_3] \; [_{s1, s2} \; [R_3 \quad]]$

This specific execution of Hinrichs' analysis successfully captures the interpretation of (28) because the relation between s_1 and e_3 remains unspecified. The first introduced state s_1 is not *required* to overlap with the event e_3, it only has to include a current R-time, but it can either follow a previous event, like in (34), or overlap with it, like in (36):

(36)   a. John came home at 6. He was very hungry
        b. $[_{R0} \; e_1] \; [_{s1} \; [R_1 \quad]]$

This ambiguity of interpretation, depending on the particular context, is ensured by the specific formulation of the Reference time movement rule, adopted in Partee/Hinrichs. According to this rule, a current event e_n is not included in its 'own' Reference time R_n, but in the one previously introduced, i.e., R_{n-1}.

Hatav (1997) notices that Hinrichs' analysis makes the following prediction. If (34) above is continued as in (37)a, so that the sentence that follows the last stative one is eventive, then, according to Hinrichs' analysis it is not only allowed to, but also *required* to overlap the last introduced state, since the event is included in the Reference time, which the state includes, as in (37)b:

(37)   a. Jameson entered the room, shut the door carefully and switched off the
           light. It was pitch dark around him because the Venetian blinds were
           closed… Jameson took off his clothes and went to bed.
        b. $[_{R0} \; e_1] \; [_{R1} \; e_2] \; [_{R2} \; e_3] \; [_{s1, s2} \; [R_3 \; e_4]]$

In this particular case the prediction is borne out, because the state of being pitch dark, as well as the state of Venetian blinds being closed, still holds at the time when the subsequent events (i.e. taking off the clothes and going to bed) occur. But Hatav (1997) provides some examples, which clearly refute Hinrichs' prediction. For instance:

(38)   a. John reached the summit, stayed there for a while and went down.
        b. It was a lovely performance. The entertainer told jokes for fifteen
           minutes, sang for half an hour and danced for another half an hour.

In (38)a, we have a sequence created by event-state-event, where the last event, described by *went down*, must follow the previous state. In (38)b a sequence is created by stative sentences only[12] and they are all sequentially ordered. In general, the examples in (38) show that Hinrichs' wrongly predicts a uniform interpretation of an event that is introduced after a state: on his analysis there has to be an overlap between the two, whereas the interpretation of (38)a shows that the sequence interpretation is possible.

Dowty (1986) suggests a different way to solve the problem with stative sentences that appear in a sequence. His proposal is that *all* eventualities, irrespective of their aspectual properties, introduce and are included in their own Reference time. In other words, Dowty rejects the assumption of Partee/Hinrichs that states and events bear different relations to a current R-time in discourse. On his view, stative sentences are treated exactly like eventive ones at the discourse level: both states and events are included in their R-times. Thus, the aspectual differences between the predicates of different sentences are not directly reflected in Dowty's version of discourse representation. Therefore, whenever a stative sentence appears on the time line, Dowty's account does not face a problem. For instance, the example in (38)a is represented on Dowty's analysis as follows:

(39) $[_{R1}\ e_1]\ [_{R2}\ s_2]\ [_{R3}\ e_3]$

Note in passing one more difference between Partee/Hinrichs' and Dowty's analyses. Dowty does not assume that there is always a default R-time available. The first sentence in a discourse introduces the first R-time.

I consider it an important advantage of Dowty's theory that it does not have to stipulate different relations of states and events to an R-time. This feature will be preserved in the unified theory of R-time, which will be presented in section IV.3. In Dowty's approach, the problem of giving a uniform representation of tenses discussed in the preceding section, in principle does not arise. Cases like (34), (38) above and also (40), which exemplifies the inchoative interpretation of a stative sentence, just fall out for free in his analysis (Dowty, 1986:38):

(40)   a. John entered the president's office. The president realized why he had
             come.
          b. John sat in his chair going over the day's perplexing events again in his
             mind. Suddenly, he was asleep.

Cases where states obviously overlap with previous events and, therefore, have to overlap with the previous R-time as well, are accounted for in terms of pragmatic implicature (ibid,:49):

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[12] Note, however, that an analysis along the lines of Kamp & Reyle (1993) and de Swart (1998) could attempt to account for (38)b by saying that the sequence interpretation in this example is created by events. See chapter III for the reasons why this approach is not adopted in the present work.

(41)   Mary entered the president's office. There was a bound copy of the president's budget on the desk.

Dowty's principle of temporal discourse interpretation predicts that 'the time of the budget's being on the president's desk was immediately after Mary entered the room, but that we are expected to assume in addition that this was not the first moment that it was there' (ibid.:49). In other words, even though we can infer that the copy of the budget was sitting on the president's desk for a long time before Mary came, what matters in this particular context (and for Mary) is that the copy was there after Mary entered the room. Some adverbs, like, e.g., *suddenly* in (40)b cancel the inference that a state has begun to hold earlier than it is reported.

Unfortunately, Dowty's assumption that both stative and eventive sentences introduce their own R-times strikes back. As Reinhart (1999) points out, Dowty's analysis actually predicts that the states always create the Reference time movement effect, just like events. Recall, that the difference in the temporal interpretation of a succession of stative vs. eventive sentences was exactly the reason why Partee and Hinrichs assumed that different relations hold between a current R-time and states *vs.* events. What creates the R-time movement in Dowty's model is the introduction of a current R-time, so both states and events are predicted to behave the same way. But they do not and this can be tested. On the assumption that the word '*now*' specifies the current R-time accommodating a given eventuality, it would be equally felicitous with both stative and eventive sentences: in either case it would introduce an R-time for an eventuality to be located. But (42) shows that this is not the case:

(42)   a. (Now) John enters the room.   *event*
        b. (Now) he picks up the newspaper.   *event*
        c. (*Now) The main headline is scandalous.   *state*

The difference in acceptability of ((42)a,b) *vs.* (42)c suggests that the reasonable assumption to make is that events, but not states, introduce an R-time. This would explain why *now* is only felicitous with eventive sentences. Hatav (1997) draws a similar conclusion. She derives the following generalization, concerning R-time movement and sequence interpretation of sentences in narrative discourse: A new R-time can be introduced, and, therefore, an R-time movement effect can be created either by an event or by a *delimited* state[13].

The class of *delimited states* is formed by those sentences that have an atelic predicate, which is modified by a temporal delimiting adverbial (e.g., (38)). These are the cases that have been discussed in chapter III, where I argued that they couldn't be treated just like events. At the same time this is exactly the group that constitutes an exception to the R-time movement rule proposed in Partee (1984) and Hinrichs (1986). As Hatav (1997) points out, in order to account for this new

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[13]Although I briefly mentioned inchoative interpretation that stative sentences sometimes give rise to, I will not discuss it any further in this thesis. This is why I reproduce Hatav's generalization here abstracting away from the inchoatives.

generalization, the notion of Reference time has to be redefined. In particular, one is forced to give up the idea about the reversed relation of a state vs. event to a current Reference time. In the next subsection I will give a summary of Reinhart's (1986, 2000) work, where it was done. After introducing the system, I will come back to the discussion of the tense system of English. Then the examples of delimited states will be re-examined and it will be shown how the 'problematic' group of cases is treated in this theory.

IV.3.   *A unified theory of Reference time.*

In this section, I am going to present a theory of Reference time based on Reinhart (1986, 2000). It is a unified theory, in the sense that it unifies the two basic uses of R-time that have been discussed throughout this chapter: the one for the analysis of tense and the other one for the analysis of narrative discourse. When Reinhart's model has been presented, I will show that her theory is not only able to account for tenses and R-time movement effects, but also derive the progressive entailment. The topic of this section is crucially important for my subsequent discussion, since the theory presented here will be used in chapter V for the analysis of Russian data.

IV.3.1. Assumptions and definitions

There is an ongoing debate in the semantic literature about the primitive status of two entities: events (=eventualities) and times (=instants or intervals). Ever since Davidson (1967), the presence of the event argument in predicate's specification is often taken for granted in the semantic and syntactic literature, so that representations like (43) are found quite regularly:

(43) $\lambda e\ [\ P\ldots (e)]$

I am not going to re-examine all the arguments in favor or against event semantics, but I would like to point out that the battle between the two frameworks is far from being over. The proponents of interval semantics (Bennett & Partee 1972/78, Dowty 1979, Reinhart 1986, 2000) take *time* to be a primitive notion, the (neo-)Davidsonian branch of semanticists (Kamp 1979, Bach 1982, Kamp & Reyle 1993, Parsons 1990) argue for the primitive status of *events* and there are even attempts to define times in terms of events (Kamp 1979, Landman 1991, Pianesi & Varzi 1996). Galton (1984), although he assumes that events are primitive notions, also needs times for the definition of states. Similarly, Krifka (1998) has both times and events as primitives in his semantic model. Verkuyl (1999, 2001) claims that we do not need either of them as primitives, although he uses times and temporal intervals at some level of semantic representation. Rather than having *e* as an ontological primitive in (43), he assumes a more abstract index (a natural number),

which in the realization of the tenseless predication in real time is connected with a temporal interval.

To give one example of how interval semantics and event semantics tackle different problems, consider the notion of change.[14] There are momentary (*explode*) and prolonged (*put on weight*) changes. If change occurs in time, than it takes some time, i.e. there is a temporal interval which corresponds to a process of changing from A to B. The problem is, however, to define precisely what happens between the initial boundary of that interval and its final boundary. If A holds at some initial part of this interval and B at some final part, how can the state of affairs in between be described? Evidently, A ceases and B comes to exist and when it happens, it can be said that the change has taken place. To describe this process, temporal frameworks have to employ the notion of *vagueness*[15] to account for a precise moment of change, when neither A nor B holds. An alternative to this analysis has been proposed, which is to treat change as a minimal event (Kamp 1979). This step means to give a notion of *event* a primitive status. When events become a part of the ontology of a model, there are two possibilities to deal with time: either time is taken to be another primitive notion or a mechanism of deriving times from events has to be proposed.

It is outside the scope of this work to review all the arguments of the existing frameworks and try to justify one or the other, so I will not do it here. For a discussion and an overview of the problems that either of the approaches faces see Kamp (1979), Dowty (1979), Landman (1991) among others, whereas I will restrict myself to giving my own view. However, as I already said, this thesis is not the best place for arguing frameworks.

I consider time (and space) one of the basic components of our conceptualization of reality. I do not want to claim it is impossible to express times in the event semantic framework, it may very well be that there is, indeed, a way to define times via events. This, however, would be just another formalization or another way to construct the model of the representation of reality. In this thesis, I opt for the framework of interval semantics. Although the main definitions that I give in this section can, in principle, be stated both in terms of intervals and events, I will not use the notion of event as a primitive now or later in the presentation.

From the perspective of temporal semantics, sentences are interpreted with respect to a certain stretch of time, i.e., a temporal interval. The crucial assumption that I am going to make is that a verbal predicate, along with its nominal arguments, also has a temporal argument, which is indicated by the symbol *I* (which stands for an interval) in predicate's specification. The specific implementation I assume here for incorporation of temporal interval into Reinhart's analysis was proposed by Yoad Winter (p.c.):

(44) $P(x_1, x_2, \ldots x_n, I)$

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[14] This paragraph is inspired by a very nice discussion of this issue in Landman (1991).
[15] This notion is also used in the semantics of gradable adjectives, e.g., Barker (2002).

In (44), x_1, x_2, ...x_n are variables corresponding to all the nominal arguments of a given predicate and *I* is a variable that corresponds to its temporal argument. One and the same predicate can hold at different, distinct intervals *I*, just like one and the same predicate can hold for arrays of different nominal arguments x_1, x_2, ...x_n.

Now I will give the definitions of telic and atelic predicates.

DEF.1:   For all P, I, x_1, x_2, ...x_n, a predicate $P(x_1, x_2, ...x_n, I)$ is atelic iff
$P(x_1, x_2, ...x_n, I)$ & $\exists I' \subset I (P(x_1, x_2, ...x_n, I'))$[16]

which reads: P is atelic iff for all intervals *I*, such that predicate P holds at *I*, there is an interval *I'*, such that *I'* is a subinterval of *I*, and P holds at *I'*, given that the denotations of all the nominal arguments remain the same. Some examples of the predicates that are atelic under this definition are *be in Amsterdam, walk in the park, drive a car, work.*

The existential quantification in DEF.1 above clearly deviates from the definition of atelicity given in terms of subinterval property as formulated in Bennett & Partee (1972/78). Let me first repeat their definition (ibid.:14):

> "Subinterval verb phrases have the property that if they are the main verb phrase of a sentence which is true at some interval of time I, than the sentence is true at every subinterval of I…"

This definition requires a predicate P to be true at *every subinterval* of an interval *I*, at which P is true. This condition is too strong, as was pointed out in section I.4.2, where a number of problems for Bennett & Partee's definition were indicated.

Now let me reassess these problems. The first one has to do with the observation that we want to allow for gaps in a certain activities. For instance, if it is true that '*Mary walked in the park for two hours*', than it is required that at every subinterval within these two hours the predicate *'Mary walked in the park'* is true. Suppose, however, Mary had got tired and had sat down on a bench for ten minutes. Then if we pick exactly this interval of ten minutes, which is one of the subintervals of the interval denoted by 'two hours', the predicate *'Mary walked in the park'* comes out false at this 10-minute interval.[17]

How does DEF.1 handle this problem? Well, the question simply does not arise under DEF.1, due to the existential quantifier over the subintervals. DEF.1 asserts that it is sufficient to find at least one subinterval of the two-hour interval at which a predicate is true. In this case, it is guaranteed that the predicate of *'Mary walked in the park'* would be atelic. DEF.1, therefore, does allow for gaps.

As was also discussed in Chapter I, there is a finer cut, so to say, within the class of atelic predicates: some of them have the homogeneity property down to

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[16] The same stated with the event argument:
P $(x_1, x_2, ...x_n, e)$ & at (e, I) → $\exists I'$ (I'$\subset$ I) at (e, I')
[17] See the discussion of Dowty's (1979) 'minimal interval' in I.4.2. Verkuyl (1978) argues that P should hold at the majority of subintervals.

instants (like *love John* or *be in Amsterdam*) and some of them are homogeneous down to 'minimal intervals' (*walk in the park, drive a car*). This difference was not a real problem for the homogeneity approach before, but it is not even an issue anymore, given that DEF.1 is stated in terms of existential quantification. Recall that all instant predicates can also be evaluated at intervals, so DEF.1 works in a uniform way for all atelic predicates.

Finally, I would like to go back to the problem that concerns temporal expressions like *yesterday* or *last year*. The sentence that was discussed in chapter I as problematic, under Bennett & Partee's definition of homogeneity (or subinterval property) was *Mary walked in the park yesterday*. If this sentence is true for *yesterday*, then, given the atelicity of a predicate, it should be true at every subinterval of *yesterday*. Suppose that we break up the interval denoted by 'yesterday' into two subintervals, I'='before dinner' and I''='after dinner'. Then, if Mary's walking took place during I', the predicate is not true at I''. Once again, due to the existential quantifier in DEF.1, this problem does not arise. If we find one subinterval of 'yesterday', at which the predicate 'Mary walked in the park' is true, then it is also true of 'yesterday'.

One more comment is in order here. From now on, I will replace the expression 'a predicate is true at an interval' from Bennett & Partee's definition with 'a predicate holds at an interval', thereby reserving the expression 'is true at' for sentences.

A telic predicate is defined as follows:

DEF.2: For all P, I, x_1, x_2, ...x_n, a predicate $P(x_1, x_2, ...x_n, I)$ is telic iff
$P(x_1, x_2, ...x_n, I)$ & $\forall I' \subseteq I$ $(P(x_1, x_2, ...x_n, I') \rightarrow I'=I)$[18]

DEF.2 is equivalent to the statement that for all intervals *I* such that a predicate P holds at *I*, P is telic iff there is no *I'* such that *I'* is a proper subinterval of *I* and P holds at *I'*. DEF.2 is a reverse of DEF.1 and defines a complement set to the set of atelic predicates. Thus, the two definitions classify the whole class of predicates into telic and atelic. Predicates like *read a book*, *walk to the store* or *meet the president* are telic.

These are all the prerequisites that are needed to introduce a unified theory of Reference time in the next subsection.

IV.3.2. Reinhart's proposal

The theory of Reference time that will be presented in this section is developed in Reinhart (1986), (2000). In her work, Reinhart gives a uniform account of R-time, a theory that does not need either several notions of R-time or different rules for the tense system. In this model, the familiar Reichenbachian notions of S(peech time),

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[18] Again, the same with the event argument:
$P(x_1, x_2, ...x_n, e)$ & $at(e, I) \rightarrow \forall I'(I' \subset I)$ $(at(e, I') \rightarrow I'=I)$

E(vent time) and R(eference time) are used, but the system of interactions between the three differs from the original Reichenbach's systems. Reinhart's theory is cast in the framework of interval semantics, which means that the denotation of E, R or S is always a (set of) temporal interval(s). In what follows, I will demonstrate how the modified system of S-E-R relations can account for the English tense system and how the same notion of R can be used in a theory of R-time movement.

Reinhart's modified system of S-R-E relations is given in (45) below. In the following subsections, I will go through each relation in (45) and discuss various implications of Reinhart's analysis.

(45)   the E-R relation is fixed, i.e. $E \subseteq R$ by default (exept for progressive);
         the S-E relation determines the truth conditions and the temporal interpretation of a sentence;
         the S-R relation determines perspective and morphological tense.

Note, that Reinhart (1986) develops this system for English, but in the next chapter I will argue that this theory can be implemented to give an analysis of the tense-aspect system of Russian.

IV.3.2.1. E-R

As was pointed out earlier, in the early DRT framework (Kamp 1981a, Hinrichs 1981, Partee 1984), it was assumed that states (i.e. atelic predicates) and events (i.e. telic predicates) bear different relations to their Reference time.[19] While events are contained in their Reference time, states contain it (cf. (15) in section IV.2). The innovation of Reinhart's theory is that she proposed to establish a unified relation between E and R, irrespective of the telicity status of a predicate.[20] This idea is based on a modified view of what it means for an E-time to be contained in a R-time.

It has been noted in the literature, that an eventuality described by an atelic predicate, can bear 3 different relations to the R-time: it can include, be included or overlap with the current R-time. It has been illustrated on the assumption that the value of the R-time is given directly by adverbs like *last week*. As will become clear later in this section, I assume that the denotation of this type of adverbs is more complex, but let me review the argument here anyway. Consider the following examples:

(46)   a. Last week Mary was sick.
         b. Last week Mary was sick but by Friday she had recovered.
         c. Last week Mary was (still) sick and she has not recovered (yet).

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[19] Note that Kamp's (1981) and Hinrichs' (1981) analyses were executed in the framework of event semantics, which means that the different relations were established between events or states (semantic primitives) and 'reference events' (an analogue of Reference time in the temporal semantic framework). In addition, a special mechanism for 'translating' events into times was proposed (Kamp 1981).

[20] But note that Reinhart follows the main DRT line in the analysis of progressive. See section IV.3.3.1.

Let us focus on the relation between the temporal interval specified by 'last week' (R-time interval) and the interval at which the homogeneous predicate 'be sick' holds of Mary (E-time interval). In the case of (46)a the relation between E and R should be mere overlap, since this is as much as we can tell from the information given in this sentence. (46)b, however, suggests that the interval of Mary being sick is included in the R-time: she was not sick through the whole week, but had recovered by the weekend. The interpretation that arises in (46)c is that Mary got sick before last week and is still sick at the S-time, so the inclusion relation here seems to be reversed: the period of sickness includes last week.

Despite these differences, there is a common thing that all examples in (46) share: they presuppose the existence of some interval *I* at which Mary was sick and which is contained in the interval of time denoted by *last week*. Reinhart proposes to take this as the basic underlying relation of E- and R-intervals for all predicates: an interval *I* at which a given eventuality holds is contained in the R-time interval. This relation will be represented as E⊆R in this work, in order not to deviate from the familiar notation. This representation is a 'name' for the relation defined below:

DEF. 3:   a. E(ventuality) time:
        If P is an n-ary predicate and $x_1, x_2, \ldots x_n$ are its arguments, then any interval *I*, such that P $(x_1, x_2, \ldots x_n, I)$ (informally: P holds at *I*) is called *predication time* and labelled E(ventuality time).
    b. E⊆R:
        $\exists R, \exists I$ such that $P(x_1, x_2, \ldots x_n, I)$ & I⊆R
        Notation:$[_R E]$

E(ventuality) time is a label for an interval *I* at which P holds, as stated in the first part of DEF.3. The second part of DEF.3 says that *at least one* of the intervals at which a given predicate P holds has to be included in R. R can, in principle, contain more that one such interval.

DEF.3 is uniform for all types of predicates, both atelic and telic ones. It fixes the relation between R and E, radically restricting the number of possible combinations of R, E and S. The default configuration $[_R E]$, which is a notation that I will use as short for E ⊆ R, is assumed to be a default configuration in all basic tenses.[21]

Following Reichenbach's basic idea, I will assume that temporal adverbials like '*yesterday*' or '*last year*' provide some specification of the Reference time. However, unlike Reichenbach, I do not assume that the denotation of, for instance, '*last year*' is the R *itself*. The interpretation of this type of temporal adverbials that I adopt in the present work is the following: '*last year*' and similar temporal expressions do not simply denote an interval that equals the period of time indicated by 'last year', but a set of all subintervals of the interval indicated by '*last year*'. Let me exemplify this.

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[21] By 'basic' tenses I mean non-progressive.

Suppose ADV is an adverb in question. It can be 'last year' or similar temporal adverb, which, according to Reichenbach, specifies R-time. What I suggest is that R is just a member of a set given by the denotation of ADV, ADV':

(47) $E \subseteq R$ & $R \in$ ADV'

(47) can be illustrated on a couple of examples. Consider first a sentence with a telic predicate. Looking a little bit ahead, I will give a representation of the sentence in (48), already taking the information provided by the past tense into account[22]:

(48)   a. John built this house last year
            b. $\exists E \exists R \exists S$ (build (j', h', E) & $E \subseteq R$ & $R \in$ LAST YEAR' & $R < S$)

The sentence in (48)a is represented in (48)b, which says that a predicate *build a house* holds of *John* at E, which is one of the intervals *I*, at which this predicate holds. E is a subinterval of R, the R-time is a member of the set of all subintervals of the interval denoted by the expression '*last year*', hence $R \in$ '*last year*' and R is located before S, because this relation is the general representation of the past tense. The representation $E \subseteq R$ & $R \in$ LAST YEAR' makes sure that the building of the house may, but does not have to take the period of entire year. If John in fact built his hours in three months, the representation given in (48)b captures this as well. It follows from DEF.2 that there is no subinterval of E for which a given predicate also holds.

Now let me explain the examples with the atelic predicate in (46). Consider the common part for all three sentences, i.e., *Last week Mary was sick,* ignoring the rest of the sentences in (46)b and (46)c, which is not crucial for my current purposes. The representation for all three examples in (46) will be the same. Moreover, it is actually the same as for the sentence with the telic predicate *build the house*, except for the lexical differences:

(49) $\exists E \exists R \exists S$ (sick (m', E) & $E \subseteq R$ & $R \in$ LAST WEEK' & $R < S$)

Exactly like in the previous example, the R-time is a member of a set of all subintervals of the interval specified by *last week*. The past tense is expressed by the R<S condition. However, in (46) we are dealing with an atelic predicate. According to DEF.1, an atelic predicate holds at at least one subinterval of a given interval E. What is required by DEF.3(b) of the R-*time*, is that *some interval* at which the predicate holds is included in R. This condition is a common requirement for the representations of the sentences in (46)a, (46)b and (46)c. The important thing is that in the case of atelic predicates, for any given interval E at which P holds, there is at least one subinterval E', at which it holds as well. Or, the interval E might have a superinterval E'', which is not fully included in the R-time, at which, again, the same predicates holds. In this case the 'subinterval property' is stated for E'', with E being

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[22] The tense system will be discussed in detail in IV.3.2.3.

a relevant subinterval of E". Hence, for all the possible variations in (46), the only condition that has to be met is that there is *some* interval E included in R, at which a predicate holds.

It is very important to realize, that the tense representation for the sentences with telic and atelic predicates are precisely the same. The differences that I just explained are derived from the definitions of atelicity and telicity and do not bear on the relation of an interval at which a predicate is said to hold to the R-time interval.

Finally, let me indicate one important distinction between Reinhart's system and some other proposals for tense systems in the Reichenbachian style. The distinction concerns exactly the relation between R and E. What happens more often is that Reichenbach's system is split into two types of relations: S and R on the one hand, and R and E on the other (e.g., Hornstein (1990), Klein (1994)). It should be clear by now that Reinhart's model does not allow for configurations like R<E or any other kind of representation in which E is not included in some R in a non progressive tense.[23] This is reminiscent of the condition for events in Partee/Hinrichs' analysis (cf. (15)). Reinhart, however, does not distinguish between different aspectual types of predicates or sentences, therefore, in her system, we do not expect to have two sets of temporal representations for each tense. I see the motivation for this step in Reinhart's theory in the desire to bring together two uses of R-time that unfortunately have existed quite independently: R-time as a tool to capture some discourse effects and R-time as a sentence-internal notion.

At this point I conclude the discussion of the first relation, i.e. E-R, and move now to the relation between S and E.

IV.3.2.2. S-E

The next pair that I will look at is S-E. Reinhart (1986) proposes that the S-E configuration determines the truth conditions and the temporal interpretation of a sentence. Temporal interpretation just tells us how to relate the eventuality described in a given sentence to a default anchoring point, i.e. the S-time. Given that both S and E are taken to be temporal intervals, the number of relations that can be established between them is limited. Two intervals can overlap (inclusion being a special case of an overlap) or, if the intersection between them is empty, a precedence relation can be established, i.e. they can be ordered. In the case of overlap, i.e., if $S \cap E \neq \varnothing$, the temporal interpretation which arises is present. What we assert is that the eventuality holds at the Speech time. If, however, S and E are ordered, then we get either past or future interpretation. In other words, the position of E relative to S, tells us whether the eventuality described in a given sentence is anterior to, overlapping with, or posterior to the S-time. Using more common terminology, we usually refer to these three options using the words 'past', 'present' and 'future'.

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[23] The representation of past perfect will be given in section IV.3.3.2.

Let me step back now and return to the representations that are ascribed to the simple future in English in Reichenbach's system[24]:

(50)   I will walk   S, R _ E
                                S_ E, R
                                S_ R_ E

Empirically, it is not possible to differentiate between these three representations, at least in English. In general, I think it would be rather surprising to find a language that encodes the difference between the first and the third configurations in (50). What is striking, however, is that there is something that all representations for the future share, namely, the S_E part. However, it is logical to suggest, that exactly this 'ingredient' of the three configurations above should account for the future interpretation of (50).

In Reinhart's system, it becomes important to make a clear distinction between morphological tense and temporal interpretation of a sentence: they are not determined by the same relation. One of the reasons to distinguish between them is the interpretation of the simple past and present perfect tenses in English:

(51)   a. John ate breakfast
          b. John has (already) eaten breakfast

Reinhart points out that the two sentences in (51) above have the same truth conditions and temporal interpretation in the sense that they both refer to some temporal interval at which the predicate '*eat breakfast*' holds and which precedes S-time. On the other hand, the sentences show different tense morphology, which is the reason to distinguish between the temporal interpretation and tense marking.

As mentioned before, Reinhart (1986) claims that there are no truth-conditional differences between (51)a and (51)b. Note, however, that there is still a debate on this issue. For instance, Hatav (1997) argues that perfect tenses do have an influence on the truth conditions. She gives the following examples (Hatav, 1997:166):

(52)   a. Reagan has only been shot once during 1981.
          b. Reagan was only shot once during 1981.

She refers to Heny (1982), who, in turn, claims that knowing that Reagan was shot only once, on June 11, 1981, only the sentence in (52)a comes out true if it is uttered on June 12, whereas (52)b would be false.

Another observation goes back to Chomsky (1972), who discusses the following example:

(53)   Einstein has lived in Princeton

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[24] This example was also discussed earlier, in section IV.1.1.

The sentence sounds inappropriate, because it entails that Einstein is still alive. The simple past tense in English should be used instead, since it does not give rise to any entailments concerning the 'aliveness' of Einstein.

In this work, however, I will not dwell on the issues of truth conditions and the relation that determines them. I am going to maintain Reinhart's proposal that the relation between S and E determines a temporal interpretation of a sentence. She also argues, on the basis of empirical evidence from English, that this relation is not important for determining tense morphology of a finite verb. Although this seems to be the case in English, I will argue in the next chapter that in Russian, tense morphology is established exactly by this relation.

IV.3.2.3. S-R

The S-R relation is going to be crucially important for the purposes of the present work, especially for the theory of aspect, which will be proposed in the next chapter. The reason for giving this relation a 'special status' is that in Reinhart's system the S-R relation is held 'responsible' for morphological tense and *perspective*. Perspective is a new notion, but I have already discussed some issues concerning tense systems. Let me start with a more familiar topic.

Consider again example (51) above. We have already seen that the temporal interpretation of the two sentences is the same, i.e., they report on something that occurred in the past, hence the relative order of S and E is E < S in both cases. Nevertheless, they show different morphological tense marking. On the basic assumption that E is included in R in both cases, the only relation that can account for this difference is the S-R relation. The *present* morphology on the finite (i.e. auxiliary) verb in (51)b suggests that S and R should overlap.

This is captured by the following definitions:

(54)   a. simple past: $\exists E \, \exists R \, \exists S(P(x_1, x_2 \ldots x_n, E) \, \& \, E {\subseteq} R \, \& \, R {<} S)$
           b. present perfect $\exists E \, \exists R \, \exists S(P(x_1, x_2 \ldots x_n, E) \, \& \, E {\subseteq} R \, \& \, S {\cap} R {\neq} \varnothing \, \& \, E {<} S)$

In what follows I will mostly use the shorter representations:

(55)   a. simple past: $E \subseteq R \, \& \, R {<} S$
           b. present perfect: $E \subseteq R \, \& \, S {\cap} R {\neq} \varnothing \, \& \, E {<} S$

or, schematically:

(56)   a. simple past: $[_R \; E \;] < S$
           b. present perfect: $[_R \; E < S]$

Note that in (56)b, E is used as a name for an interval *I*, as defined in DEF.3. Similarly, S is a 'name' for an interval *I*, such that $I{\subseteq}S$ and $I{\subseteq}R$. In other words, S in

this notation stands not for the whole interval of S, but for its subinterval (which may be the same as S itself, but need not be) included in R. This only concerns the interpretation of the notation [$_R$ S].

These representations imply that the temporal interpretation in English is determined by participial morphology in present perfect, whereas the tense morphology on the auxiliary verb reflects the relation between S and R. It follows then, that the terms *present*, *past* or *future* are ambiguous. They can either refer to the *present morphology*, which is determined by the S-R relation, or to the *present temporal interpretation*, which is determined by the S-E relation.

In the preceding sections, I showed that if different kinds of predicates are taken to relate differently to a current R-time, a number of questions arise. Let me re-address this subject and show how Reinhart's system handles it. In order to do this, I have to go back to K&R's representations for present perfect given in (24), (25) and (29) in IV.2.1. K&R have to provide different DRSs for stative and eventive sentences to capture the fact that a predicate of a stative sentence can hold at the moment of speech or 'now' in their terminology. In particular, they had to make sure that the sentence *John has lived in Amsterdam for 3 years* does not entail that John does not live in Amsterdam any longer. In Reinhart's system it follows independently of the representation of tense, which is exactly the same for both types of sentences.

(57)   a. **DEF.1:**
            For all P, I, $x_1, x_2, \ldots x_n$, a predicate $P(x_1, x_2, \ldots x_n, I)$ is atelic iff
            $P(x_1, x_2, \ldots x_n, I)$ & $\exists I' \subset I$ $(P(x_1, x_2, \ldots x_n, I'))$
         b. present perfect: $E < S$ & $S \cap R \neq \varnothing$

If we look at DEF.1 repeated above, it says nothing about the 'extension' of the interval E at which a predicate holds. In particular, E itself might be a subinterval of a bigger interval E''. The representation for present perfect requires only that there is at least one interval E, such that E precedes S. But the combination of DEF.1 and the present perfect representation does not make any prediction about the state of affairs at the present moment, i.e. whether the eventuality still holds or not. This is a desired result, because with atelic predicates (or stative sentences), it is never certain, if no other contextual information is available, whether the eventuality terminates before the S-time.[25]

For eventive sentences, however, the prediction is that the eventuality described does not hold at the S-time.

(58)   a. **DEF.2:**
            For all P, I, $x_1, x_2, \ldots x_n$, a predicate $P(x_1, x_2, \ldots x_n, I)$ is telic iff
            $P(x_1, x_2, \ldots x_n, I)$ & $\forall I' \subseteq I$ $(P(x_1, x_2, \ldots x_n, I') \rightarrow I'=I)$
         b. present perfect: $E < S$ & $S \cap R \neq \varnothing$

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[25] The reader should keep in mind that these observations are made for English. Present perfect in, for instance, Dutch behaves differently.

According to the DEF.2, telic predicates cannot hold at any subinterval of a given interval *I*. *I* itself cannot be a subinterval of any bigger interval either, otherwise P would not hold at *I*. Thus, P cannot hold at S unless S and E in (58)b are the same. Since E < S is a part of the representation of the present perfect, this possibility is discarded immediately. Therefore, P cannot hold at S.

The conclusion so far is that different licensing properties of the predicates are derived from their telicity properties only. The definition of (a)telicity is independent of the representations of tenses. This ensures that identical representations of tenses can be given for both types of predicates. No additional assumptions concerning the relation of an eventuality to the R-time are needed either. The E-R relation is uniform for all types of predicates, and yet the difference in entailments with respect to the present moment in the case of the present perfect tense is derivable. I consider this as an essential advantage of Reinhart's system.

To conclude this discussion, the system in (59) is given, which presents morphological tenses in Reinhart's system:

(59) a. $R < S$: finite verb form in the past tense
  b. $S < R$: finite verb form in the future tense[26]
  c. $S \cap R \neq \varnothing$: finite verb form in the present tense.

Next, let me give the representations for the basic tenses in this system. Schematically:

(60) a. future: $S < [_R E]$
  b. present: $[_R S \cap E]$, which reads "R contains an overlap of
        S and E"
  c. past: $[_R E] < S$
  d. preset perfect: $[_R E < S]$

or, formally:

(61) a. future: $\exists E \exists R \exists S (P(x_1,x_2....x_n, E) \& E \subseteq R \& S<R)$
  b. present: $\exists E \exists R \exists S(P(x_1,x_2....x_n, E) \& E \subseteq R \& E \cap S \neq \varnothing)$
  c. past: $\exists E \exists R \exists S (P(x_1,x_2....x_n, E) \& E \subseteq R \& R<S)$
  d. present perfect: $\exists E \exists R \exists S (P(x_1,x_2....x_n, E) \& E \subseteq R \& E<S \& S \cap R \neq \varnothing))$

As I have already mentioned, the S-R relation is Reinhart's theory also determines *perspective*. I will introduce this notion with the help of the same minimal pair of examples in (51), repeated below:

(62) a. John ate breakfast

---

[26] Future tense is not always morphologically marked. In English future is expressed by means of auxiliary 'will'. In Russian it is auxiliary 'be' or just the present tense form (see the discussion in the next chapter). Romance languages have special future morphology.

     b. John has (already) eaten breakfast

Note that in Reichenbach's system the present perfect tense was assigned the configuration E_R,S, which reads 'E precedes R and R coincides with S'. This, and all the facts that have been observed so far, strongly suggest that the R-time should play a crucial role in the account of the present perfect tense. This insight is preserved in Reinhart's model.

     The special effect of the present perfect in English is that the situation described is conceived as *relevant* for the present moment, as all the English grammars (or at least those for non-English speakers) say. Reinhart's representation for present perfect seems to capture this intuition straightforwardly, on the assumption that 'relevance for the present moment' is captured by the relation between R and S. Since the intersection between R and S is not empty, or, informally, S is included in R, then the 'relevance' meaning of the present perfect tense can be attributed to the position of S, which is associated with the present, relative to R, which includes the E-time.

     Thus, Reinhart describes the difference between simple past and present perfect as a difference in *perspective*. Reinhart's system provides a way to relate the intuitive concept of perspective to a linguistic notion, namely, the Reference time. What determines perspective in this model is the relation between R and S, the same relation that determines morphological tense. Perspective is, therefore, associated with the view of a speaker, which is presumably 'located' at S. If a speaker is 'inside' the R-time domain, the perspective is internal. If the position of a speaker is 'outside' the R-time domain, the perspective is external.

     I will argue in chapter V that the notion of perspective also underlies the aspectual differences in Russian. Note that Reinhart argues that the difference between present perfect and simple past in English is accounted for in terms of perspective. It suggests that there is a parallelism between the two phenomena. I postpone the discussion of this intriguing question until chapter V.

IV.3.3. Some implications of Reinhart's system

In this section I am going to discuss three questions. The first one is how the progressive entailment, which brings out the difference between telic and atelic predicates, is derived in Reinhart's model. Secondly, I will explain how past perfect is represented in this system. And, finally, I will show how Reinhart's theory captures R-time movement.

IV.3.3.1. Progressive entailment

In this section I will show that the progressive entailment can be derived in Reinhart's system on the basis of the definitions of telic/atelic predicates but independently of tense configurations.

Although a detailed study of English progressive is outside the scope of this work, let me review the issues briefly. In treating progressive, Reinhart follows the (early) DRT-type of approach to progressive: the application of the progressive operator yields the reverse relation of E and R, i.e. it turns $E \subset R$ into $R \subseteq E$, and the resulting predicate is always atelic (cf. especially Bach 1980,1981 as well as Hinrichs 1981, Partee 1984, Kamp & Reyle 1993 and others).

Following this tradition, Reinhart assumes a special progressive operator that yields the representation in (63):[27]

(63)   progressive: $E \subset R \rightarrow R \subseteq E$

Note that there is always an E-interval which is included in R (cf. DEF.3). Thus, for the newly formed progressive predicate with $R \subseteq E$ as an invariable part of its representation, there is always at least one E'-interval inside R, at which a predicate holds. E', at the same time, is a subinterval of E. This means that progressive predicates are always atelic, since they have a subinterval property.

Let me now turn to the progressive entailment. The effect of the progressive entailment is exemplified in (64):

(64)   a. Ann was walking $\rightarrow$ Ann walked
         b. Ann was walking a mile $-/\rightarrow$ Ann walked a mile

Past progressive in Reinhart's system is represented as follows:

(65) $\exists E \exists R \exists S \ (P(x_1, x_2 \ldots x_n, E) \ \& \ \mathbf{R \subseteq E} \ \& \ R < S)$

This reads that there is an interval E at which a predicate holds and which includes R and R precedes S.

This representation is already familiar to the reader. The last conjunct in (65), i.e., $R < S$, has been used in all representations of sentences in the past tense. The only new part is the first conjunct, $R \subseteq E$, which represents the progressive.

The question posed by (64) is under what conditions a sentence in the past progressive tense, which is defined in (65), entails a sentence in the past tense, defined in (66):

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[27] The reader should be reminded once again, that the main differences between Reinhart's analysis and the DRT-type of approach with respect to progressive is that Reinhart assumes that R-interval is included in E-interval only for progressive, while the analyses along the lines of Hinrichs/Partee, discussed in section IV.2, also assume that this particular relation holds between states (i.e. atelic predicates) and their R-times.

(66) $\exists E \, \exists R \, \exists S \, (P(x_1, x_2 \ldots x_n, E) \,\&\, \mathbf{E \subseteq R} \,\&\, R < S)$

The factual answer to this question is that there is an entailment iff a predicate P in a given sentence is atelic, as in (64)a. Let us now check whether this can be derived in the present system.

Since the predicate in the entailed sentence in (64)a is atelic, the formula for the past tense in (66) should be combined with DEF.1 for atelic predicates:

(67)   **DEF.1**:   For all $P, I, x_1, x_2, \ldots x_n$, a predicate $P(x_1, x_2, \ldots x_n, I)$ is atelic iff
$P(x_1, x_2, \ldots x_n, I) \,\&\, \exists \mathbf{I' \subset I} \, (P(x_1, x_2, \ldots x_n, I'))$

If R in (65) is the same interval as I' in (67), then it follows that predicate P holds at R. By DEF.1, it also holds for at least one subinterval of R. It means, that we can always find an interval E', which is included in R and for which predicate P holds. In the combination with R<S in (65), we get exactly the representation of the simple past in (66). Hence the entailment in ((64)a) is explained.

Now to the example (64)b, where the predicate in the entailed sentence is telic and, consequently, DEF.2 should be considered:

(68)   **DEF.2**:   For all $P, I, x_1, x_2, \ldots x_n$, a predicate $P(x_1, x_2, \ldots x_n, I)$ is telic iff
$P(x_1, x_2, \ldots x_n, I) \,\&\, \forall I' \subseteq I \, (P(x_1, x_2, \ldots x_n, I') \rightarrow I' = I)$

Suppose, again, that R is the same as I'. Then it follows from DEF.2 that a predicate P can only hold at R if it is the same as I or E in (65). However, we do not know if R equals E or not, because R is not required to be a *proper* subinterval of E. Consequently, we do not know whether a given predicate holds at R or not. It amounts to saying that the progressive entailment does not hold for telic predicates, i.e., the inference from past progressive to simple past may or may not go through, but it is not properly licensed. Hence the result in (64)b.

This also means that a telic predicate like *walk a mile* from (64)b can still hold at S. The representation for the past progressive tense in (65) states that R precedes S. If R is a proper subinterval of E, then the relation between E and S cannot be established. Thus, if it is not the case that I'=I=E=R < S,[28] E may or may not overlap with S. Hence, the eventuality described by the sentence *Ann was walking a mile* can still hold at S-time. This is an intuitively correct result.

Let me, once again, point out that the representation given to the past progressive in (65) is uniform for all predicates. The difference in the licensing properties of telic vs. atelic predicates is derived from the definitions of these types of predicates.

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[28] In this case the inference from past progressive to simple past is licensed.

IV.3.3.2. Past perfect

In section IV.3.2.3, where the properties of the English tense systems were discussed, the representations for four tenses were given: simple present, simple past, present perfect and simple future. These are so-called 'deictic' tenses, i.e., those which are evaluated with respect to the S-time. I will not discuss future tenses in this chapter, but focus on the past temporal domain.

There are also anaphoric tenses, i.e. tenses that are evaluated with respect to a temporal unit other than the S-time. Past perfect is an anaphoric past tense, and now I am going to show how it is represented in Reinhart's system.

The configuration assigned to past perfect in the original Reichenbachian system is E_R_S. Partee (1984) and Hatav (1997) adopt basically the same configuration with minor changes. Consider (66):

(66)　　The secretary had already left when this letter arrived.

The common assumption would be that the temporal subordinate clause introduced by *when* provides the Reference time and the eventuality reported in the main clause is perceived with respect to this R-time. In Reinhart's proposal, which I follow here, two reference times would be needed to account for the past perfect tense, since she assumes the default relation between R and E always being [$_R$ E]. On this assumption, R and E cannot be disjoint. Then the sentence in (66) is analysed as describing one eventuality per clause, as it were. Consequently, the configuration assigned to the sentence in (66) should look like (67):

(67)　　$[\ E_1\ ]_{R1}\ <[E_2\ ]_{R2}\ <\ S$

In this representation, E_1 = 'the secretary had left', E_2 = 'the letter arrived', and the ordering is established between the R-times of the respective predication times E_1 and E_2. R_2 can be unspecified or understood from the discourse, this is exactly what happens when a sentence like *The secretary had left*, occurs alone and it requires some understood R-time to be evaluated. The common representation of past perfect is given in (68):

(68)　　$E_1 \subseteq R_1\ \&\ R_1 < R_2\ \&\ R_2 < S$

Now it is appropriate to make some comments concerning S-time. The notion of Speech time, in principle, can be interpreted as a 'default' R-time. As Hatav (1997) points out, the utterance, or an act of speech, can be viewed as a special kind of eventuality, in which case it also requires a special R-time to host it. Following the ideas of Partee (1984), Prior (1967), Mittwoch (1988) and Smith (1991), Hatav assumes that the S-time is nothing else but the default R-time, marked R_S. This notation is familiar from the DRS in (16)b given in section IV.2.

In Hatav's proposal, R_S can be specified by expressions like '*this year*' or '*today*', which may indicate different options for analyzing simple present tense, especially some of its uses, as, for instance, historical present. The same line of reasoning is pursued in Oversteegen (1985). I will leave this type of analysis as a possibility, because the decision on this issue is not going to play any role in what will be presented later. For the sake of uniformity, I will continue using the notion of S-time, keeping in mind that it can be re-analyzed as a default R-time.

IV.3.3.3. R-time movement

As has already been mentioned in section IV.2, the basic rule for the R-time movement, proposed in Partee (1984) and Hinrichs (1986), makes a crucial difference between stative and eventive sentences, i.e., sentences with atelic and telic predicates respectively. As for the latter, the main reasoning behind the rule of narrative progression remains the same in Reinhart's model: eventive sentences in narrative discourse move the R-time forward, creating a sequence interpretation. According to the definitions given in section IV.3.1, a telic predicate, every time it occurs, holds only at a single interval I. Each interval at which a predicate P holds is included in its R-time. A predicate P that describes a following event is included in another, its own R-time and so forth. The R-times are ordered in the narrative discourse, to capture the temporal progress of narration, and, as a result, the system creates the time movement effect for a string of eventive sentences. However, this neat sequence interpretation can be overruled by different contextual means. For instance, temporal specification like *at the same time* or *simultaneously* brings out the overlap reading:

(69)   a. John closed the door. He picked up the receiver and dialled the
              emergency number.
          b. John closed the door. *At the same time*, he picked up the receiver and
              dialled the emergency number.

A predicate P of a stative sentence, even though it is also included in its R-time, can hold 'beyond' its R-time, thus creating an effect of an overlap. But just as in the case of eventive sentences, this default interpretation can easily be overruled under some special circumstances. I have already mentioned adverbials like su*ddenly, then,* which create R-time movement. At the end of section IV.2, I referred to a generalization from Hatav (1997) concerning the types of sentences that move the narration time. According to this generalization, sentences with atelic delimited predicates (e.g. (71)) behave similar to eventive sentences (e.g. (70)): they create a sequence interpretation in narrative discourse:

(70)   The man arranged the stiff table linen, filled the two tumblers from a huge
          cut-glass pitcher, and set them in their proper places.

(71)   (It was a lovely performance.) The entertainer told jokes for fifteen minutes, sang for half an hour and danced for another half an hour.

As the reader might recall from the previous section, the counterexamples to Partee/Hinrichs' rule were delimited stative sentences like the one in (71). Hatav's hypothesis, which Reinhart adopts, is that delimiting adverbials like *for 15 minutes* or *from 5pm till 7pm* operate on the R-time interval and not on the E-time interval. Semantically, these temporal expressions are modifiers, but the entity they modify is claimed to be the R-time. I am going to adopt this position in the present work.

Let me point out the major advantage that this view on the delimiting temporal expressions grants us. The class formed by stative sentences with delimiting adverbials has been the most problematic case due to the different properties that they exhibit on the sentential and discourse level. As I have argued in chapter III, the predicates in the sentences with delimiting adverbials do not change their basic properties and do not become telic, as proposed by, e.g., de Swart (1998) and K&R (1993). The problem, however, is that this group of sentences does not behave as expected in a narrative discourse: sentences with atelic predicates are not supposed to create a sequence interpretation unless there are different expressions (e.g., *then, after that*, etc.) triggering this effect. The sentences with delimiting adverbials, as has been shown above, are interpreted sequentially. This comes out unexpected if they are treated just like other sentences with atelic predicates.

Reinhart's system provides a solution to this problem. It does not have to be assumed that in the case of a sentence with a temporal delimiter we are, in fact, dealing with a newly formed telic predicate. A delimiting adverbial operates on a different entity, namely, the R-time. If the R-time interval is temporally restricted, a new R-time is introduced in the discourse and the discourse proceeds further. The rules for the discourse interpretation do not change: as before, a sequence interpretation is obtained by a succession of temporally ordered R-times. Most importantly, the properties of a delimited predicate, in particular, its atelicity, remain the same. Once again, the examples below show that a modified predicate still has the homogeneity property ((72)a), and the entailment shows that the predicate can hold at S ((72)b):

(72)   a. Mary has lived in Amsterdam from 1994 till 1996 $\rightarrow$
            Mary has lived in Amsterdam from 1994 till 1995
        b. Mary worked for the same company for forty years. Then she reached
            the retirement age, but she decided to continue working.

IV.4. Conclusions

Let me now summarize the results of the present chapter. I have started out by reviewing Reichenbach (1947), who first introduced the notion of Reference time. This notion has proved its linguistic relevance mainly in two areas of research: in formalizations of tense systems and in temporal interpretation of sentences in discourse. In section IV.2, I have traced the development of this notion in both tense-oriented and discourse-oriented studies. The observations concerning the behavior of the different types of sentences in narrative discourse have led a number of researchers to postulate a rule of the narrative time progression in terms of R-time movement. Partee (1984), Hinrichs (1986), Kamp & Reyle (1993) make the basic assumption that, depending on their telicity properties, eventualities (or predicates) relate to the R-time in different ways: states include R-time, but events are included in it. K&R develop a system of tense representation, based on this assumption. I have shown that their system, although it captures a substantial body of data, requires a substantial number of tools and rules to capture all the relevant phenomena.

In section IV.3, I discussed a system which operates with fewer notions, is based on strict definitions and, at the same time, accounts for all empirical facts that K&R's system can capture. This system is the unified theory of R-time, proposed by Reinhart (1986, 2000). It operates with Reichenbach's notions of Speech time, Event time and Reference time and is formulated in the framework of interval semantic. The relations that Reinhart postulates for three basic notions and that have been adopted thus far are the following:

- the default R-E relation is always the same, i.e. $[_R\ E]$
- the S-E relation determines the temporal interpretation
- perspective and tense morphology in English is determined by S-R.

The main advantage of Reinhart's system is that it provides a uniform account of the tense representations, regardless of the telicity status of a predicate, and still captures the R-time movement facts. Her model allows for the possibility to strictly differentiate between the properties of a predicate, such as telicity and the facts connected to telicity (i.e. telicity entailments) on the one hand, and different phenomena that are accounted for by means of the notion of R-time (e.g., tenses and perspective). Reinhart also formalizes the notion of *perspective*, which I will use in the next chapter to develop an analysis of the Russian aspectual system.

Chapter V

Russian aspect in terms of Reference time

In this chapter, I propose an analysis of Russian aspect based on the unified theory of R-time presented in the previous chapter. I will start by explaining the Russian system of tenses and showing its significance for aspectual issues: the tense system in Russian is aspectually constrained (section V.1). The constraint is the following: perfective forms in the non-past (present) tense cannot get the interpretation of progressive.

I will discuss some interpretations that perfective and imperfective forms in the non-past tense get in section V.1.1, but will mainly focus on direct, or *actual* uses of tenses (section V.1.1.2), i.e., the uses where a sentence with a given tense form is interpreted and evaluated with respect to the S-time.

Section V.2 provides some historical explanation of how the tenses in Russian have developed. A diachronic perspective also helps explaining the behaviour of the past tenses and of the auxiliary verb *byt'* 'be' in the periphrastic non-past tense in modern Russian.

In section V.3, the analysis of the tense/aspect system in Russian is developed in terms of the E-R-S relations as formulated in Reinhart's (1986, 2000) proposal. The crucial idea is that the S-R relation, which determines perspective in Reinhart's model, also determines aspectual differences in Russian (section V.3.2). Special attention is paid to the E-R relation and a progressive interpretation (section V.3.3), as well as to the relation determining tense morphology in Russian (section V.3.4). I conclude this chapter with a summary.

V.1. The tense system of Russian and its relevance to aspect

The tense system of modern Russian is aspectually constrained: the verbs in perfective aspect appear in two tense forms, whereas imperfective aspect allows for the derivation of three tense forms. In other words, there is a tense form in Russian in which perfectives do not appear. The full system of tenses is presented in Table V.1:

TABLE V.1: RUSSIAN TENSE FORMS

	IMPERFECTIVE	PERFECTIVE
past	čita-*l* read-sg.masc	pro-čita-*l* PF-read-sg.masc
non-past	čita-*et* read-3sg bud-*et* čitat' be-3sg read-INF	pro-čita-*et* PF-read-3sg

My basic claim here concerning the Russian tense system is that there is one main opposition in the domain of tense: past vs. non-past (Vinogradov 1947). It will become clear later on that there is not enough evidence for further classification of the non-past tense forms into present and future, neither from the morphological, nor from the semantic point of view. My assumption is directly supported by inflectional morphology, since in Table V.1, the forms in the past row and the forms in the non-past row(s) have identical inflection respectively. The inflectional morphology is italicised in the table.

The fact that the tense system in Russian is aspectually constrained will be crucially relevant for my analysis of Russian aspect. The asymmetry manifests itself in the derivation of non-past forms: in the imperfective aspect, two non-past tense forms can be derived, a simple (*čitaet*) and periphrastic (*budet čitat'*) form, whereas the perfective forms do not allow for the derivation of the periphrastic tense:

(1)   *budet pročitat'
         be-pres.3sg PF-read

The interpretation of sentences with simple perfective forms ((2)a) crucially differs from the interpretation that sentences with simple imperfective forms ((2)b) receive:

(2)   a. Kogda pozvonila mama, Petja pročital knigu
            when PF-call-pst-sg.fem. mom, Peter PF-read-pst-sg.masc. book
            '*When mom called, Peter had read a book*'
         b. Kogda pozvonila mama, Petja čital knigu
            when PF-call-pst-sg.fem. mom, Peter read-IMP- pst-sg.masc. book
            '*When mom called, Peter was reading a book*'

In (2), different aspectual forms of the main verb (i.e. *(pro)čital* '(PF-)read-pst.sg.masc') trigger different interpretations. (2)b is naturally interpreted as reporting on *temporally overlapping* eventualities: the phone rang while Peter was engaged in his reading. This is one of the main contexts for progressive in English. In (2)a, however, the interpretation is different: the eventualities are *temporally ordered*, i.e., the reading was finished by the time Peter's mom called.

(3)   Čto ty sejčas delaeš'? – Čitaju /*Pročitaju knigu
        what you now do-IMP-pres.3sg? Read-IMP-pres.1sg/*PF-read-pres.1sg
        book
        'What are you doing now? – I am reading a book'

(3) shows that only the imperfective aspectual form can be used in an answer to the question 'What are you doing now?', perfective aspect is ungrammatical in this context. This is another canonical case where English uses the progressive.[1]

This difference in the interpretation of perfective and imperfective simple non-past forms is very significant for my purposes. The analysis of the aspectual differences in Russian that I will propose later in this chapter derives this difference and this is the main reason why I do not adopt any of the comparable analyses of aspect previously proposed (see V.3.3 for details). From now on I will refer to the property of the perfective non-past forms that prevents their use in the typical progressive contexts such as (2) and (3) above as *the absence of the actual present interpretation.*

In the next subsection, I discuss the interpretation of all non-past tense forms in Russian in more detail.

V.1.1. The interpretation of the non-past tense forms in Russian

Let me start this subsection by showing that, as suggested by their morphology, the interpretation of the non-past forms does not provide solid grounds for distinguishing between a present and a future in the temporal system.

As I have already mentioned, all non-past forms in Russian show the same agreement morphology (table V.1). The non-past verb forms agree with the subject of a sentence in person and number, i.e. they show an agreement pattern familiar from many other languages. However, while the morpheme which brings about the past interpretation of the past forms, *–l-*, can be clearly distinguished, there is no special indicator of present or future tense in the non-past forms, the morphology that these forms have is just the person/number agreement inflection.[2]

The interpretation of the periphrastic imperfective forms is always future, similar to the English future tense with the auxiliary 'shall/will'. The inflected form of the auxiliary *be* in Russian is present:[3]

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[1] Some languages, e.g., Dutch can use simple present tense in the contexts of the English progressive. Dutch has a periphrastic (locative) construction that can be used to render the meaning of progressive, but the point is that simple present is also allowed in these cases:
    (i)   Wat doe je nu? – Ik ben aan het lezen/Ik lees een boek
            what do you now? – I am at DET read-INF/ I read a book
            'What are you going now? – I'm reading a book'

[2] This is also a common feature of present tense morphology across languages.

[3] I will always use *pres* (stands for 'present') in the glosses of all the non-past forms.

(4)   (Zavtra / skoro / segodnja) Petja budet čitat' lekciju v universitete
          (tomorrow/soon/today) Peter be-pres.3sg. read-INF lecture in university
          '*Peter will give a lecture at the university (tomorrow/soon/today)*'

Simple non-past forms of both aspects can get a future interpretation, like in (5):

(5)   Petja zavtra/skoro/segodnja čitaet/pročitaet lekciju v universitete
          Peter tomorrow/soon/today read-IMP-pres.3sg/PF-read-pres.3sg. lecture in
          university
          '*Tomorrow, Peter is giving (will give) a lecture at the university*'

Thus, the only correlation that can be established as far as the interpretational differences of non-past tense forms are concerned, is that the periphrastic tense cannot get a present interpretation. I will come back to this observation in section V.2.2 and show that there is a reason for this. Apart from this fact, there is no evidence to support a subdivision within non-past forms into (proper) present and (proper) future.

As (2) and (3) show, sentences with simple non-past imperfective forms can get the actual present interpretation. However, this is just one of the possible meanings of these tense forms. In the next two subsections, the uses of the simple non-past forms of the imperfective and perfective aspect will be compared. In this chapter, I will mainly concentrate on the actual present and future episodic readings. For the sake of completeness, however, I will first briefly discuss habitual/generic/iterative contexts which allow both imperfective and perfective verb forms and some other cases of alternation of aspects.

V.1.1.1. The contexts of aspectual alternations

In habitual/iterative contexts, the simple imperfective forms are always felicitous. In English, simple present tense is used in similar cases:

(6)   Petja čitaet lekcii v universitete
          Peter read-IMP-pres-3sg lectures in university
          '*Peter gives lectures (is a lecturer) at the university*'
(7)   Každyj ponedel'nik Petja čitaet lekciju v universitete
          every Monday Peter read-IMP-pres-3sg lecture in university
          '*Every Monday Peter gives a lecture at the university*'

It is harder to find perfective forms in habitual/iterative contexts. For instance, if the imperfective forms in both (6) and (7) are replaced with perfective ones, the examples become ungrammatical. However, perfective aspect is not always ruled out of the habitual/repetitive contexts:

(8)   Petja tebe vsegda pravdu skažet
       Peter you-DAT always truth PF-tell-pres.3sg
       '*Peter will always tell you the truth*'

(9)   Každyj ponedel'nik on vstanet rano, svarit kofe,
       Every Monday he PF-get.up-pres.3sg. early, PF-cook-pres.3sg coffee,
       voz'met gazetu i sjadet na kuxne zavtrakat'.
       PF-take-pres.3sg.   newspaper and PF-sit.down-pres.3sg   on   kitchen
       breakfast-INF
       '*Every Monday he gets up early, makes himself coffee, takes a newspaper
       and stays in the kitchen to have breakfast*'
       (or '*Every Monday he will get up early*, etc.)

Similarly to (8) and (9), descriptive sentences and statements of general truth
sometimes allow free variation of perfective and imperfective forms:

(10)   a. Ėto takaja gazeta, v kotoroj vsë čto xočeš' napišut/pišut
          this such newspaper in which all what want-pres.2sg PF-write-
          pres.3pl/IMP-write-pres.3pl
          '*This is such a newspaper where anything can get published*'
       b. Prošlogo ne verneš'
          past not PF-return-pres.2sg
          '*You can't bring the past back*'

Finally, non-past perfective and imperfective forms can be used in 'historical'
present. The use of present tense in the descriptions of past events is a well-known
stylistic device which can be used in many languages, including English. The
example in (11) below (taken from Forsyth, 1970:119) illustrates that perfective
non-past forms are felicitous in descriptions given in the present tense, although
imperfective forms are also allowed in this context:

(11)   V sentjabre na Belom more temneet rano, sumerki korotki,
       in September on White see get.dark-IMP-pres.3sg. early, twilight short,
       a noči aspidno-černy i xolodny. Vyrvetsja inogda pered
       and nights pitch-dark and cold. PF-break-pres.3sg sometimes before
       zakatom solnce iz oblakov, brosit poslednij ugasajuščij luč na more, na
       sunset sun from clouds, PF-throw-pres.3sg last dying-down ray on see, on
       xolmistyj bereg, želto otrazitsja v okoškax vysokix izb i
       hilly shore, yellow PF-reflect-pres.3sg in windows tall houses and
       tut že pobagroveet, spljuščitsja, ujdet v vodu.
       suddenly PF-turn.crimson-pres.3sg, PF-flatten-pres.3sg, PF-go-pres.3sg in
       water

       *In September on the shores of the White Sea it gets dark early, the twilight
       is brief and the nights are pitch-black and cold. Sometimes the sun breaks*

> *through the clouds just before it sets, throws a last dying ray on the sea*
> *and the hilly shore, gives a yellow reflection from the windows of the tall*
> *wooden houses and instantly turns crimson, seems to be squashed, and*
> *disappears into the water.*

I am not going to discuss the free alternation contexts in the present work, since I want to concentrate on the cases where the aspectual opposition is most clear. All the examples that have been presented in (6) through (11) are the typical contexts that allow for variation in the use of perfective or imperfective forms. I am not trying to suggest that that the facts mentioned above are not important and should be ignored altogether. However, it seems to me even more important to concentrate on the clear-cut cases, like the actual present interpretation. In this case, if the context does not allow for any other reading, the difference between perfective and imperfective leads to different grammaticality results. This case, therefore, provides a good foundation for a theory of aspect. Let me now go back to the actual present interpretation ((2) and (3)), which interest me most.

V.1.1.2. The actual present interpretation

As has been pointed out earlier, the actual present is just one of the possible meanings of the imperfective non-past forms. This interpretation clearly involves a moment of speech, S-time. This is an important point, because the question of how temporal interpretation is established in Russian is a complicated one. Let me briefly explain why.

Russian tenses, even the past, which is usually considered to have clear semantics and strict interpretational rules, enjoy a certain freedom in use that not all languages allow for. In particular, the use of particular tense forms can be contextually justified, and there are cases when, for instance, past forms are not interpreted as semantically past (as in 'before the S-time'):

(12)   Smotri, sejčas groza načnetsja, a nam i ukryt'sja negde. Vot i propali.
         Look, now storm PF-begin-pres.3sg and we-DAT and PF-shelter-INF
         nowhere. Here and PF-lose-pst.pl
         '*Look, the storm is going to start any minute now and we won't find a*
         shelter. Bad luck' (literally: *we are lost*)
(13)   Esli vy polučite tuza, vy vyigrali!
         if you PF-get-pres.3sg ace, you-pl PF-win-pst.pl
         '*If you get an ace, you'll win*' (literally: *you won*)

It happens even more often with the non-past forms. A classical example is the absence of any special rules for the sequence of tenses in complex sentences in Russian: the tenses are used in exactly the same way as in simple sentences. In the

Russian sentence in (14), for instance, the non-past perfective form has to be used to render the meaning of the English past anterior:

(14)　　I togda Petja ponjal, čto ego uvoljat.
　　　　And then Peter PF-understand-pst-sg.masc. that he-ACC PF-fire-pres.3pl
　　　　'*And then Peter realized that he would be fired*'

Note that in English it is simply impossible to use the tenses that directly correspond to the Russian ones:

(15)　　*And then Peter realized that he will be fired

I gave these examples to show that there are some cases in Russian when tenses are not semantically interpreted with respect to the S-time.[4] Nevertheless, there are clear cases when the tense forms are used in their 'direct' meaning and do report on the eventualities that take place before or after a designated S-time. One of these cases is the actual present interpretation, which not only brings up the contrast between perfective and imperfective aspect, but also is one of the basic *actual* uses of the non-past tense. This is the main reason why I choose to concentrate primarily on the actual present interpretation of the non-past tense.

　　　The availability of the interpretations for non-past tense forms of the perfective and imperfective aspect are schematised in (16):

(16)　　　　　　　　　　　　SIMPLE NON-PAST FORMS
　　　　　　　　　　　　IMPERFECTIVE　　　PERFECTIVE
　　actual present　　　　　+　　　　　　　-
　　　future　　　　　　　　+　　　　　　　+

On the basis of the facts presented so far, I formulate the following generalization about the interpretation of the non-past perfective forms:

(17)　　GENERALIZATION V.1:
　　　　Non-past perfective forms cannot get the actual present interpretation; they always trigger a future reading.

As Forsyth (1970) puts it, 'perfective present in the 'real'[5] mode have almost exclusively future meaning' (Forsyth 1970:148). In the reminder of this section some apparent counterexamples to generalization V.1 will be discussed. These cases at first sight might undermine the value of this generalization, but I will explain why I think they should not be included in the empirical basis for my analysis. The examples that are most often cited in the literature (Vinogradov 1947, Forsyth 1970 and many others) can be classified into several classes.

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[4] Klein (1994) discusses similar issues at length.
[5] I interpret 'real' in this quote as 'deictic', i.e. evaluated with respect to the S-time.

The first class consists of so-called performative verbs, i.e. verbs that refer to acts of speech. Consider (18):

(18)   Ja poprošu vas nemedlenno ujti
           i PF-ask-pres-1sg you-pl immediately leave
           '*I ask you to leave/I am asking you to leave immediately*'

Note that this class of verbs can be also used in the simple present in English with the actual present interpretation:

(19)   I ask you to leave immediately.

This case, therefore, is not specific for Russian.

       The second class comprises the cases of use of non-past perfective forms that are licensed by adverbs like *suddenly, abruptly*, etc. This construction in Russian usually employs some special emphatic focus particles as well (cf. *kak* in (20)). Note also, that the 'beginning' verbs that were discussed in detail in chapter II, are very often used in this type of sentences:

(20)   Vdrug ona kak zaplačet!
           Suddenly she how PF-cry-pres-3sg.
           '*And now she starts crying all of a sudden*'

Finally, perfective non-past forms are often licensed in negated contexts:

(21)   a. Ja nikak ne najdu nužnuju ssylku
              i no.way not PF-find-pres.1sg needed reference
              '*I still can't find the reference I need*'
           b. Vas i ne uznaeš'
              you-ACC and not PF-recognize-pres.2sg
              '*One wouldn't recognize you (=you've changed a lot)*'

The examples in (18) through (21) together with the cases of free aspectual alternation discussed in the previous section are the most well-known apparent exceptions to generalization V.1. However, I am not going to consider these examples as a serious threat to (17), and I will now explain why.

       First of all, I think it is useful to get rid of any complicating factors at the earlier stages of building up a theory of aspect, especially if the factors are so semantically loaded as negation and modality (as in, e.g., (21)). This is not meant to say that their contribution is not important and should not be considered by an aspectual theory, but how can we start accommodating the complex information provided by these factors into our theory if we do not explain the clearest cases first? The inability to capture the simplest, clear-cut contrast like the one in (2) and (3) in a regular way amounts to the absence of a theory, so that there is nothing that the

more complex data can be captured by. Thus, I think that a good starting point for a theory of aspect is an explanation of the contrast in the availability of the actual present interpretation for imperfective as opposed to perfective aspect as exemplified in (2) and (3). The foundation of a theory of aspect (or any other phenomenon of a comparable complexity, for that matter) should be built on solid facts that bring up the differences between perfective and imperfective. It is obvious that (2) and (3) explicitly show the contrast between two aspects. It is also clear that the interpretation of these two sentences is actual present. These examples illustrate what generalization V.1. is about, and I consider this generalization valid.

Another important observation is that the other cases presented above as counterexamples to the generalization V.1. are not specific to Russian, like (18) and (20). For instance, English simple present in general bans an actual present interpretation, but it can be used with performative verbs and is also licensed by adverbs like *suddenly*, as indicated by the English translation of (20). This suggests that there is an independent reason why the facts that are observed are such as they are. Consequently, an account of these phenomena should be given in more general terms, based on a crosslinguistic generalization, where the Russian facts would be just an example of yet another language supporting this generalization. A theory of Russian aspect should be able to allow for these cases, but it should not crucially rely on them.

Let me know conclude this section by a short summary. I distinguish the *actual* mode in the use of tenses, when a given tense form is interpreted with respect to the S-time. The *actual* present interpretation is one of the examples of the *actual* uses of tenses. For this mode, it is always the case that non-past perfective forms trigger future interpretation.

Thus, there are two essential properties of the Russian tense-aspect system that the rest of this chapter builds on:
- the Russian tense system relies on the opposition *past* vs. *non-past*;
- perfective non-past forms in Russian do not have the *actual present interpretation*.

In the next section the history of the Russian tense system will be discussed. I will show that the diachronic perspective, which is so often ignored, can partly reveal the logic of the tense-aspect system that modern Russian has and, moreover, can explain some very interesting facts that could not have been explained when viewed only from the synchronic point of view.

V.2. The history of the Russian tense system

In this diachronically oriented section, I will focus on two issues. The first one concerns the past tense forms in modern Russian as frozen participles. In section V.2.1, I am going to show how it came about. The relevance of this discussion for the proposal that I am going to make in section V.3 will become clearer when I discuss the configurations that I assign to the past tense forms in Russian:

semantically, they have an interpretation similar to past participles in the English present perfect (see section V.3.4).

Secondly, I will discuss the periphrastic non-past forms, in particular, the historical development of the forms of the verb *byti-byt'* ('be' in Old/modern Russian respectively). I will demonstrate that there is a reason to believe that the forms of 'be' in the periphrastic non-past tense used to be perfectives in Old Russian. This is the reason why they trigger a future interpretation: this effect is absolutely parallel to the meaning that ordinary perfective forms get in the non-past form. In modern Russian, however, the verb *byt'* 'be' appears to be aspectually unmarked, but the forms of *byt'* in the periphrastic non-past tense are used as the future auxiliary similar to *will* in English.

V.2.1 Where do the past forms come from?[6]

As I have already mentioned, the past forms in the modern Russian are 'frozen' participial forms, which, however, function as full-fledged past tense forms at least from the semantic viewpoint. The past tense morphology is manifested by the suffix *–l-,* which was originally employed for the formation of a special resultative participle in Old Russian. Before I say more about the past tense forms and their development, let me briefly illustrate the tense system in Old Russian and then focus on the past tenses.

Old Russian had seven tense forms and no aspectual constrains on tense formation, as illustrated in table V.2:[7]

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[6] The Old Russian data presented in this section and their interpretation are based on Avanesov (1982) and Gorškova & Haburgaev (1981).

[7] The question of how the modern tense-aspect system was formed and, especially, how the aspectual opposition was developed in Russian is a complicated and unsolved problem. Avanesov (1982) fairly says that it can only be speculated on how the aspectual opposition emerged. He, for example, hypothesizes that the aspectual differences first became apparent in the present tense and then were transferred to the domain of past. I do not want to commit to any of the existing hypotheses here. The point, however, is that it is confirmed by documented evidence that at some stage, the system of Old Russian was such as I present it here. The period that the data come from varies from the 11th to the 14th century, depending on the source of the information.

TABLE V.2:   OLD RUSSIAN TENSE FORMS
                    (exemplified on the verb *pisati* 'to write')

present	pišetь write-IMP-pres.3sg	na-pišetь PF-write-pres.3sg
future I [absolute]	budetь pisati be-pres.3sg write-INF	budetь na-pisati be-pres.3sg PF-write-INF
future II [relative]	budetь pisalь be-pres.3sg write-RES.PRT	budetь na-pisalь be-pres.3sg PF-write-RES.PRT
aorist	pisa write-aor.3sg	na-pisa PF-write-aor.3sg
imperfect	pisaše write-imp.3sg	na-pisaše PF-wirte-imp.3sg
past perfect	bě pisalь be-aor.3sg write-RES.PRT bäše pisalь be-imp.3sg write-RES.PRT estь bylь pisalь be-pres.3sg be-RES.PRT write-RES.PRT.	bě na-pisalь be-aor.3sg PF-write-RES.PRT bäše na-pisalь be-imp.3sg PF-write-RES.PRT estь bylь na-pisalь be-pres.3sg be-RES.PRT PF-write-RES.PRT.
pres.perfect	estь pisalь be-pres.3sg. write-RES.PRT	estь na-pisalь be-pres.3sg. PF-write-RES.PRT

The present tense forms, both perfective and imperfective, could get the meaning of both the 'actual' present, as opposed to modern Russian, and future. The future tense forms are discussed in the next section. Let me now concentrate on the past forms.

There were four past tenses in Old Russian. Imperfect and aorist were simple (i.e. non-periphrastic) tenses, derived by special inflectional morphology. They were not frequently used in Old Russian. Thus, imperfect tense was only found in literary texts and aorist was evidently the first tense form to disappear from the spoken language and only existed at the earlier stages (11th century). The uses of imperfect and aorist were mostly guided by the system of Old Church Slavonic: imperfect was used for descriptions in literary texts, aorist was used to report on sequences of events and used to function as a main tense in a story. Neither aorist nor imperfect seem to have been aspectually constrained: these tense forms were derived from both imperfective and perfective aspectual forms.[8]

The perfect tenses, both past and present, were not constrained by aspect either. Past perfect was a 'relative' tense in Old Russian, just like the relative future. The meaning of the past perfect was always to express 'past in the past', which is a

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[8] According to some statistics, in Old Church Slavonic 40% of all aorist tense forms were those with imperfective verb forms, whereas only 1% of all the imperfect tense uses were featuring the perfective verb forms. This might be due to the fact that the conditions under which the perfective imperfect would be used are really complex and are not usually met in the attested texts. The system of Old Russian is reminiscent of the one found in modern Bulgarian.

common meaning of this tense in the languages where it exists. Note that in Old Russian, the auxiliary in the past perfect could take *three* different tense forms itself. First of all, the auxiliary *byti* ('to be') could appear in both simple past tenses, i.e. aorist or imperfect, as illustrated in Table V.2 above. The third possibility was particular to Old Russian and consisted in using the auxiliary in the present perfect form, so that the resulting form would consist of the auxiliary in the present tense and two –*l*-participles:[9]

(22)   estъ   bylъ   pisalъ
         be-pres.3sg.   be-RES.PRT   write-RES.PRT

The present perfect was the most commonly used form in Old Russian, especially in the texts of non-literary registers, such as the 'colloquial' register, mostly reflecting spoken language, and business documents. Present perfect originally had a pure resultative meaning (Gorškova & Haburgaev 1981, Kuznecov 1959). Starting with the business documents dated by the 12th century, the use of the present perfect becomes more and more frequent. At the same time, the first cases appear of so-called auxiliary omission in the present perfect. At the beginning, it happened most often in contexts where a full subject NP was present[10] or there was another tense form in the same sentence bearing the person agreement morphology. Thus, it seems that auxiliary omission was at first restricted to cases where the person feature, which would be shown by the missing auxiliary, could be successfully reconstructed from context.

     Note that besides carrying the person agreement morphology in the present perfect, the auxiliary can have yet another function: it provides the connection to the present moment. This function is familiar from the semantics of present perfect in languages like English, where it still exists and is usually associated with precisely the resultative meaning, which is one of the possible meanings of the English present perfect. This meaning is particularly prominent in the case of sentences with telic predicates (Boogaart 1999), where it is asserted that the result state of an eventuality holds at the moment of utterance:

(23)   John has written his thesis → The thesis is written

The left part of (23) can be rephrased as in (24), where the resultative meaning is even clearer:

(24)   John (now) has the thesis written

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[9] It is plausible to suggest that this 'special' invention was the last resort that the language had to use when the simple tenses, aorist and imperfect, started to disappear. However, I was not able to study enough diachronic literature to find any evidence confirming or refuting this hypothesis and I will not pursue it here. Quite amazingly, these forms still exist in some of the Northern dialects of Russian, but they do not convey the meaning of the past perfect any longer: they simply refer to past.

[10] Old Russian was a pro-drop language, modern Russian is not.

While in English some word order permutation has to be employed to promote this meaning, in the case of Dutch, it is one of the two possible meanings attributed to any sentence with the present perfect tense:[11]

(25)   Ik heb het boek gebonden
        I have the book bound
        'I have bound the book'/'I have a bound copy of the book (now)'

Attempts to cancel the result state in English, at least in the case of the sentences with telic predicates are unsuccessful (Boogaart, 1999:139):

(26)   ?John has left, but he has come back later

Thus, the 'resultative' meaning of the present perfect, when it exists, is usually attributed to the presence of an auxiliary verb: its present tense form indicates that the result state should hold at the moment of utterance.[12]

As for Old Russian and the development of its tense system, it seems plausible to suggest that with the gradual loss of the auxiliary in the present perfect tense forms, the connection to the present moment, as well as the resultative meaning of the whole tense form, was lost. There was no formal element in the sentence to express the requirement for the result state that it holds at S-time. In modern Russian, what is left of the present perfect form is the –*l*- participle only and it has past interpretation, its essential meaning is to report on an eventuality that occurred in the past. Imagine that the same happened in English, then instead of (27)a and all the other past forms, English would have only (27)b:

(27)   a. John has seen this movie
        b. John seen this movie

The development of the present perfect in Old Russian fits nicely into the general scheme of the diachronic development of this tense cross-linguistically (cf. Boogaart 1999:134-135 and the literature cited therein), which is given in (28) below:

(28)   RESULTATIVE < PERFECT < PERFECTIVE < PAST

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[11] As Maaike Schoorlemmer (p.c.) pointed out to me, this can only be the case when the participle is sentence-final. Thus, in (i) the pure resultative meaning is blocked, the sentence can only mean '*I have bound a book*', i.e. has an eventive interpretation:
    (i) Jan weet dat ik het boek heb gebonden
        Jan knows that I the book have bound
The ambiguity becomes apparent only in subordinate clauses, where the word order permutation *aux-participle/participle-aux* becomes possible.

[12] There is an interesting difference between present perfect in Dutch and English. The Dutch present perfect, unlike English, does not seem to have a clear resultative meaning. In fact, present perfect in Dutch comes closer to the meaning of perfective aspect in Russian, whereas present perfect in English should rather be compared to the imperfective aspect (see section V.3.6)

Abstracting away from the intermediate levels in (28),[13] focus on the edges of this scheme: from the diachronic perspective, the hypothesis that the original resultative meaning of present perfect in Old Russian transformed into the meaning of simple past is theoretically well founded and supported by the data.

In modern Russian, there are no other past forms available than the 'leftovers' of what used to be present (or past) perfect: the –*l*-participles. This also explains why, although they function as full-fledged past forms semantically, they still exhibit the participial agreement pattern: the past tense forms in modern Russian agree with the subject of a sentence in number and, if the number is singular, in gender. There is no person agreement feature in the past tense in Russian, the auxiliary that used to bear this feature disappeared. Along with the auxiliary, the connection to the S-time and the resultative meaning of the former present perfect vanished as well.

Having explained the history of the past tense forms from Table V.1, I will now turn to the non-past tense forms in Russian, in particular, the periphrastic forms, and try to explain their behaviour.

V.2.2. The non-past forms

As was illustrated in Table V.2, Old Russian had two periphrastic future forms, one with an infinitive (absolute future) and another one with a resultative –*l*-participle, traditionally called *relative future* in Russian historical grammars.

The relative future forms used to express 'past' with respect to the other future (i.e., future anterior), and were derived by the auxiliary *byti* ('to be') and the past resultative –*l*-participle. The participle showed number-gender agreement and the auxiliary agreed with the subject of a sentence in person and number. The forms of the relative future were most often used in conditional if-clauses (Avanesov 1982:112):

(29)   Ože budetь ubilъ, platiti tako
         if be-pres.3sg PF-kill-RES.PRT-sg.masc. pay-INF so
         '*If (one) kills somebody, this is the way one will pay for it*'

The meaning of precedence with respect to another eventuality is logically related to the semantic contribution of the –*l*-participle. Gradually, the participle became so strongly associated with the pure past interpretation, that, consequently, the forms of relative future were sometimes used referring to the past, as was deduced from the contexts where these forms were used in written documents. According to the

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[13] Boogaart argues that the semantics of the result is always compatible with, but does not constitute the general meaning of the present perfect. This means that the resultative is a prominent, but not an exclusive meaning of the present perfect. Therefore, the denotation of 'perfect' in this scheme is wider than the denotation of 'resultative'. Moreover, Boogaart´s interpretation of the perfective differs from mine, this is why I do not want to consider the intermediate phases of (28).

documented evidence, these forms were no longer used in Russian after the 17th century.[14]

The second periphrastic form, which is referred to as 'absolute future' in Table V.2, has survived and is still used in modern Russian. The only difference is that in Old Russian, it was possible to use more auxiliary verbs to derive these forms:

(30)   xočetь / počnetь / imatь / budetь vedati
         want-pres.3sg / begin-pres.3sg / have-pres.3sg / be-pres.3sg know-INF

Later, all these verbs except for *byt'/byti* 'be', developed their own lexical meanings and were not used in the process of tense formation anymore. The auxiliary verb *byti* is what I want to focus on here.

There is some diachronic evidence that the forms of *byt'* ('to be') that are used in the periphrastic non-past tense in modern Russian used to be perfective. Modern Russian does not provide any evidence for classifying these forms as aspectually perfective. However, the future interpretation of periphrastic tense forms is fully determined by the auxiliary verb. If these forms of auxiliary were perfective in Old Russian, then their interpretation patterns with the interpretation of other perfectives in non-past: the combination of the perfective aspect and a non-past tense always leads to the future interpretation.[15]

It has been argued that historically, the forms with the stem *bud-* of *byt'* 'be' used to be perfectives (Junghanns 1997, van Schooneveld 1951). Compare the full paradigm of *byti*, the Old Russian 'be', in (31) with a quite deficient paradigm of its modern counterpart in (32):

(31)   present tense of *byti* 'to be' in Old Russian:

	imperfective			perfective		
	sg	pl	dual	sg	pl	dual
1st	esmь	esmъ	esvě	budu	budemъ	budevě
2nd	esi	este	esta	budeši	budete	budeta
3rd	estь	sutь	esta	budetь	budutъ	budeta

As this table illustrates, *byti* 'be' in Old Russian, as any other verb, had both perfective and imperfective forms. In modern Russian, we find the following system:

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[14] However, they still exist in some other Slavic languages, e.g., Polish, although apparently they totally lost the 'relative' (with respect to another future eventuality) part of the meaning and just refer to future.
[15] I will provide an explanation for this phenomenon in V.3.4.

(32)   Present tense of *byt'* 'to be' in modern Russian

	(imperfective)		(perfective)	
	sg	pl	sg	pl
1st person	∅	∅	budu	budem
2nd person	∅	∅	budeš'	budete
3rd person	[est']	[sut']	budet	budut

This table shows that many of the forms of *byt'* that existed in Old Russian are not used any more. I put *imperfective* and *perfective* in parentheses because synchronically, *byt'* is not aspectually marked. However, it can be seen quite clearly whether the existing forms of *byt'* in modern Russian stem from perfective or imperfective forms of the Old Russian *byti*.

   In the imperfective column, there are only two forms left from the full paradigm of Old Russian. Their use is very limited in Russian, hence, they are given in square brackets in table (32). Although morphologically both 'imperfective' forms are 3rd person, they can be used in many syntactic contexts which require a verb form in 1st or 2nd person. But the number of contexts these forms are used in is very restricted. They can function as a copula ((33)a,b), where both forms, especially the 3rd plural form *sut'*, are always stylistically marked[16], in existential ((33)c) and possessive ((33)d) constructions:

(33)   a. Èto (i) est' moja stat'ja
              this (and) is my paper
              '*(And) here is my paper'/'This is, actually, my paper*'
          b. Slony sut' mlekopitajusčie
              elephants are mammals
              '*Elephants are mammals*'
          c. V sadu est' jabloni
              in garden is apple-trees
              '*There are apple trees in the garden*'
          d. U menja est' sobaka
              at me-GEN is dog
              '*I have a dog*'

The existing 'perfective' forms of *byt'* can be used without any stylistic effects as a copula ((34)a) or as an auxiliary in periphrastic future ((34)b) and periphrastic passive ((34)c):

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[16] In general, Russian does not use overt copulas in the present tense, only in the past:
     (i)   Moj brat vrač
              my brother doctor
              '*My brother is a doctor*'
     (ii)   Moj brat byl vrač/vračom
              my brother was doctor-NOM/INSTR
              '*My brother was a doctor*'

(34)   a. Ja budu vračom
              i be-pres-1sg. doctor-INSTR
              '*I will be a doctor*'
         b. Ja budu čitat' 'Vojnu i mir'
              i be-pres-1sg. read 'War and Peace'
              '*I will read 'War and Peace*'
         c. Statja budet napisana v ponedel'nik
              paper be-pres-3sg. written in Monday
              '*The paper will be written on Monday*'

In all the examples in (34), the forms of *byt'* bring in the future interpretation of a sentence.

As has already been mentioned, it is very difficult to establish the aspectual value of the verb *byt'* in modern Russian. There seems to be a conflict between its interpretational properties and its use. The interpretation of the forms of *byt'*, as I said before, is always future in the non-past tense, which indicates its perfective character. However, some tests were provided in chapter II, which help us classify the verb forms into perfective and imperfective. According to these tests, *byt'* is an imperfective verb:

(35)   a. Prodolžaj byt' poslušnym!
              continue-IMPER be-INF obidient
              '*Continue to be obidient!*'
         b. Prodolžaj čitat' / *pročitat' knigu!
              continue-IMPER read-IMP/*PF-read book
              '*Continue to read a book!*'
(36)   a. buduščij   *budennyj
              be-PAP-masc.sg.   be-PPP-masc.sg.
         b. *pročitajuščij   pročitannyj
              PF-read-PAP-masc.sc.PF-read-PPP-masc.sg

(35)a illustrates that *byt'* patterns with the imperfective form *čitat'* 'read' and can appear in the complement position of a phase verb. In contrast, the perfective form *pročitat'* 'PF-read' is ungrammatical in this context ((35)b). As for the participle formation, *byt'* quite successfully derives a present active participle and bans the formation of the past passive participle ((36)a), unlike the perfective *pročitat'*, which behaves the other way around ((36)b).

The empirical data point to the conclusion that in modern Russian the infinitive *byt'* is imperfective, which means unmarked for aspect. But the interpretation of some forms of *byt'* suggest that there may be still some Old Russian 'aspectual' heritage present. My hypothesis is that the *forms* of *byt'* with the *bud-* stem were, indeed, perfectives in Old Russian and therefore acquired future meaning in the non-past forms. Due to this fact, they could develop into a *future auxiliary* verb, which is their status in modern Russian. Thus, the *bud*-stems in modern language function

exactly like the auxiliary *will* in English. This explains the interpretation of all the examples in (34).[17]

Let me sum up the results that have been achieved thus far. The chapter started out with an observation that the tense system in modern Russian is aspectually constrained (table V.1) in the domain of non-past tense formation. In particular, imperfectives derive two non-past tense forms, perfectives only one. I have also assumed the basic division in the tense domain into past and non-past (or present). The observed correlation between tense and aspect in Russian has been and will be one of the main topics of the present chapter.

It has further been shown that in the *actual* temporal interpretation, i.e. the interpretation connected to the S-time, the perfective non-past forms always get future meaning (section V.1.1 and the generalization in (17)). This statement can be rephrased as follows: the combination of perfective aspect and non-past tense in Russian gives rise to the future interpretation. Thus, possible variations in the interpretation of the non-past forms are fully determined by aspect. It has been shown how the auxiliary *byt'* 'be' in the periphrastic non-past tense has developed its future meaning. The diachronic evidence suggests, that this development was also conditioned by aspectual properties of the Old Russian verb *byti* 'be' (section V.2.2).

As for the past tense, I have shown that, from the diachronic perspective, the past forms in Russian are frozen participle, semantically functioning like true past forms. It was explained how they came into existence in section V.2.1.

On this empirical basis, I will develop in the next section a theory of Russian aspect based on the temporal model, namely, Reinhart's system of E-R-S relations and the notion of R-time, discussed at length in the previous chapter. It will be demonstrated that this theory accounts for the absence of the actual present interpretation with perfective non-past forms.

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[17] Note that if *byt'* in modern Russian is imperfective, then it should, in principle, be possible to form a periphrastic tense form of this verb. However, (i) is ungrammatical.

    (i)   *budu byt'
             be-pres.1sg. be
             '(I) will be'

Maaike Schoorlemmer (p.c.) pointed out to me that a similar phenomenon occurs in Dutch. In principle, Dutch allows for auxiliary 'chains', like in (ii). However, it is impossible to repeat the same auxiliary twice, although all the other combinations (i.e. combinations of different auxiliaries) are grammatical, as in (iii):

    (ii)   *Ik zal zullen werken
           I will will work
           *Ik kan niet kunnen werken
           I can not can work
           *Ik hoef niet hoeven te werken
           I need not need to work
    (iii)   Ik zal moeten/kunnen/niet hoeven werken
           I will must/can/need to work
           Ik zal alles kunnen/moeten/hoeven
           I will everything can/must/need

The Dutch data do not offer an explanation for Russian, but the observed facts suggest that we are dealing with a phenomenon of a rather general character. There should be an independent reason providing a basis for the account of these facts.

V.3. Aspect in terms of R-S.

In this section I am going to apply Reinhart's theory of R-time presented in chapter IV to the Russian data and show that the aspectual differences in Russian can be accounted for in terms of the S-R relation, as defined in Reinhart (1986, 2000). But let me recapitulate first what the basics of this system are.

Reinhart's system of S-R-E relations is repeated in (37) below.

(37)   the E-R relation is fixed, i.e. $E \subseteq R$ by DEF.3;
         the S-E relation determines the truth conditions and the temporal interpretation of a sentence;
         the S-R relation determines perspective and morphological tense.

This system, as I have already pointed out in chapter IV, was developed for English. In this section I will show that some relations do not exactly match the relevant phenomena in Russian, but the necessary changes will be easily accommodated into the system in (37) without causing it any irreparable damage.

To give a full summary of the results of chapter IV, let me also repeat the main definitions. In IV.3.1, I defined telic and atelic predicates as follows:

DEF.1: For all P, I, $x_1, x_2, \ldots x_n$, a predicate $P(x_1, x_2, \ldots x_n, I)$ is atelic iff
           $P(x_1, x_2, \ldots x_n, I)$ & $\exists I' \subset I(P(x_1, x_2, \ldots x_n, I'))$
DEF.2: For all P, I, $x_1, x_2, \ldots x_n$, a predicate $P(x_1, x_2, \ldots x_n, I)$ is telic iff
           $P(x_1, x_2, \ldots x_n, I)$ & $\forall I' \subseteq I(P(x_1, x_2, \ldots x_n, I') \rightarrow I'=I)$

And, finally, the E-R relation is captured by the following definition:

DEF. 3:   a. E(ventuality) time:
                    If P is an n-ary predicate and $x_1, x_2, \ldots x_n$ are its arguments, then any interval *I*, such that $P(x_1, x_2, \ldots x_n, I)$ (informally: P holds at *I*) is called *predication time* and labelled E(ventuality time).
                b. $E \subseteq R$:
                    $\exists R, \exists I$ such that $P(x_1, x_2, \ldots x_n, I)$ & $I \subseteq R$

The theoretical foundation does not vary from language to language. The theory that is going to be developed for Russian aspect in the present chapter rests on the same basic assumptions and definitions.

The remainder of this chapter is organized as follows. In the next two subsections, Russian data will be implemented into Reinhart's system in a direct and straightforward way. This application will lead to the formulation of the preliminary definitions of (im)perfectivity, DEF.4' and DEF.5' in section V.3.2. The absence of the actual present interpretation with non-past perfective forms can be derived already at this 'preliminary' stage.

In the following subsections I will go through each relation in (37), like I did in the previous chapter, and examine and motivate the changes (if any) in the preliminary definitions forced by each relation. I will also discuss various implications of Reinhart's analysis for the Russian data and suggest reanalysing one of the basic relations in (37) in section V.3.4. In the last subsection, I discuss some consequences and predictions of the proposed analysis.

V.3.1. An exercise

Suppose we just have a basic model in (37), where S, R and E are represented as temporal intervals and the E-R relation is fixed, i.e. E⊂R. Assume further that there are no additional operations and no specific data to analyse. What I would like to do now is to compute all possible relations that can be established between S, R and E in this simplified model.

Since we are working with temporal intervals, there are two basic relations that can be established: overlap and precedence.[18] In order to be able to speak about a precedence relation, one should make sure that the intersection between two intervals is empty, i.e. there is no overlap. If two intervals overlap, no strict precedence relation for the entire (as opposed to parts of the) intervals can be established. Thus, the first thing to look at in each case is the intersection between a pair of intervals, and, if it is empty, to determine the precedence relation between these intervals.

The default configuration $[_R E]$[19] always obtains. In terms of interval semantics, since it is always the case that R contains E, R and E obviously overlap and there can be no precedence relation established between them.

The relation between R and E being fixed,[20] we can now look at the possibilities that arise when S-interval comes into the picture. As for the relation between R and S, there are two options at this point: either the relevant intersection is empty or not:

(38)   a. $S \cap R = \varnothing$ or   b. $S \cap R \neq \varnothing$ (schematically: $[_R S]$[21])

In the case of (38)a, we can establish a precedence relation between S and R immediately. Since E is included in R (DEF.3), the relevant order of E and S follows automatically from the relevant order of R and S:[22]

(39)   a. $\underline{S < [_R E]}$ or   b. $\underline{[_R E] < S}$

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[18] Two intervals can also coincide or one can contain the other, but for now I will regard these cases as a special (stronger) cases of intersection.
[19] This notation was introduced in section IV.3 as a shorthand for E ⊆ R, see DEF.3.
[20] Unless, of course, the progressive operator applies. More will be said on the progressive in the context of Russian in V.3.3.
[21] This notation was explained in section IV.3.2.3. Here, I just repeat that *S* in the diagram stands for a subinterval of S included in R.
[22] I underline only the 'final' configurations, with all the possible relations established.

If the intersection between S and R is not empty ((38)b), then we can look at the relation between E and S. There are, again, two logical possibilities: either S and E overlap ((40)) or they do not:

(40) $[_R S \cap E]$

If the S and E intervals do not overlap, a precedence relation can be established between them 'inside' R:

(41)   a. $[_R S < E]$ or   b. $[_R E < S]$

In the case of (40), there are no other possibilities left: in this configuration all the temporal intervals (i.e. S, R and E) overlap.

For a formally oriented reader, the representations in (39)/(41) are written in logical terms below:

(42)   (corresponds to (39)):
          a. $E \subseteq R$ & S<R   b. $E \subseteq R$ & R<S

(43)   (corresponds to (40)):
          $E \subseteq R$ & $S \cap R \neq \emptyset$ & $S \cap E \neq \emptyset$

(44)   (corresponds to (41)):
          a. $E \subseteq R$ & $S \cap R \neq \emptyset$ & S<E   b. $E \subseteq R$ & $S \cap R \neq \emptyset$ & E<S

Five possible configurations obtain as a result of this exercise. I present them in (45):

(45)   a. $S < [_R E]$ b. $[_R E] < S$

         c. $[_R S \cap E]$

         d. $[_R S < E]$ e. $[_R E < S]$

But S, R and E are not just *any* temporal intervals, they stand for the meaningful notions of Reinhart's theory of temporal relations given in (37) above. The next step is to investigate the empirical value of (45). Putting aside the question of how the English tenses fit into (45) for the moment, let me immediately turn to Russian. The reason for doing this exercise will become clear once the data are introduced, because the number of tense forms in Russian corresponds exactly to the number of the representations in (45).

V.3.2. The data

I would like to start this section by presenting a slightly modified version of table V.1, which illustrates the system of Russian tense and aspect forms, to let the order suggest how the forms will be linked to the representations in (45):

TABLE V.1': RUSSIAN TENSE FORMS

	NON-PAST	PAST
PF	pročita-et read-3sg	pročita-l read-sg.masc
IMP	čita-et read-3sg bud-et čitat' be-3sg read-INF	čita-l read-sg.masc

Now I will try to assign each form from Table V.1 a configuration from (45), establishing thereby an isomorphic relation between the set of configurations in (45) and the set of the Russian tense-aspect forms.

All the correspondences can actually be drawn on the basis of just one relation in (37), i.e., the one between E and S, which determines temporal interpretation. As has already been said, the eventuality described in a sentence is interpreted as occurring before the S-time if $E < S$. There are two past forms in Russian, perfective and imperfective, which in their canonical uses give rise to a past temporal interpretation and, correspondingly, there are two configurations in (45)b,c containing $E<S$:

(46)   a. $[_R E] < S$
          b. $[_R E < S]$

Moreover, as I argued in section V.1.2, only imperfective non-past simple forms can get an actual present interpretation, which is determined by an overlap between the time at which an eventuality occurs, i.e. E-interval and the S-time (i.e. $S \cap E \neq \varnothing$). There is only one configuration in (45) where the S-time overlaps the E-time, namely, (45)c, and this configuration must be assigned to the imperfective simple non-past tense forms:

(47) $[_R S \cap E]$

The remaining two configurations in (45)a and (45)d are those, which give rise to a future interpretation:

(48)   a. S < [$_R$ E]
       b. [$_R$ S < E]

Accordingly, there are exactly two forms in Table V.1 which have future interpretation: the imperfective periphrastic and the perfective simple non-past forms.

The established correlations are, indeed, correct, since they predict the right temporal interpretations for the Russian tense/aspect forms. Recall that in Reinhart's system, temporal interpretation is established on the basis of the relative order of the S and E intervals. If E precedes S, then the past temporal interpretation arises, the reversed order corresponds to a future interpretation. This is the case with the configurations in (46) and (48) respectively. The 'intermediate' (47) is associated with a present temporal interpretation, since this is the only case where S and E overlap. It also corresponds to the present temporal configuration derived in Reinhart's system (see section IV.3 for details).

V.3.2.1 S-R as the aspectual relation

The main question that remains to be answered is which relation determines aspect. By now enough material has been presented to deduce the 'aspectual' relation.

It is reasonable to start the deduction with an unambiguous case, i.e. a temporal configuration where only one of the two aspects can occur. (45)c/(47) is such a configuration.

Given that the representation in (47) corresponds to imperfective aspect only, there should be a part of it that is common to all imperfective configurations, with both past ((46)) and future ((48)) interpretations. Note further that aspect cannot be determined by the same relation as temporal interpretation, i.e. the E-S relation, because both perfective and imperfective forms get past and future interpretations. These two observations leave only one logical possibility: the relation determining aspectual differences in Russian is S-R.

This is, indeed, the only possible option. Given that the E-R relation is fixed in this system and the E-S relation determines temporal interpretation, the only option left in the inventory is the relation between S and R. Thus, the result of doing the exercise in section V.3.1 and the implementation of data in the present section is formulated in (49):

(49)   Aspectual differences in Russian are determined by the S-R relation

Let me now go back to the configuration in (47). Given (49) and the fact that the present temporal interpretation is established on the basis of the overlap between the S and E intervals, we have to conclude that the aspectual value of a form which corresponds to (47) is determined by an overlap of S and R intervals. In Russian, only simple *imperfective* non-past forms can get this interpretation. Therefore, I

conclude that imperfective aspect arises if and only if S and R overlap, i.e. imperfective results from $S \cap R \neq \varnothing$.[23]

It follows that perfective aspect results when the intersection between the S and R intervals is empty, i.e., $S \cap R = \varnothing$. Note further, that if E is always included in R, S and R do not overlap. It follows then that E and S do not overlap either. Thus, E can either precede or follow S. This gives us only two possible temporal interpretations for perfective aspect, namely, past and future. This result is empirically correct: perfective forms can get either past or future interpretation.

Now the full system of correlations between the Russian tense/aspect forms in Table V.1 and the set of temporal configurations in (45) can be presented:

(50)   TABLE V.3: THE INTERPRETATION OF THE RUSSIAN TENSE/ASPECT SYSTEM

	IMPERFECTIVE $S \cap R \neq \varnothing$	*PERFECTIVE* $S \cap R = \varnothing$
past $E < S$	čita-l 'read-sg.masc' $[_R \ E < S]$	pro-čita-l 'PF-read-sg.masc' $[_R \ E] < S$
actual present $S \cap E \neq \varnothing$	čita-et 'read-3sg' $[_R \ S \cap E \neq \varnothing \ ]$	----------
future $S < E$	bud-et čitat' 'be-3sg read-INF' $[_R \ S < E]$	pro-čita-et 'PF-read-3sg' $S < [_R \ E]$

Note that the leftmost column in TABLE V.3 lists the possible *interpretations*, not the morphological tenses as in the Russian tables given earlier. I postpone a detailed discussion of morphological tense in Russian until section V.3.4.

The preliminary definitions of perfectivity and imperfectivity can now be formulated as follows:

DEF.4':   Perfective aspect in Russian corresponds to the configuration
$S \cap R = \varnothing$
DEF.5':   Imperfective aspect in Russian corresponds to the absence of perfective configuration, i.e., $\neg(S \cap R = \varnothing)$ or $S \cap R \neq \varnothing$

Aspectual differences in Russian are determined by the S-R relation, the same relation that defines *perspective* in Reinhart's (1986, 2000) theory of R-time. Since the notion of Reference time is involved in the definition of (im)perfectivity given above, aspect in Russian and, more generally, perfective/imperfective type of aspectual distinctions similar to the Russian ones can be referred to as *Reference time aspect* or *perspective aspect*.

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[23] This is a correct, but preliminary result. One more condition for determining aspect will be added in the next section.

However, this is not the end of the story, and the definitions I just gave are preliminary. It is for a good reason that some room for possible revisions has been reserved. The skeptical reader, who has kept track of all the things that I have promised to account for, may already have a question (or several) in mind. One of them is definitely about the relation between the English progressive and the Russian imperfective.

It has already been mentioned that progressive in English always corresponds to imperfective in Russian and there is nothing in my definitions now that explains this correlation. In Reinhart's model, progressive is defined as an operation that yields the reverse inclusion relation between R and E. This definition is adopted from the DRT approach, as was pointed out in chapter IV. However, the E-R relation is not a part of either DEF.4' or DEF.5'. Since the progressive-imperfective correlation is an important empirical fact, I will next discuss it in detail.

V.3.3. E-R, progressive and imperfective

In the preceding section, I argued that the crucial relation for determining aspectual differences in Russian is the one between S- and R-intervals. Given that the default relation between E and R in this model is E$\subseteq$R and since there are no special conditions in DEF.4' or DEF.5' imposed on this relation, the configuration E$\subseteq$R remains the same for both perfective and imperfective aspect. This, however, leaves the correlation between progressive and imperfective unexplained. Given that there exists a different approach that attempts to define aspect in Russian directly in terms of the relation between E and R, this is a good place to examine this alternative.

Several attempts have been made in the literature (Klein 1995, Schoorlemmer 1995, Yadroff 1997, Arefiev 1998) to define aspect directly in terms of the E-R relation. There are two directions that this general line of reasoning takes. One is comparable to the early DRT framework (Hinrichs 1981, Partee 1984) in focusing on the inclusion relation between E and R. Another one is based on Reichebach's formulation of tenses. In the next sections, I will discuss both of them and argue that the aspectual differences in Russian cannot be determined by the E-R relation alone. In what follows, I will pay more attention to the imperfective aspect when it comes to the correlation with the English progressive.

V.3.3.1. Aspect in terms of E-R. Episode I: inclusion relation

The first possibility is to formulate the relevant definitions in terms of the inclusion relation between the E- and the R-intervals. This approach is similar to both DRT approach and Reinhart's theory adopted here. In particular, if different inclusion relations are formulated for E and R, there is a way to keep the definition of progressive exactly the same as in the present work.

Timberlake (1985) critically examines a potential analysis that would assign the Russian imperfective exactly the same configuration as the English progressive, namely, (51)a, whereas perfectivity would be characterized as in (51)b:

(51)   a. imperfective $\equiv R \subset ($ or $\subseteq) E$
         b. perfective $\equiv E \subseteq R$

A general problem with such an approach would be to account for all the non-progressive readings that the imperfective sentences can get.[24] As Timberlake points out, if the definitions in (51) are assumed, then there is no principled way to explain the difference between the examples in (52)a and (52)b:[25]

(52)   a. Uznav o bolezni Aleksandra Andreeviča, ja poexala v Moskvu i
            PF-learn-ger. about illness A. A., I PF-go-pst.sg.masc. in Moscow and
            ostalas' tam do ego vyzdorovlenija
            PF-remain-pst.sg.fem. there until his recovery
         b. Uznav o bolezni Aleksandra Andreeviča, ja poexala v Moskvu i
            PF-learn-ger. about illness A. A., I PF-go-pst.sg.masc. in Moscow and
            ostavalas' tam do ego vyzdorovlenija
            remain-**IMP**-pst.sg.fem. there until his recovery
            '*On learning about the illness of Alexandr Andreevič, I went to Moscow
            and remained there until his recovery*'

Consider the use of the verb *remain* in both sentences. In (52)a, the perfective form of the verb is used, whereas (52)b features the imperfective *remain*. Crucially, both examples allow for the interpretation when the eventuality described by 'remain in Moscow' does *not* extend beyond the designated period of time, delimited by "*do ego vyzdorovlenija*" (until his recovery).[26] Timberlake assumes that this temporal delimiting expression denotes the R-time, in which case the representation of both perfective and imperfective sentences should be the same, i.e. $E \subseteq R$.

What is not mentioned in Timberlake's paper is that the eventuality described by the *remain*-clause can also hold beyond the period of time delimited by *until his recovery*.[27] This observation makes the situation even worse, because then both perfectivity and imperfectivity can be assigned the assumed 'imperfective' configuration $R \subset E$, as well as the 'perfective' $E \subseteq R$, depending on some extra contextual information, which helps to pick the right reading. However, if the $R \subset E$ relation also expresses progressive, it follows that the perfective sentences in

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Russian can, in principle, also get the progressive interpretation. This prediction is empirically incorrect. In this case, more needs to be said in order to exclude the progressive interpretation with perfectives.

Note, however, that if Reinhart's distinction between the temporal interpretation and the tense morphology is maintained, as in the present thesis, then it becomes impossible to exclude a progressive interpretation for non-past perfective forms if aspectual differences are defined in terms of E-R.

In Reinhart's model, temporal interpretation is determined by the S-E relation, morphological tense by the S-R relation. For the issue under consideration here, i.e. the absence of the actual present *interpretation* with perfectives, it is the first relation, i.e. S-E that matters. In Reinhart's system, the S-interval and the E-interval have to overlap in order to give rise to the actual present interpretation.

If the analysis of aspect is given in terms of the inclusion relation ((51)), it appears to be impossible to exclude the actual present interpretation of perfectives without any further assumptions anyway. Given an overlap between S and R, which is required to get the present tense morphology, and E being included in R, nothing can rule out the configuration where S and E also overlap, although it does not necessarily have to be the case. If E and S can overlap, then, in principle, perfectives are predicted to be able to get the actual present interpretation. I therefore conclude that the differences between perfective and imperfective in Russian cannot be reduced to just a reverse inclusion relation between R and E.

V.3.3.2. Aspect in terms of E-R. Episode II: precedence relation

In some analyses of temporal relations (e.g., Hornstein 1990) developing and elaborating on Reichenbach's original system, it was explicitly argued that there are two 'direct' relations between three Reichenbachian variables, S, R and E, that should be considered in a temporal model: S-R and E-R. S-time on this view does not directly relate to the E-time, their relation is always mediated by the R-time. The S-R relation gives temporal interpretation and/or morphological tenses: past, present and future. The E-R relation is employed to distinguish between perfect and non-perfect tenses in English, as in Reichenbach's proposal (see section IV.1). A reasonable hypothesis that comes to mind is that in the absence of complex (i.e., perfect) tenses in Russian, the E-R relation defines aspect. If, moreover, an analysis along these lines also assumes that the same relation, i.e. E-R, determines progressive in English, which is usually the case, it may open another possibility to account for the progressive-imperfective correlation in a rather straightforward way. This is what Schoorlemmer (1995) and Yadroff (1997) opt for. Schoorlemmer (1995:245) explicitly defines perfective aspect as (53):

(53)   Perfective verbs always occur in a temporal configuration where E and R
         are distinct

In terms of interval semantics, (53) above is stated as (54):

(54) $E \cap R = \varnothing$

Accordingly, imperfective is non-perfective aspect:

(55)   imperfective $\equiv$ E,R / E $\cap$ R $\neq \varnothing$

What I am going to show now is that the definition in (53) makes a wrong prediction concerning the interpretation of the sentences with perfective forms in the past tense. Assuming (53), the prediction about past perfective sentences is that they can obtain the interpretation of either present perfect ((56)a) or past perfect ((56)b) in English:

(56)   a. E _ R,S
         b. E _ R _ S

Consider now the Russian example in (57)a. The relevant English translations for this sentence, as Schoorlemmer (1995:240) argues, could use either present or past perfect ((57)b or (57)c), but not simple past ((57)d):

(57)   a. Bandity ubili Vanju
             bandits killed-PF Vanja-ACC
             '*The bandits have/had killed Vanja*'
         b. E _ R,S
         c. E _ R _ S
         d. * E, R _ S

For a simple sentence given in isolation, however, it is difficult to judge which tense form is appropriate in the English translation. However, consider a complex sentence in (58):

(58)   Petja ušel domoj kogda pozvonila mama
         Peter PF-go-pst.sg.masc. home when PF-call-pst.sg.fem. mom
         '*Peter went home when(=after) his mom called*'
         '*Peter had gone home when (=by the time) his mom called*'

The interpretation that the perfective verb form in the main clause gets (i.e. *Petja ušel domoj…*'Peter went home…') is ambiguous between simple past and past perfect, as I specified in the translations. Subordinate *when*-clauses bring out this ambiguity very clearly and the important point is that the perfective form in the main clause *can* be translated into the simple past tense in English. The whole sentence in (58) is interpreted as reporting on two eventualities that occurred one after another, but one can never be sure about the exact order. Either Peter went home before his mother called him, in which case the most precise English translation for the

sentence uses the past perfect tense, or the order was reversed. If Peter's going home temporally followed his mother's call, the English translation requires the use of the simple past tense for the main clause in (58). This result is clearly incompatible with the definition in (53)/(54), at least on the standard interpretation of the English simple past tense.

Given the fact that the Russian past perfective sentences can get the reading which corresponds to the English simple past, the definition in (53) cannot be correct, since in the configuration of the simple past, R and E have to coincide.[28] Moreover, it is impossible to get the present perfect interpretation (cf. (56)a) for the main clause in (58), contrary to another prediction that (53) makes.

To sum up, I have argued that the E-R relation cannot be taken to determine the aspectual differences in Russian. If the definition of (im)perfectivity makes use of different inclusion relations between E and R, it becomes impossible to state the difference between (52)a and (52)b. If the definition is based on the non-overlap of E and R, the analysis makes the wrong predictions concerning the interpretation of past perfectives (example (58)).

Even though my general conclusion is that aspect in Russian cannot be determined solely by the E-R relation, in Reinhart's model this relation determines the progressive interpretation, which is, given the progressive/imperfective correlation, important for defining aspect in Russian. In what follows, I suggest a way of modifying the preliminary definitions for (im)perfectivity, DEF.4' and DEF.5' from section V.3.2, in such a way that the progressive correlation is accounted for.

V.3.3.3. Episode III: Implementation of the progressive-imperfective correlation

Recall that in Reinhart (1986/2000) follows the DRT tradition in assuming that the E-R relation determines progressive in English. In particular, progressive is always associated with configuration R⊆E, which means that the R-time interval is contained in the E-time interval. There is a correlation between the English progressive and the Russian imperfective:

(59)   The meaning of the English progressive is *always* rendered in Russian by imperfective aspect.

This correlation is the reason why the E-R relation is very important for the discussion of Russian aspect. Note that (59) is a one-way correlation: the Russian imperfective can, but *does not have to* be translated into the English progressive.

In Reinhart's system, progressive is viewed as a special operator that reverses the default inclusion relation between E and R:

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[28] Or, in terms of intervals, the intersection between R and E intervals has to be non-empty.

(60)   PROG: $E \subseteq R \rightarrow R \subseteq E$

I adopt this definition in the present work (see the discussion in section IV.3.3.1), which means that the Russian imperfective should be defined in such way that the progressive configuration (i.e. $R \subseteq E$) is part of (or derivable from) the definition of imperfectivity. It is easy to see that the preliminary DEF.5' does not make any predictions concerning the E-R relation:

DEF.5':   Imperfective aspect in Russian corresponds to the absence of perfective configuration, i.e., $\neg(S \cap R = \varnothing)$ or $S \cap R \neq \varnothing$

There is yet another problem with DEF.4' and DEF.5'. If they are adopted in the first version, the analysis based on these definitions does not exclude the possibility for past perfectives to have a progressive interpretation. The English progressive *uniformly*, i.e. past progressive included, corresponds to imperfective aspect. Given the definition of progressive in (60), in the combination with the past tense configuration, i.e. $R < S$, we obtain (61):[29]

(61) $R \subseteq E \ \& \ R < S$

This states $R < S$, predicting perfective aspect, which always occurs when R and S-intervals do not overlap, according to DEF.4'.[30] This is obviously an undesirable result. Perfective sentences can never be interpreted as progressive. In the non-past tense this amounts to the claim I have defended earlier: the perfective non-past forms cannot get the actual present interpretation. Note that in order to account for the absence of the actual present interpretation with perfectives, DEF.4' suffices (cf. sections V.3.1 and V.3.2), but (61), nevertheless, predicts perfective aspect for the past progressive configuration, which is never the case in reality.

In the light of these observations, I suggest the following revision of the preliminary definitions. I propose to introduce another requirement into the definition of perfective aspect, namely, the requirement that E has to be included in R, in order to exclude the progressive interpretation of perfective aspect in all tenses. This revision is exclusively motivated by the imperfective-progressive correlation. A modified definition of perfectivity is given below:

DEF.4:   Perfective aspect in Russian is defined by the configuration
$S \cap R = \varnothing \ \& \ E \subseteq R$

Now to the definition of imperfectivity. As the preliminary definitions already suggest, I follow the view on the Russian aspect that does not define both aspects

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[29] A more formal representation of past progressive was given in section IV.3.3.1.

[30] Note that if an additional requirement was postulated, i.e. $E \cap S = \varnothing$, it would not help at all, because the perfective configuration requires R and S intervals not to overlap and this requirement is explicitly stated in (61).

independently. In the present theory, I define imperfective aspect as non-perfective. On this view, perfectivity is defined in terms of having a certain property, while imperfectivity is associated with *not* having it.

The definition of perfectivity, DEF.4, is a conjunction of two requirements, which means that in order to obtain the perfective aspect both conditions have to be met. Imperfective aspect, if defined as non-perfective, is just an external negation of the perfectivity condition, i.e. $\neg(S \cap R = \varnothing \;\&\; E \subseteq R)$. Since this condition is given as a conjunction, it entails that whenever at least one of the conditions is not met (which is the logical negation of the conjunction), imperfective aspect results. The definition of imperfective aspect now looks like follows:

DEF.5:   Imperfective aspect is defined as non-perfective, i.e.
$\neg\,(S \cap R = \varnothing \;\&\; E \subseteq R)$, namely $S \cap R \neq \varnothing \lor E \nsubseteq R$

It is quite obvious now that the 'progressive' configuration, i.e. $R \subseteq E$, is obtained only if one of the perfectivity conditions, namely, the one that requires E to be included in R, fails. Therefore, the perfective aspect can never emerge with the progressive configuration. This successfully captures the correlation between progressive and imperfective. Note also that the imperfective aspect is not exclusively associated with progressive, it can also result whenever the S and the R intervals overlap.

In Reinhart's model, the S-R relation determines morphological tense (section IV.3.2.3). Past tense is determined by the condition R < S. This condition states that the R and S intervals do not overlap and R precedes S. For the theory of aspect in Russian based on DEF.4 and DEF.5, this means that one of the perfectivity conditions, i.e. $S \cap R = \varnothing$, is always met when the tense morphology is past, according to Reinhart's definition.

Consequently, the only possible way to have imperfective aspect in the past tense is to reverse the default E-R relation, violating the other perfectivity condition, namely, $E \subseteq R$. In this case, however, the prediction is that imperfective past forms always have the meaning of progressive. This, in turn, means that under DEF.5, imperfective aspect is now predicted to have only a progressive reading in the past tense, The modified definitions for (im)perfectivity seem to reverse the problem which I pointed out for the preliminary definitions: if the correlation between progressive and imperfective in the past tense was not derivable in the latter, the former now predict the equivalence between progressive and imperfective in the past tense, not just a one-way correlation, as in (59).

A solution to this problem will be provided in the next section, after the Russian tense morphology and the relation that determines it have been discussed. I will argue that there is an independent reason to assume that tense morphology in Russian is not determined by the S-R relation, like in English, but by the relative position of E and S and show that this solves the problem with the progressive/imperfective in the past tense. Note that this move does not undermine the validity of Reinhart's system: her 'tense morphology' relation was established

on empirical observations coming from languages like English and was not a logical requirement of the system.

V.3.4. Tense morphology in Russian

Let me start this section by repeating the part of Reinhart's system presented in chapter IV, which is going to be relevant for the present discussion. It concerns the difference between temporal interpretation and morphological tense.

The S-E relation in Reinhart's system for English is employed to establish the temporal interpretation of a sentence,[31] whereas the relation between S and R determines tense morphology. To briefly repeat the reasoning here, the sentences in both (62)a and (62)b refer to the eventualities that occurred in the past (i.e. prior to the S-time), hence have the same temporal interpretation, but the finite verb form in (62)a carries the past tense morphology, whereas the tense of the inflected verb in (62)b is present. From these facts, Reinhart concludes that different relations should be employed to determine the temporal interpretation of a sentence on the one hand, and the morphological tense of a finite verb, on the other.

(62)   a. John ate breakfast $[_R E] < S$
        b. John has already eaten breakfast $[_R E < S]$

The representations of (62)a and (62)b reflect the fact that the described eventuality occurred in the past by stating that $E < S$, while the difference in tense morphology is captured by the S-R relation. Thus, the past tense morphology is always represented by $S < R$ ((62)a), whereas in the case of the morphological present tense, the S- and R-intervals overlap ((62)b). Note that the only element of the sentence in (62)b that can bring about the past interpretation ($E < S$) is a participle.

Consider now the analogous Russian examples:

(63)   a. Petja zavtrakal
            Peter breakfast-IMP-pst.sg.masc.
        b. Petja po-zavtrakal
            Peter PF-breakfast-pst.sg.masc.
            '*Peter had breakfast*'

Both sentences in (63) have a past temporal interpretation, i.e. they both report on an eventuality that took place prior to the S-time[32]. The verb forms used in these examples are aspectually different. This in itself suggests that the relations determining temporal interpretation and aspect should be different.

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[31] And also the truth-conditions of a sentence, but, as I said in chapter IV, I will not discuss the truth-conditional issues in this thesis.
[32] Which does not necessarily entail that the eventualities have to terminate before the S-time. See section V.3.5 for the explanation of why not.

There is no reason to assume that the temporal interpretation in Russian should be determined by a different relation than the temporal interpretation in English. In fact, the temporal interpretation relation should intuitively be the most stable thing crosslinguistically. In the absence of any motivation to change this condition, I will keep Reinhart's proposal concerning the E-S relation as determining the temporal interpretation of a sentence intact. This means that the aspectual relation is not E-S.[33] The analysis of aspect developed in the previous section states that aspect in Russian is determined by both the S-R and the E-R relations, but crucially not E-S. Abstracting away from the progressive reading, I will keep the E-R relation stable, i.e., E is always included in R, and ignore it for the time being for the sake of simplicity.

So far so good, but the relation determining the tense morphology in Russian is still to be established. Suppose we just follow Reinhart's proposal and assume that in Russian, tense morphology is determined by the S-R relation just like in English. In other words, both aspect and morphological tense are determined by one and the same relation. This would make the following prediction: all the verb forms of one aspect, say, imperfective, should always show the same tense morphology, while the forms of the other aspect, i.e. perfective, should always show some other tense morphology, different from the imperfective forms, but constant within the class of perfectives.

It is easy to see that the situation that I just described has nothing to do with the real facts found in Russian. Thus, both perfective and imperfective forms can occur in both past and non-past tenses, carrying the same (i.e., past or non-past) tense inflection. This was shown in Table V.1 at the beginning of this chapter. This definitely points to the conclusion is that the S-R relation cannot determine morphological tense in Russian.

As was already pointed out in section V.1, modern Russian has just two morphological tenses, past and non-past. Whenever a finite verb in a Russian sentence has past tense morphology, i.e. –l- (see table V.1), the sentence also has past temporal interpretation. This suggests that the relation that determines temporal interpretation should also determine morphological tense in Russian. In other words, whenever (64) obtains, a corresponding Russian sentence is interpreted as past and the finite verb carries the past tense inflection:

(64)   E < S: past (temporal interpretation and tense morphology)

Note that there is an additional piece of evidence that this is really what is going on in Russian. In section V.1.1, I have shown that the Russian past tense forms are frozen participles. I gave an example in (27), repeated below, with the intention to illustrate what would happen in English if it were subject to the same historical processes that occurred in Russian:

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[33] The reasoning here should be familiar from section V.3.2.1, where it was argued that aspect cannot be determined by the same relation as temporal interpretation.

(65)   a. John has seen this movie
            b. John seen this movie

Instead of (65)a, English speakers would always have to use the (65)b. This suggests that the semantic contribution of the past forms in Russian, which used to be participles, can be compared to the contribution of the past participles in the English present perfect tense. As I have mentioned in connection with example (62)b, the only element in that sentence which brings about the past interpretation (i.e., $E < S$) is the past participle.

   Now let me briefly discuss the non-past forms in Russian and, once again, address the issue of the apparent discrepancy between the tense morphology, which is always the same in all non-past forms, and the temporal interpretation that sentences with the non-past forms can obtain, which can be either present or future.

   First of all, given that non-past morphology is underdetermined with respect to the present/future distinction, both present and future temporal interpretations should be compatible with the non-past forms. Secondly, as was discussed in section V.3.2, the interpretational restrictions of the non-past tense forms are imposed by aspect. The non-past morphology/interpretation configurations are given in (66):

(66)   configurations for non-past tense:
            a. $E \cap S \neq \varnothing$
            b. $S < E$

When combined with the perfective configuration in (67), the only representation that can be derived without arriving at a contradiction is (68), i.e. the combination of (66)b, which corresponds to the future interpretation, and (67):

(67)   perfective: $R \cap S = \varnothing$
(68) $R \cap S = \varnothing$ & $S < E$ non-past + perfective

The combination of (66)a and (67) is ruled out, because (66)a requires the E and S intervals to overlap, but the perfective configuration requires the intersection of S and R, which, in turn, contains E, be empty. This is a contradiction, because the E interval cannot simultaneously overlap and precede S.

   But if (66)a is combined with the imperfective aspect configuration in (69), there are two possible derivations, (70)a and (70)b. The former gives the (actual) present interpretation, the latter is for the future interpretation, and both options can be successfully realized with imperfective forms.

(69)   imperfective: $R \cap S \neq \varnothing$
(70)   a. $R \cap S \neq \varnothing$ & $E \cap S \neq \varnothing$ non-past + imperfective
            b. $R \cap S \neq \varnothing$ & $S < E$

Note that in (50) in section V.3.2.1, there were two forms with a future interpretation, one of the perfective and one of the imperfective aspect, and only one imperfective form with a present temporal interpretation. This is also the result obtained here, in (68) and (70).

To conclude this section, let me readdress the past imperfective problem, as was promised at the end of the previous section. There, it was explained that a prediction made on the basis of DEF.5 was that imperfective past forms always give rise to a progressive reading. This is an incorrect prediction. This prediction, however, was made on the old assumption that tense morphology in Russian is determined by the same relation as tense morphology in English, i.e. S-R. As has been argued in this section, this idea cannot be maintained. If, however, tense morphology is determined by the S-E relation in Russian, as I have just proposed, the 'past imperfective problem' disappears. The reason is that now DEF.5 does not predict that R<S should be a necessary part of the representation of past imperfective sentences. The relevant configuration for this type of sentences now consists of two parts, (71)a and (71)b:

(71)   a. $S \cap R \neq \varnothing \vee E \nsubseteq R$ imperfective aspect, DEF.5
          b. $E < S$ past tense morphology & past interpretation

Depending on which part of (71)a holds, there are two possible representations for past imperfective sentences. If in (71)a the first imperfectivity condition is met, i.e., $S \cap R \neq \varnothing$, then the configuration for past imperfective is (72)a. If the second condition of (71)a holds, which amounts to saying that the E-R inclusion relation is reversed so that $R \subseteq E$ is obtained, then the resulting interpretation of past imperfective is (72)b:

(72)   a. $\exists E \, \exists R \, \exists S (E \subseteq R \ \& \ E < S \ \& \ S \cap R \neq \varnothing)$
          b. $\exists E \, \exists R \, \exists S (R \subseteq E \ \& \ E < S \ \& \ R < S)$

(72)a is basically the same configuration as the one for the English present perfect (cf. (57) in chapter IV), whereas (72)b is the representation of the English past progressive ((60) in chapter IV). What is important to emphasize now is the fact that the past imperfectives in Russian are predicted to have two possible interpretations: the one of the English present perfect and the one of the English progressive. The latter comes as no surprise, while more needs to be said about the former. I will do so in section V.3.6.2.

Let me conclude the present section with a summary of what I have done so far.

Reinhart's system of E-R-S relations represented in (37) has been applied to the Russian data. As a result of this application, the aspectual differences in Russian are now analysed in terms of the S-R relation. Importantly, this was not *stipulated*, but *derived* in the process of consistent implementation of Russian data into the system in sections V.3.1 and V.3.2. One property of the perfective non-past forms was crucially employed in the analysis: the absence of the actual present interpretation. I

have also shown, that because of the progressive correlation (59), the E-R relation is also important for defining the aspectual differences in Russian. In section V.3.3, having discussed all the relevant facts, I formulated the definitions of perfective and imperfective aspect in Russian, DEF.4 and DEF.5, repeated below:

DEF.4:   Perfective aspect in Russian is defined by the configuration
$S \cap R = \varnothing \,\&\, E \subseteq R$

DEF.5:   Imperfective aspect is defined as non-perfective, i.e.
$\neg\,(S \cap R = \varnothing \,\&\, E \subseteq R)$, namely, $S \cap R \neq \varnothing \vee E \nsubseteq R$

Finally, in the present section I have argued that the tense morphology in Russian is determined by the E-S relation, whereas in English it is determined by the S-R.

To sum up, the system of the E-R-S relations for Russian looks like this:

(73)   RUSSIAN:
- the E-R relation is fixed by DEF.3 of the R-time
- the S-E relation determines temporal interpretation *and* morphological tense in Russian
- the S-R relation is crucial in determining aspect, the E-R relation contributes to the aspectual system because it derives progressive

The next section is entirely devoted to the S-R relation.

V.3.5. S-R: Perspective, telicity revisited.

In Reinhart's model, the S-R relation, apart from establishing morphological tense of the finite verb, also determines perspective. Let me, once again, bring up the contrast between the English simple past and present perfect tenses here:

(74)   a. John ate breakfast $[_R\ E\ ] < S$
         b. John has already eaten breakfast $[_R\ E < S]$

It is important to emphasize at this point that the contrast between (74)a and (74)b is that the eventuality of John's eating breakfast in the present perfect sentence is perceived as *relevant* for the present, whereas no such connotation arises in the simple past sentence. The notion of relevance is intuitive and, therefore, rather difficult to deal with. One of the results of Reinhart's theory is that it gives an explicit formalization of the relevant intuition in terms of R-time and, at the same time, preserves the essential insight of Reichenbach (1947), concerning the relative position of the R-time and the S-time in the present perfect configuration.

Another term that Reinhart uses as a synonym for 'relevance' in this context is *perspective.* The latter may sound very dear to the heart of somebody who is familiar with the issues of Slavic aspect, because one of the most prominent

characterizations of the aspectual differences in Russian (or even more broadly, in Slavic) was formulated in terms of 'point of view', which I take to mean the same as perspective.[34]

Although this material was presented in more detail in section III.1, let me briefly repeat the main points here. There are two ways of phrasing the idea of describing aspectual differences as the differences in viewpoint found in the aspectual literature, both of which can be regarded as (informal) attempts at defining perfective aspect: perfective aspect views a situation 'in totality' (e.g., Filip (1993)) or 'from outside' (e.g., Comrie (1976)).

As for the former, I argued at length in chapter III why the notion 'totality' cannot be applied directly to eventualities. I don't see how the notion of totality can be used in a way that would not be confused with the expression 'totality of a situation/eventuality', even if some other entity is characterized as 'total'.[35] Therefore, I adopt the intuitive characterization of aspect given in Comrie (1976:4), repeated here from chapter III:

> "… the perfective looks at the situation from outside…., whereas the imperfective looks at the situation from inside…"

There is one crucial difference: unlike Comrie, I will formalize the notion of viewpoint in terms of R-time.

One observation concerning Comrie's description is that when talking about perspective (and I take the expressions 'from outside/inside' to be descriptions of perspective), the presence of a speaker is, in some form, required, because it is 'position' of the speaker that in principle determines perspective or viewpoint. A viewpoint cannot exist independently, just by itself, it has to be someone's viewpoint. It is the speaker who chooses a way to convey the relevant information, hence, it is the speaker who determines the perspective. In temporal models, particularly, in the one adopted in the present work, the position of a speaker is best associated with the S-time, which is where the speaker is, so to say, located.

Another observation is that the perspective can be *internal* ('from inside') or *external* ('from outside'). But these terms do not make much sense if it is not stated internal/external with respect to what. Thus, Comrie's description requires to determine a domain of observation or 'looking', so to speak.

Following Reinhart (1986, 2000), I propose that the properties of R-time reflect the speaker's view on an eventuality: a speaker can acquire an internal view on an eventuality only if there is a certain domain which includes *both* a relevant eventuality *and* the speaker's position, i.e. S-time. A perspective from *within* the R-time domain provides an internal viewpoint. Thus, *internal* here means 'within the same domain'.

According to Reinhart, it is a non-empty intersection between the S- and the R-intervals that determines an internal perspective. Due to the DEF.3, the $E \subseteq R$

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[34] '*View*' is also a literal translation of the Russian term for aspect, *vid*.
[35] Klein (1995) makes a similar point.

configuration is always guaranteed unless the progressive operator applies to change this relation.

Thus, the configuration $S \cap R \neq \varnothing$ reflects the speaker's internal point of view on a situation, consequently bringing up the notion of relevance for the speaker,[36] and the notion of internal perspective. This confuguration is always obtained with present perfect in English and imperfective in Russian.

For perfective aspect in Russian, associated with an external perspective or an 'outside' point of view, the relevant configuration is $S \cap R = \varnothing$. Once again, the S-R relation, which determines perspective in Reinhart's system, also determines aspectual differences in Russian, hereby capturing the intuition of the 'view from inside/outside' and I have just explained how.

Let me point out that now Klein's (1994) criticism of the 'inside/outside point of view' approach to Russian aspect loses ground, because the main objection that Klein puts forward is that the approach uses only metaphorical descriptions without any attempt for any formalization. I have just provided a formalization of the notion of perspective.

There is one more important point of the analysis that I propose. It concerns the inferences that different kinds of predicates license in past tense sentences. In chapter II, I argued that there is no correspondence between (im)perfectiviy and (a)telicity: both perfective and imperfective predicates can be telic or atelic. As was shown in chapter IV, Reinhart's model allows for a strict separation between telicity, which is viewed as a property of predicates only, on the one hand, and the temporal interpretation of sentences and all the phenomena connected to it, on the other hand. Note that in this chapter, I have not changed any of the basic assumptions and definitions formulated in chapter IV, so that the properties of the model itself remain the same. In fact, the only change that I have made adjusting Reinhart's system to the Russian data concerned the locus of morphological tense: while in Reinhart's proposal for English it is determines by the S-R relation, in my analysis of Russian it is given by the relation between S and E. Now let me illustrate that the telicity facts in Russian work the same way as in English. For the sake of uniformity, I will use examples with perfective verb forms:

(75)   a. Petja pro-sidel v tjur'me do starosti
            Peter PF-sit-pst.sg.masc in prison till old.age
            '*Peter was in prison until he was old*'
         b. Petja pro-čital 'Vojnu i mir' za dva dnja
            Peter PF-read-pst.sg.masc. 'War and Peace' in two days
            '*Peter read 'War and Peace' in two days*'

The temporal structure of both sentences is the same and consists of the combination of the past and perfective configurations:

(76) $\exists E, \exists R, \exists S \ (P(x_1, x_2, \ldots x_n, E) \ \& \ E \subseteq R \ \& \ E < S \ \& \ S \cap R = \varnothing)$

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[36] After all, it is a speaker's opinion that the situation is relevant for the present.

Note that (76) entails that R precedes S, since R contains E, which is before S and the intersection of R and S is empty.

(75)a is a sentence with an atelic predicate[37] (see chapter II), (75)b has a telic predicate. I repeat here the definitions of R-time and (a)telicity. As stated in IV.3, I assume that a temporal argument '*I*' is always a part of a verb's argument structure.

DEF.1: For all P, I, x_1, x_2, …x_n, a predicate P (x_1, x_2, …x_n, I) is atelic iff
P (x_1, x_2, …x_n, I) & $\exists I' \subset I$ (P (x_1, x_2, …x_n, I'))
DEF.2: For all P, I, x_1, x_2, …x_n, a predicate P (x_1, x_2, …x_n, I) is telic iff
P (x_1, x_2, …x_n, I) & $\forall I' \subseteq I$ (P (x_1, x_2, …x_n, I') $\rightarrow$ I'=I)

My reasoning about the Russian sentences in (75) is going to be exactly the same as in the explanation of the difference between telic/atelic predicates in English in IV.3.2.3.

If a predicate is atelic (as in (75)a), then it holds of a certain interval I and at least one of its subintervals I' (DEF.1). The interval *I* itself can also be a subinterval of yet another interval, *I''*, and still, a predicate would hold of *I* (which would be viewed now as a subinterval of *I''*). Let E be that *I*. DEF.3 requires that at least one of the intervals of which a predicate holds is a subinterval of R, and (76) makes sure that R precedes S. Hence the interpretation of (75)a: it asserts that there is an interval in the past (i.e., before S) at which the predicate holds. No other assertions can be made, there may or may not be other intervals connected to E, at which the same predicate holds. In particular, there may be an interval that actually includes S at which the predicate holds. There is no implication in (75)a as to whether Peter is still alive or died 10 years ago. The sentence does not provide this information, it has to be obtained otherwise, if needed. For instance, Peter might be very old now, but still in prison:

(77)   Petja pro-sidel v tjur'me do pensionnogo vozrasta.
        Peter PF-sit-pst.sg.masc in prison till retirement age.
        Teper', daže esli ego vypustjat, on ne budet polučat' pensiju.
        Now even if him PF-release-pres.3pl, he not will get-IMP-pres.3sg. pension
        '*Peter was in prison until the retirement age. Now even if he is released, he will not get a pension*'

As for the example in (75)b, this is a sentence with a telic predicate. This means that the predicate only holds at a given interval *I* and none of its subintervals. The predicate cannot hold at a bigger interval *I''* either, since if it were the case, the predicate would show a subinterval property (if it held at *I''* and its subinterval *I*) and would be atelic. Let, again, *I* be the predication time E. Thus, a 'unique' interval E, of which a predicate is asserted to hold, has to be included in R, due to DEF.3. (76) ensures that R precedes S. Therefore, the eventuality described in (75)b, cannot

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[37] As was argued in detail in chapter II.

hold at S. This is true and past perfective sentences with telic predicates never allow for the inference that the described eventuality can hold at the S-time.

I have just illustrated that perfective predicates can license different inferences with respect to the S-time due to their different telicity properties. The representation that all the past perfective sentences get is, however, uniform (cf. (76)) and does not comprise any telicity information. This means, that the analysis of perfectivity that I propose is *uniform*, and telicity is still viewed as an independent property of the predicates, just like in Reinhart's analysis.

V.3.6.   Some consequences and conclusions. (English-Russian   correspondences)

In this last section, I am going to compare two languages to which Reinhart's system of E-R-S relations has been applied to: English (chapter IV) and Russian (this chapter). The purpose is to establish the correspondences between the tense/aspect system of Russian and the tense system of English, some of which have already been mentioned, and illustrate how they are captured by the system adopted here.

V.3.6.1. Perfective aspect

As was already pointed out (section V.3.3), past perfective sentences in Russian are ambiguous. They allow for the interpretations that correspond either to English simple past or to the English past perfect. The best way to illustrate this ambiguity is by means of a subordinate *when*-clause. Here I repeat the example that I gave in section V.3.3:

(78)   Petja ušel domoj kogda pozvonila mama.
         Peter PF-go-pst.sg.masc. home when PF-call-pst.sg.fem. mom
         '*Peter went home when(=after) his mom called*'
         '*Peter had gone home when (=by the time) his mom called*'

As can be seen from the translations, both past perfect and simple past can be used in the corresponding English versions of the sentence. The different interpretations that arise in the case of English are conflated in one Russian sentence in (78).

One more piece of evidence in favour of associating past perfective with past perfect is the interpretation of temporal adverbials. It is a well-known fact that in English, temporal specifiers like 'at five o'clock' give rise to a certain interpretational ambiguity when used in past perfect sentences:

(79)   At 5 p.m., Peter had gone home

The temporal expression '*at 5 p.m.*' can either be interpreted as exactly the time when Peter left or, alternatively, as some time after Peter's leaving. In Reichenbach's (1947) proposal the way of interpreting this ambiguity was to say that this type of temporal expressions can modify either E or R in the past perfect configuration (80):

(80)   E _ R _ S

Interestingly, the same type of ambiguity can be found in Russian, but only in sentences with perfective forms:

(81)   a. Ona zvonila   v 5
            she call-pst-sg.fem at 5
            '*She called at 5*'
        b. Ona pozvonila v 5
           she PF-call-pst.sg.fem at 5
           '*She called at 5 / She had called by 5*'

This additional observation confirms the correspondence between the past perfective in Russian and the past perfect in English.

Now I would like to demonstrate how these correlations are derived in the present analysis of the perfective aspect. In my account, perfectivity is defined as follows:

DEF.4:   Perfective aspect in Russian is defined by the configuration
$S \cap R = \varnothing$ & $E \subseteq R$

The representations of the English simple past and past perfect in Reinhart's model are given in (82)a and (82)b, respectively:

(82)   a. $E \subseteq R$ & $R < S$ (cf. section IV.3.2.3.)
        b. $E_1 \subseteq R_1$ & $R_1 < R_2$ & $R_2 < S$ (cf. section IV.3.3.2)

R_2 in the past perfect representation can be specified either by an adverbial expression (e.g.(79)) or by another clause (i.e, by another E, like in (78)). Schematically, the representations in (82) can be depicted as (83):

(83)   a. $[_R \; E] < S$
        b. $[_{R1} \; E_1 \;] < R_2 < S$

For ease of comparison, the schematic representation of Russian perfective aspect in the past tense is given in (84):

(84) $E \subseteq R \& R < S$[38]   or $[_R \ E] < S$

The configuration for past perfectives in (84) is *exactly* the same as (82)a, the configuration for the simple past in English. Thus, a very strong correspondence between the English simple past and Russian past perfective is predicted and found in reality.

The distinction between simple past and past perfect is not marked in the temporal system of Russian. I want to show that, crucially, the meaning of past perfect in Russian can be conveyed only by perfective aspect in Russian. The essential part of the representation of past perfect that explains the correlation with perfective aspect in Russian is $R_1 < R_2 < S$. Consider (85):

(85)   a. Peter had already left when John came.
          b. $[_{R1} \ E_1 \ ] < [_{R2} \ E_2 \ ] < \ S$

Here, E_1 corresponds to the eventuality of Peter's leaving, which is included in R_1, and E_2 to John's coming, which is, in turn, included in R_2. The configuration in (85)b predicts that we should *always* find perfective aspect in the corresponding *main clause* in Russian, the clause that, in this particular case, reports on Peter's leaving. The reason for this is that there will always be another R, R_2, intervening between R_1 and S, which makes sure that they do not overlap. The only possibility to get an imperfective aspect in the main clause in this type of construction is to use the progressive:

(86)   Kogda po-zvonila mama, Petja uxodil
          when PF-call-pst.sg.fem. mom, Peter leave-IMP-pst.sg.masc.
          '*When mother called, Peter was leaving*'

In this case, as the translation shows, English has to use past progressive in the main clause, because the progressive configuration, $R \subseteq E$, is obtained.

Thus, in Russian, perfective sentences in the past can obtain the meaning of either of the English tenses: simple past or past perfect. This is exactly what is predicted by the theory advocated here.

In the non-past temporal domain, it is very difficult to establish any strict correspondences. However, there is a strong correlation between English future perfect and Russian non-past perfective: whenever the future perfect is found in English, perfective aspect has to be used in the Russian translation. It is particularly clear in the presence of a certain type of temporal modification in English sentences, i.e. 'by Monday':

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[38] The condition for E to precede S, due to the past tense morphology determined by the E-S relation in Russian, is fulfilled automatically.

(87)   a. I will have written the paper by Monday
       b. Ja napišu statju k ponedel'niku
         I PF-write-pres.1sg article by monday

My hypothesis is that the representation of future perfect in English is similar to the one of past perfect. Similarly to the past perfect sentences, the future perfect always requires some additional R-time to be specified or at least implied by the context. In this case, the general configuration that this tense form should be assigned is (88):

(88) $S < [_{R1} E_1] < R_2$

E_1 here represents the eventuality of writing in (87) and R_2 is specified by the temporal expression 'Monday'. The important thing is that the configuration for the future perfect in (88) is the reverse of the past perfect configuration. The reasoning about the correspondences with Russian is exactly the same: since S and R_1 do not overlap, perfective aspect is predicted.[39]

Passive sentences with past passive participles (chapter II, section 1) deserve special attention. Schoorlemmer (1995) argues that periphrastic passive sentences in Russian derive *perfect* effect (PE), which is defined for Russian as describing a *long lasting state* (Schoorlemmer 1995:248). One of the strong arguments that Schoorlemmer's proposal is based on is that the sequence interpretation, which is always available for conjoined perfective sentences in active voice, disappears in participial passive (ibid.:257-258):

(89)   a. Maša vymyla posudu, nalila čaj i pozvala sem'ju
         Maša PF-wash-pst.sg.fem. dishes, PF-pour-pst.sg.fem. tea and
         PF-call-pst.sg.fem. family
         '*Maša washed the dishes, poured the tea and called the family*'
       b. Mašej byla vymyta posuda, nalit čaj i pozvana sem'ja
         Maša-INSTR be-pst.pl washed-PPP-sg.fem. dishes, poured-PPP-sg.fem
         tea and called-PPP-sg.fem. family
         '*The dishes were washed, the tea was poured and the family were called
         by Maša*'

The eventualities of washing the dishes, pouring the tea and calling the family described by the Russian active sentence in (89)a can only be interpreted sequentially, whereas the same eventualities described in by the passive sentence in (89)b *cannot* be interpreted as a sequence. Following Beedham (1982), Schoorlemmer further argues that participial passive in Russian is an aspectual

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[39] Alternatively, it can be suggested that the important part of the configuration is a non-overlap between R_1 and R, especially taking into account the remarks I made in chapter IV, section 3.3.2, about the status of S-time. I will leave this possibility open.

phenomenon: this is the structure Russian uses to unambiguously express resultative meaning.

In terms of the present work, Schoorlemmer's conclusions can be interpreted as follows: participial passive in Russian is closer to the meaning expressed by imperfective aspect, because an eventuality described by a passive sentence is perceived as *relevant* for the present moment. I agree that this is the right intuitive characterization of the participial passive sentences in Russian. In this work, passive has not been discussed, but a tentative explanation that can be proposed now is that this '*imperfective*' effect of participial passives arises due to the contribution of the auxiliary *byt'* 'be', which, as I showed in section V.2.2, must be classified as imperfective in modern Russian. This, however, is just a provisional hypothesis and the temporal/aspectual structure of passive sentences in Russian needs more research.

V.3.6.2. Imperfective aspect and some apparent problems with present perfect

In section V.3.4, it was pointed out that the representations given for past imperfective sentences predict that these sentences should be interpreted as either progressive or present perfect (cf. (72)). Enough has been said about the progressive, and here I just sum up the results of the previous discussion. The progressive correlation has been established in (59), repeated in (90) below:

(90)   The meaning of the English progressive is *always* rendered in Russian by imperfective aspect.

The final definition of imperfective aspect, DEF.5, accounts for this correlation, as I have explained in section V.3.4.

The correspondence between Russian past imperfective and English present perfect deserves more attention, because it has not been explained yet. Let me say right away that much more research is needed in this area to establish the contexts where the use of imperfective in Russian, as well as the use of present perfect in English, is required and not just preferred. One of the factors considerably complicating the research in this area is that there is a lot of free variation, especially in isolated sentences, not only between present perfect and simple past in English, but also between imperfective and perfective aspect in Russian. Another difficult issue is the idiosyncratic properties of the English present perfect tense. First of all, it has a strong resultative connotation and, as example (26), repeated below as (91), illustrates, is incompatible with the meaning of the annulled result, which is usually conveyed by the imperfective aspect in Russian ((92)):

(91)   ?John has left, but he has come back later

(92)   K vam kto-to prixodil
         at you someone come-IMP-pst.sg.masc.
         '*Someone ?has come/came for you* (and no longer here)'

As is well-known, present perfect in English does not tolerate the presence of any temporal expressions explicitly referring to the past. Such an expression in any Russian past imperfective sentence immediately triggers the use of simple past tense in the English translation. Compare the contrast between (93) and (94):

(93)   Ja čitala 'Vojnu i mir'
         I read-IMP-pst.sg.fem. 'War and Peace'
         '*I have read 'War and Peace'*
(94)   Ja čitala 'Vojnu i mir' v devjatom klasse
         I read-IMP-pst.sg.fem. 'War and Peace' in ninth grade
         '*I read (*have read) 'War and Peace in the ninth grade'*

Moreover, the choice between present perfect and simple past in English also very much depends on how relevant the situation is considered to be for the present moment by a speaker and this is a subjective judgement. But when this intuition of relevance is very clear, especially in the presence of *already* and in some other cases, the correlation between past imperfective and present perfect is very clear as well:

(95)   Ja uže delal ėto upraznenie
         I already do-IMP-pst.sg.masc. this exercise
         '*I have already done this exercise*'

Notice that this is a very important result for my account of the Russian imperfective, since this analysis expresses the 'relevance' for a speaker or 'internal perspective' in terms of the S-R relation. This is exactly the case where the prediction about the imperfective-present perfect correlation is strongest.
     There are also examples where I think the best English translation of the imperfective sentences would be passive:

(96)   Zimnij dvorec stroil Rastrelli
         Winter palace build-IMP-pst.sg.masc. Rastrelli
         '*The Winter Palace was built by Rastrelli*'

Since I have not considered passive sentences in this work, I will not comment on this type of examples.
     To sum up this section, I have shown that an important result of the analysis of imperfective is that it does correspond to the English present perfect when the intuition about the relevance of the situation for the present moment is clear. In order to establish the correlations in other, less clear cases, more research is needed.

V.3.6.3. R-time movement

One of the main results of Reinhart's theory of R-time and the E-R-S relations is a unified treatment of the notion of R-time, which is used for both tense systems and discourse representation rules. It was explained in more detail in chapter IV, how Reinhart's theory accounts for the phenomenon of R-time movement, or, in other words, for the effect of the temporal progression in narrative discourse. Now let me illustrate what predictions Reinhart's theory makes for Russian narrative discourse.

The configuration that corresponds to the creation of the R-time movement effects in narrative discourse is given in (97):

(97) $[_{R1}\ E_1]\ [_{R2}\ldots$

There is clearly no designated S-time in the narrative discourse. Discourse interpretation rules temporally accommodate every new sentence with respect to the preceding R-time, creating either sequence or overlap interpretation, depending on the properties of a given sentence.[40] Thus, the current R-time in narrative discourse functions similarly to the S-time in a temporal model. In this case, (97) should definitely be viewed as a perfective configuration. Compare (97) and the perfective configuration in (98):

(98) $E \subseteq R\ \&\ S \cap R = \varnothing$ or $[R\ E] <(>)\ S$

In the light of this observation, there is a clear prediction made with respect to the narrative discourse in Russian: R-time movement is always 'done' by perfective aspect. Although I do not provide an exhaustive discourse analysis in this work, there are very good reasons to believe that this prediction about narrative discourse is borne out. It has also been pointed out in the literature (e.g., Forsyth 1970 and the references therein) that perfective aspect always creates a temporal sequence interpretation in texts and this is one of the main functions of perfective aspect. I would like to demonstrate this on a fragment of a 'real' text: the beginning of a story by Daniil Xarms called 'Historical incident':

(99)
Ivan Ivanovič Susanin (to samoe istoričeskoe lico, kotoroe položilo svoju   žizn'
Ivan Ivanovič Susanin (that very   historical   person who   laid   self-poss life

za carja i   vposledstvii bylo vospeto operoj Glinki) zašel[1] odnaždy
for tzar and   afterwards   was praised   opera-INSTR Glinka-GEN) PF-came-in once

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[40] See section IV.3.3.3 for the generalization concerning the types of sentences that create R-time movement.

v russkuju xarčevnju i,   <u>sev</u>[2] za stol, <u>potreboval</u>[3]   sebe   antrekot.
in russian   tavern and, PF-sit-AdvPart   at table   PF-demanded self-DAT steak.

Poka xozjain   xarčevni <u>žaril</u>[4] antrekot, Ivan Ivanovič <u>zakusil</u>[5] svoju borodu zubami
While owner tavern-GEN fried-IMP steak, I.I. PF-bit self-poss beard   teeth-INSTR

i <u>zadumalsja</u>[6]: takaja u nego byla privyčka.
and PF-think: such   at him   was habit.

> *'Ivan Ivanovich Susanin (that very historical person who sacrificed his life for the tsar and was later praised by Glinka's opera) once came into a Russian tavern and, having sat down at a table, demanded a steak. While the owner of the tavern was frying the steak, Ivan Ivanovich bit at his beard with his teeth and fell into contemplating, as was his habit'.*

In this text, only past tense is used, so that the problem of the 'historical present' does not arise. Let me now comment on the use of all the underlined and numbered verb forms in this paragraph.

   1. zašel-PF 'came into, dropped in'
Here the verb *has to be* perfective. If imperfective aspect is used in this place in the text, the overlap interpretation comes up, which is absolutely incompatible with the with the adverb *odnaždy* 'once'.

   2. sev-PF 'having sat down'
This is a Russian gerund. The important thing is that this form is aspectually marked: it is perfective. As predicted, it creates R-time movement, hereby establishing the following sequence:

(100)   [zašel-PF] < [sev-PF]
         came.in < sat.down

Again, if the form is changed into imperfective, the only way to interpret the sequence in (100) would be to impose a habitual interpretation, which is, however, incompatible with the preceding discourse, in particular with the adverb *odnaždy* 'once'.

   3. potreboval-PF 'demanded'
The third perfective form in a row creates a longer string of sequentially interpreted eventualities:

(101)   [zašel-PF] < [sev-PF] <[potreboval-PF]
         came.in < sat.down < demanded

4. žaril-IMP 'fried'

Very typically, this imperfective form is used in a temporal subordinate clause (a *while*-clause) of a complex sentence and it has a progressive interpretation. *While*-sentences in Russian do not allow for the use of perfective forms. There is a tendency to interpret the 'frying' eventuality as following the preceding eventuality described by 'demand', but there is a very strong pragmatic implicature here: we order food before it starts to get prepared. The prediction is that, since the clause has a progressive interpretation, a new R-time introduced by the following eventuality E is going to be included into the E-time of the frying eventuality.

5. zakusil-PF 'bit-into-PF'

The last prediction is borne out. The eventuality of 'biting' is understood as temporally overlapping with the eventuality of 'frying'. If an imperfective form is used here instead of a perfective, an overlap interpretation arises. If the former is the case, there is no explicit temporal adverbial to rule this interpretation out in the same sentence, but it does not successfully accommodate into the preceding discourse.

6. zadumalsja-PF 'start-thinking-PF'

This perfective form refers to the eventuality which is interpreted as termporally following the preceding one, i.e. the 'biting' eventuality. The simplified temporal interpretation of the eventualities in the paragraph that has been analysed is the following:

(102)   [zašel-PF]<[sev-PF]<[potreboval-PF]..žaril…zakusil-PF]< [zadumalsja-PF]
         came in < sat down < demanded….. fried…. bit.into < start.thinking

The dots here indicate overlap. As I have already said, due to the strong pragmatic implicature 'frying' is understood as temporally following 'demanding', but there is no sequence established between 'frying' and 'biting'.

This informal presentation illustrates that, if the aspectual value of a verb is changed, it immediately triggers different interpretation of a given sentence in discourse. The sequence interpretation, which is established by a sequence of perfective verb forms, disappears and a newly forced interpretation can be incompatible with some other information given in the sentence/preceding discourse. Thus, the change of the aspectual value on a verb form makes the discourse infelicitous. The prediction of the theory advocated here concerning the use of perfective forms in narrative discourse is borne out: perfective aspect always marks the sequence interpretation.

V.4. Summary

In this chapter, I developed an analysis of Russian aspect in terms of the S-R relation, the relation determining perspective in Reinhart's theory of R-time (chapter IV, section 3). I adopted a modified system of the E-R-S relations for Russian (cf. (73) above):

(103)   RUSSIAN:
- the E-R relation is fixed by DEF.3 of the R-time (chapter IV)
- the S-E relation determines temporal interpretation and morphological tense
- the S-R relation determines perspective, therefore, aspect;
  the E-R relation contributes to the aspectual system because it derives progressive

The following definitions of perfective and imperfective aspect in Russian were given in this chapter:

DEF.4:   Perfective aspect in Russian is defined by the configuration
$S \cap R = \varnothing \ \& \ E \subseteq R$

DEF.5:   Imperfective aspect is defined as non-perfective, i.e.
$\neg \, (S \cap R = \varnothing \ \& \ E \subseteq R)$, namely, $S \cap R \neq \varnothing \ \vee \ E \nsubseteq R$

It has been shown, that telicity distinctions are derived on the basis of the independent definitions (DEF.1 and DEF.2 of chapter IV) and are not dependent on the aspectual differences. This is a desirable outcome, since, as I argued in chapter II, there is no strict correspondence between (a)telicity and (im)perfectivity in Russian. It has also been shown how the progressive correspondence (cf. (59)) is derived on the basis of DEF.4 and DEF.5.

An important result of the analysis of Russian aspect given in this chapter is, besides the already mentioned independence of telicity aspect (=predicational aspect) and *Reference time aspect* (viewpoint aspect or perspective aspect), is the formalization of the notion of viewpoint. Viewpoint or speaker's perspective is characterized in terms of R-time interval: if the S-time, associated with the position of a speaker, overlaps with the R-time interval, an *internal* perspective on the eventuality time interval (E-time) is established. If, however, the R- and S-intervals are non-overlapping, a speaker's perspective is *external*. This is an explicit formalization of the informal notion of viewpoint/perspective.

An important empirical result of this analysis is that it derives the absence of an actual present interpretation for perfective non-past forms in Russian. An actual present interpretation arises only if the E- and S-intervals overlap. This possibility, however, is excluded in the perfective configuration, schematically represented in (104):

(104) $[_R E] <\!/\!> S$

Since perfectivity conditions require the E-interval to be included in R, and the R and S to be disjoint, the E- and S-intervals can never overlap in perfective configuration. This condition extends for both past and future, i.e., perfective aspect can never get a progressive meaning (actual present interpretation is equivalent to present progressive).

   Imperfective aspect is defined as non-perfective. Thus, whenever one of the perfectivity conditions does not hold, imperfective aspect results. This means that imperfectivity, in principle, allows for more diversity in interpretation. For instance, in the domain of past, imperfective aspect corresponds to either progressive or present perfect in English. The aspectual opposition in Russian is characterized as privative (see the introductory chapter), formed by two non-equal members: perfective aspect is marked, imperfective is the unmarked alternate of perfective.

Chapter VI

Afterthoughts and conclusions

The main question addressed in this thesis is how the system of aspectual differences in Russian should be characterized. This question was first posed in the introduction and now a specific answer to it can be given. The answer proposed in this thesis is: they are characterized in terms of temporal relations.

The specific temporal system that was adopted in the present work is developed in Reinhart (1986, 2000). However, since the analysis of Russian aspect is given in terms of temporal notions, any system of temporal relations can be challenged to derive the aspectual differences in Russian. A different temporal model whose potential should still be explored with respect to the Russian data is developed in Verkuyl (2001).

Verkuyl's (2001) semantic formalization of tenses is based on te Winkel (1866). The essence of this proposal is to redesign Reichenbach's model, in particular, its basic setup, without radically changing the conceptual notions. The tense system advocated by Verkuyl is formed on the basis of te Winkel's three oppositions: present *vs*. past, synchronous *vs*. posterior ('posteriority') and complete *vs*. incomplete ('anteriority'). In this way, the original Reichenbachian 3x3 design is changed into a *compositional* 2x2x2 set up.

Verkuyl (2001) maintains a fundamental distinction between the temporal and atemporal levels of semantic representation. This distinction is equivalent to the one made between predicational aspect, on the one hand, and perspective aspect and tense, on the other. Crucially, Verkuyl argues that the aspectual value of a predicate is determined only once: it remains *intact* and is *independent* of any temporal information. This view is also adopted in the present thesis.

Tenses are construed as a structured set of operators on the tenseless predication, the denotation of which is called E (akin to Reichenbach's notion of Event time). In order to accommodate the information expressed by E into the temporal structure in Verkuyl's system, E is immediately assigned an index *i*:

(1) E_i

(1) reads 'E is located at *i*'. In this system, indices are theoretical tools that stand for temporal domains/intervals. Two temporal relations, simultaneity and precedence, are established between indices.

There is also a cognate of Reichenbach's S-time in Verkuyl's model, an index providing an 'anchoring' point in time, with respect to which a given sentence is evaluated. Thus, the simplest configuration makes use of two obligatory indices: the first one, *n*, stands for the speech time and the other one, *i*, stands for a temporal domain in which an eventuality E is located. If these two indices coincide, we get the configuration for present tense:

(2)

$$\underline{\qquad\qquad E_i\qquad\qquad\qquad}$$
$$n|$$

Every tense form is configured on the basis of a choice made at each of the three steps.

First, the information expressed by a tenseless structure can either be interpreted as connecting with a point in the present temporal domain, or with a point in the past domain. There are two tense operators, which are defined as follows:

(3)   a. PRES: $= \lambda\phi\exists i \,[\phi[i] \wedge i \text{ o } n]$
          b. PAST: $= \lambda\phi\exists i \,[\phi[i] \wedge i < n]$

In (3)a, symbol '*o*' stands for the relation of overlap. In that case, we find *i* located in *n*, as depicted in (2). In the case of (3)b, the additional index *n'* is added as a mirror image of *n* in the past:

(4)

$$\underline{\qquad\quad E_i\qquad\qquad\qquad\qquad}$$
$$n'| \overset{\longleftarrow}{\qquad} |n$$

This suggests that, given *i* < *n*, the index *i* presumes a virtual point of speech (an anchoring point) *n'* in the past. In this way, two basic configurations can be obtained, which correspond to simple present and simple past tense in English:

(5)   a. Simple Present: b. Simple past
            Mary writes a letter   *Mary wrote a letter*
            PRES (ϕ)   PAST (ϕ)
            $\exists i[\text{write (i) (l)(m)} \wedge i \text{ o } n]$ $\exists i[\text{write (i) (l)(m)} \wedge i < n]$

The opposition between present *vs.* past in the domain of tense is considered basic: one of these two operators *must* appliy to a predication. Note in passing, that the tense system of Russian directly confirms this view: as I have argued, the tense forms in Russian are classified according to the basic temporal division between past and non-past.

The second step is to determine posteriority relation, if it applies. The posteriority operator, defined in (6), introduces an additional index after which (i.e. 'later than') the index assigned to the proposition is located:

(6)   POST: $=\lambda\phi\lambda i\exists j\ [\phi[j] \wedge i < j]$

This configuration corresponds to future meaning, which can be expressed in both present and past temporal domains. This operator often corresponds to the presence of an overt auxiliary verb, for instance, *zullen* in Dutch, or *will* in English. In the combination with the operators PRES and PAST, the operator POST yields two more configurations, in addition to the ones given in (5):

(7)   a. Future Present: b. Future Past:
         Mary will write a letter   *Mary would write a letter*
         PRES(POST) (ϕ) PAST(POST) (ϕ)
         $\exists i\ \exists j[write\ (j)\ (l)(m) \wedge i < j \wedge i\ o\ n]$ $\exists i\ \exists j[write\ (j)\ (l)(m) \wedge i < j \wedge i < n]$

Finally, the third relation established in Verkuyl's system is anteriority. This relation is established between the E-index k, which is located prior to (i.e. 'earlier than') some other index in the configuration. Intuitively, what the relation expresses is the meaning that the temporal domain k hosting an eventuality E is located before some other temporal domain i. The respective operator called PERF is defined as:

(8)   PERF: $=\lambda\phi\lambda i\exists k\ [\phi[k] \wedge k < i]$

In Dutch, the operator PERF corresponds to the auxiliary *hebben* and in English, to the auxiliary *have*, which derive perfect tenses. The configurations for perfect tenses are given in (9):

(9)   a. Perfect Present   b. Perfect Past
         Mary has written a letter   *Mary had written a letter*
         PRES (PERF) (ϕ) PAST (PERF) (ϕ)
$\exists i\ \exists k[write\ (k)\ (l)(m) \wedge k < i \wedge i\ o\ n]$ $\exists i\ \exists k[write\ (k)\ (l)(m) \wedge k < i \wedge i < n]$

There are two more configurations corresponding to the application of all three operators:

(10)   a. Present Future Perfect   b. Past Future Perfect
         Mary will have written a letter   *Mary would have written a letter*
         PRES(POST)(PERF) (ϕ) PAST(POST)(PERF) (ϕ)
$\exists i\exists j\exists k[write(k)(l)(m) \wedge k<j \wedge i<j \wedge i\ o\ n]$ $\exists i\exists j\exists k[write(k)(l)(m) \wedge k<j \wedge i<j \wedge i<n]$

It should be clear by now that the application of the operators is ordered: all three operators can be applied, as in (10), but the PERF operator has to apply first, then the

anteriority relation is established and PAST or PRES operator applies last. The resulting system describes eight tenses of English and, in the exact same way, eight tenses of Dutch, reflecting the surface order of auxiliaries in these two languages, which are viewed as the realizations of the respective operators.

Some surface correlations between Verkuyl's system on the one hand and Reinhart's temporal model adopted in this thesis can be seen, in spite of the different notations. Quite straightforwardly, *n* in Verkuyl's system is associated with the S-time in Reinhart's system, but the former makes used of an additional 'speech point in the past', so to say. R-time, however, is more tricky: given DEF.3 of Reinhart's system, it should be associated with an index providing the location of E, i.e., an index assigned to E. But there are more indices which stand for temporal domains in Verkuyl's system, which suggests that it operates with more than one possible R-time.

Establishing further similarities and finding out differences between these two temporal systems are the tasks to be performed. A natural question that arises in the relation to the topic of this thesis is whether Verkuyl's system can not only accommodate the tense/aspect system of Russian in a uniform way with no additional stipulations,[1] but also derive the results achieved in the present work, for instance, the absence of actual present interpretation of non-past perfective sentences. If, in the first place, Verkuyl's and Reinhart's systems are shown to be compatible, then these are the topics to be addressed in future research.

However, the focus of this thesis was not to compare different temporal systems. It is useful to examine how a given theory can be accommodated into different approaches and theories of tense, but let me now summarize the results of the theory of aspect itself, which has been developed in this thesis.

Once again, the main question addressed here is how to characterize the nature of the aspectual differences in Russian. In search for an explicit answer, two major approaches to aspect were explored: the telicity approach and the viewpoint approach.

One of the most problematic issues with telicity approach is that the notion that this aspectual theory is based on, i.e., the notion of telicity, is often not accurately defined. A setback of this approach is its ontological orientation, which comes up every time the concept of *end-point* emerges. If a specific execution of telicity theory is based on the notion of end-point, the whole theory inevitably becomes dependent on *eventualities* and their properties. Clearly, a predicate cannot have an end-point, only an eventuality can.

A way out of this problem is to say that a predicate *mirrors* the properties of an eventuality it describes. Thus, whenever an eventuality has an end-point, a predicate used to describe this eventuality is telic. A telic predicate on this view is characterized as explicitly specifying the temporal boundaries of an eventuality described, beyond which the eventuality cannot or does not continue. As has been argued, this does not eliminate the real problem, which just surfaces in a different

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[1] Some steps in this direction are taken in Borik et al. (2002).

form. Delimited predicates, as has been shown, do not provide any definite information about the end-points of an eventuality: the eventuality itself can very well continue beyond the designated temporal 'borders' determined by a delimiting expression.

The only possible way to make the notion of telicity *linguistically* meaningful is to define it over *linguistic* entities, i.e. predicates themselves. Only then can a semantic definition of telicity be provided. The definition adopted in this thesis is based on the notion of homogeneity, which characterizes the referential properties of both nominal and verbal predicates: a predicate is telic only if it is not homogeneous. It operates on the predicational level, i.e., it states the properties of a verb-argument combination. The final definitions of telic and atelic predicates as formulated in chapter IV are the following:

DEF.1: For all P, I, x_1, x_2, …x_n, a predicate $P(x_1, x_2, …x_n, I)$ is atelic iff
$P(x_1, x_2, …x_n, I)$ & $\exists I' \subset I\ P(x_1, x_2, …x_n, I')$
DEF.2: For all P, I, x_1, x_2, …x_n, a predicate $P(x_1, x_2, …x_n, I)$ is telic iff
$P(x_1, x_2, …x_n, I)$ & $\forall I' \subseteq I\ (P(x_1, x_2, …x_n, I') \rightarrow I'=I)$

Having established the theoretical foundation of the telicity approach to aspect, I then address the question of its application to the data of Russian. On the basis of the homogeneity test and three more telicity diagnostics, namely, the adverbial modification test, the conjunction test and the progressive test, the correlation between telicity and perfectivity was examined in chapter II of this thesis. The tentative hypothesis was formulated in chapter II, section 2:

H1: The definition of perfectivity can be given in terms of telicity, i.e.
telicity $\leftrightarrow$ perfectivity.

Two parts of the equivalence relation were carefully examined. As for the first entailment, i.e., *telicity $\rightarrow$ perfectivity*, the actual correlation that was examined is *imperfectivity $\rightarrow$ atelicity*. It was argued that imperfective predicates do not require atelicity, hence, the first part of H1 does not hold. The second correlation, i.e., perfectivity $\rightarrow$ telicity, was also shown to be wrong. As was shown in chapter II, there is a substantial class of perfective verb forms, the *po-* and *pro-*verbs, that do not derive telicity of a predicate and another class of perfectives, namely, the 'beginning' verbs, that shows unstable behaviour with respect to telicity, according to the tests. Therefore, the general conclusion was that H1 is not correct, because telicity is neither a sufficient, nor a necessary condition for perfectivity. (Im)perfectivity and (a)telicity should be treated as completely different aspectual phenomena.

This result of applying the telicity theory to the Russian data logically leads to pursuing an alternative approach, namely, the viewpoint approach. As has been pointed out, the viewpoint approach to aspect is usually referred to as an 'informal' approach, because the notion of viewpoint is difficult to formalize. A most

commonly used *description* of the perfective/imperfective opposition in terms of viewpoint comes from Comrie (1976:4): "... the perfective looks at the situation from outside..., whereas the imperfective looks at the situation from inside...".

In this thesis, I suggest a formalization of the notion of viewpoint in terms of Reference time, following a proposal by Reinhart (2000). The notion of R-time was discuss at length in chapter IV, where a unified theory of R-time (Reinhart 1986, 2000) was also presented. In this theory, which is executed in terms of interval semantics, the default relation is established between E- and R-time intervals:

DEF. 3:   a. E(ventuality) time:
            If P is an n-ary predicate and x_1, x_2, ...x_n are its arguments, then any interval *I*, such that P (x_1, x_2, ...x_n, I) (informally: P holds at *I*) is called *predication time* and labelled E(ventuality time).
        b. E$\subseteq$R:
            $\exists$R, $\exists$I such that P(x_1, x_2, ...x_n, I) & I$\subseteq$R

As was systematically explained in chapter IV, Reinhart's theory of R-time allows for unification of two main uses of the notion: its use for the description of temporal systems in languages and its use for stating the rules of narrative time movement. A temporal model that Reinhart (1986) suggests for English is based on three different relations established between Reichenbach's notions of S-time, E-time and R-time, which are all treated as temporal intervals:

(11)   The temporal system of English:
        • the E-R relation is fixed, i.e. E $\subseteq$ R by default;
        • the S-E relation determines the truth conditions and the temporal interpretation of a sentence;
        • the S-R relation determines perspective and morphological tense.

The application of this system to Russian, as I argued in chapter V, gives very satisfying results. It both leads to a construction of the temporal system for Russian and allows for stating the aspectual differences in Russian in terms of this system.

(12)   The temporal system of Russian:
        • the E-R relation is fixed, i.e. E $\subseteq$ R by default;
        • the S-E relation determines temporal interpretation and morphological tense ;
        • the S-R relation determines perspective, therefore, aspect,
            the E-R relation contributes to the aspectual system because it derives progressive

The definitions for perfective and imperfective aspect in Russian are given below:

DEF.4: Perfective aspect in Russian is defined by the configuration
$S \cap R = \varnothing \ \& \ E \subseteq R$

DEF.5: Imperfective aspect is defined as non-perfective, i.e.
$\neg (S \cap R = \varnothing \ \& \ E \subseteq R)$, namely, $S \cap R \neq \varnothing \lor E \nsubseteq R$

In the theory proposed here, what determines the viewpoint is the relation between R-time and S-time: given that in the default case, E is always included in R, the speaker, whose position is associated with S-time, gets an external perspective, informally speaking, only when the S- and R-intervals do not overlap. In other words, the speaker's position cannot be in the same temporal domain when the eventuality is located. This domain is the R-time interval.

When the condition on the empty intersection between the S- and R-intervals is not fulfilled, i.e., when the two relevant intervals overlap, imperfective aspect results. In this case, the speaker gets an internal perspective on the described eventuality within one and the same domain, determined, again, by the R-time interval.

Another perfectivity condition, as stated in DEF.4, is that E is included in R. As was explained in chapters IV and V, there is a special operation of reversing the inclusion relation between R and E, which yields progressive in English, and, accordingly, imperfective in Russian. Thus, imperfective aspect emerges if at least one of the perfectivity conditions is not met. The definition of perfective aspect is given in the form of conjunction of two conditions, whereas imperfective aspect is consequently defined as non-perfective, i.e., as a disjunction of the negated perfectivity conditions.

The approach to Russian aspect advocated in this thesis
- formalizes the notion of viewpoint;
- derives the progressive/imperfective correlation and the fact related to it, namely, that perfective non-past sentences cannot get an actual present interpretation;
- predicts a number of correlations between English tenses and Russian tense/aspect forms.

Let me now briefly address the last point.

Some correlations between English and Russian were briefly examined in chapter V. It should be rather clear, however, that this is a big and potentially very fruitful area of research, which needs to be further explored. For instance, one of the main predictions of the analysis developed in chapter V is that Russian imperfective can correspond to English present perfect. But this prediction is made only for the present perfect tense *in English*, not for the present perfect tense *in general*. Note, that the properties of present perfect vary in a number of rather intriguing ways among closely related languages. A remarkable and very clear example is offered by comparing languages like English, Dutch and German.

First of all, only English among these three languages does not allow for the combination of present perfect and past temporal adverbials:

(13)   a. * Mary has arrived yesterday morning
           b. Marie is gisterochtend aangekomen.
              Mary is yesterday.morning arrived
           c. Maria ist gestern vormittag angekommen.
              Mary is yesterday morning arrived

Secondly, as has been illustrated earlier, the English present perfect does not allow for the cancellation of a result state, whereas in both Dutch and German it is definitely possible:

(14)   a. ?John has left, but he has come back later
           b. Jan is weggegaan en daarna weer teruggekomen
              John is away.gone and later again back.come
           c. Hans ist weggegangen, aber später wiedergekommen
              John is away.gone but later again.come

A very important difference between Dutch and German is that in the latter, present perfect can be used in narrative discourse, which the former does not normally allow. Needless to say, in English, present perfect is definitely ruled out in narrative discourse:

(15)   a. *John has come home earlier. He has picked up the mail and has gone to
              the kitchen. There he has found another letter, which he had forgotten
              about.
           b. *Jan is eerder naar huis gekomen. Hij heeft de post opgepakt en is naar
              John is early to.home come. He has the mail up.picked and is to
              de keuken gegaan. Daar heeft hij nog een brief gevonden die hij was
              the kitchen gone. There has he yet a letter found which he was
              vergeten
              forgotten.
           c. Hans ist früh nach Hause gekommen. Er hat die Post aufgehoben und ist
              John is early to home come. He has the mail up.picked and is
              in die Küche gegangen. Dort hat er einen weiteren Brief gefunden, den
              into the kitchen gone. There has he a further letter found, that
              er vergessen hatte.
              he forgotten had

It is a challenge for any theory of present perfect to explain and derive these differences. A comparative analysis of present perfect is outside the scope of this thesis and the relevant contrasts are only mentioned here, but these facts definitely deserve more attention. Given the differences in the present perfect uses in three Germanic languages, the correlations with Russian are expected to be different, too. For instance, the German example in (15)c suggests that present perfect in German comes closer to perfective, rather than to imperfective aspect in Russian.

Finally, to conclude the conclusions, it should be pointed out that a very important theoretical result of this thesis is a separation of two aspectual domains, which was achieved as a consequence of the formalization of the notion of viewpoint. Chapter III argues that predicational/telicity aspect and viewpoint/perspective aspect should be treated and analyzed separately, employing different theoretical tools. As was shown in that chapter, the attempts to create a unified theory of aspect, which would conflate two aspectual domains and describe all the aspectual phenomena in the same terms, cannot successfully account for all relevant facts. This claim was advocated both on the basis of the Russian data (cf. the discussion of Filip (1993) and Smith (1997) in chapter III), and on more general theoretical grounds (cf., especially, the discussion of de Swart (1998)).

In the light of the discussion in chapters II and III, the result of the temporal/aspectual theory presented in chapters IV and V that allows for a strict separation of the two domains is most welcome. As I pointed out in chapter IV, Reinhart's theory of R-time makes sure that the telicity properties of the predicates are derived independently of the representation of tenses. For the account of Russian aspect proposed in chapter V, this means that the telicity properties of Russian predicates do not depend on the perfective/imperfective distinction, which is analyzed as being a part of the temporal system. Thus, the definitions of telicity for Russian are the same DEF.1 and DEF.2 that were suggested for English and should, in principle, be valid crosslinguistically.

Aspectual differences in Russian are defined in terms of R-time and its properties and, therefore, cannot be influenced by or affect the properties of the predicates themselves. Russian aspect can thus be called *Reference time aspect.*

References

Academy Grammar: *Russkaja Grammatica*

Arefiev, A. (1999) *Interval Semantics of Russian aspect*, M.Phil. dissertation, University of Tromsø.

Avanesov, R. I. (1982) *Istoričeskaja grammatika russkogo jazyka*, Moskva: Nauka.

Bach, E. (1980) "Tenses and Aspects as Functions on Verb-Phrases", in Ch. Rohrer (ed.) *Time, Tense and Quantifiers*. Tübingen, Niemeyer.

Bach, E. (1981) "On Time, Tense and Aspect: An Essay in English Metaphysics", in P. Cole (ed.) *Radical Pragmatics*. New York: Academic Press.

Bach, E. (1982). "The algebra of events", paper presented at Sloan conference on Tense and Aspect, Ohio State University, Columbus.

Barbiers, S. (1995) *The syntax of interpretation*. Ph.D. dissertation, Leiden University, HIL dissertation series 14.

Barker, C. (2002) "The dynamics of Vagueness" in *Linguistics and Philosophy* 25.1, 1-36.

Beedham, C. (1982) *The passive aspect in English, German and Russian.* Tübingen: Gunter Narr Verlag.

Bennet, M. and B. Partee. (1972/78) "Toward the logic of Tense and Aspect in English", distributed by Indiana University Linguistics Club.

Bondarko, A.V. (1987). (ed.) *Teorija funkcional'noj grammatiki. Vvedenie. Aspectual'nost'.Vremennaja lokalizovannost'*. St.Petersburg: Nauka.

Boogaart, R. (1999) *Aspect and Temporal Ordering: A contrastive analysis of Dutch and English*. Holland Academic Graphics, The Hague.

Borik, O. (2000) "Perfectivity, Telicity and Temporal interpretation of Perfectives in Russian" in Linguistische Arbeitsberichte 75, Universität Leipzig.

Borik, O. (2001) (with Anna Młynarczyk) "Perfective/Imperfective, Terminative/Durative: Russian and Polish Perspective", LINK, Tijdschrift voor linguistiek te Utrecht, 12.3.

Borik, O., P. González & H.J. Verkuyl, (2002) "Comparing Tense Systems: the primacy of the Pres/Past-opposition", to appear in *The proceedings of the 19th Scandinavian Conference of Linguistics*, U of Tromsø.

Carlson, G. (1977) *Reference to Kinds in English*. Ph.D. dissertation, University of Massachusetts at Armherst. [published as Carlson, G.N. (1980). *Reference to Kinds in English*. New York: Garland Publishing]

Chomsky, N. (1972) *Studies on semantics in generative grammar.* The Hague: Mouton.

Comrie, B. (1976) *Aspect. An Introduction to the Study of Verbal Aspect and Related Problems.* Cambridge: Cambridge University Press.

Comrie, B. (1985) Tense. Cambridge: Cambridge University Press.

Černy, E. (1877) *Ob otnošenii vidov russkogo glagola k grečeskim vremenam*. St.Petersburg.

Dahl. O. (1981) "On the definition of the telic-atelic (bounded-nonbounded) distinction" in Ph. Tedeschi & A. Zaenen (eds.), *Tense and Aspect*. New York City : Academic Press, 79-90.

Davidson, D. (1967) "The logical form of Action sentences", in N. Rescher (ed.), *The Logic of Decision and Action*. Pittsburg: University of Pittsburg Press.

Davidson, D. (1980) *Essays on Actions and Events*. Oxford: Clarendon Press.

Declerck, R. (1979) "Aspect and the Bounded/Unbounded (Telic/Atelic) Distinction" in *Linguistics* 17, 761-94.

Depraetere, I. (1995) "On the necessity of distinguishing between (un)boundedness and (a)telicity". *Linguistics & Philosophy* 18, 1-19.

Dimitrova-Vulchanova, M. (1996) *Verb semantics, Diathesis and Aspect*. Doctoral dissertation, NTNU, Trondheim.

Dowty, D. (1979) *Word Meaning and Montague Grammar*, Reidel, Dordrecht.

Dowty, D. (1986) "The Effect of Aspectual Classes on the Temporal Structure of Discourse: Semantics or Pragmatics?", *Linguistics & Philosophy* 9, 37-61.

Dowty, D. (1990) "Thematic proto-roles, argument selection, and lexical semantic defaults", *Language* 67.3, 547-619.

Dowty, D. (2002) *Semantics of Argument Alternation and Categorial Grammar*. A course given at LOT Summer School, Nijmegen.

Filip, H. (1993) *Aspect, Situation types and Nominal Reference*. Ph.D. dissertation, University of California at Berkeley. [Published as Filip. H. (1999) *Aspect, Situation types and Noun Phrase Semantics*. New York/London: Garland Publishing, Inc.]

Forsyth, J. (1970) *A Grammar of Aspect: Usage and Meaning in the Russian verbs*. Cambridge: Cambridge University Press.

Hatav, G. (1993) "The Aspect System in English: An Attempt for a Unified Analysis", *Linguistics* 31, 209-237.

Hatav, G. (1997) *The Semantics of Aspect and Modality: Evidence from English and biblical Hebrew*. John Benjamins: Amsterdam.

Heny, F. (1982) "Tense, Aspect and Time Adverbials, part II", *Linguistics and Philosophy* 5: 109-154.

Hinrichs, E. (1981) "Temporale Anaphora im Englischen", unpublished Zulassungarbeit, University of Tübingen.

Hinrichs, E. (1985) *A compositional semantics for Aktionsarten and NP reference*, Ph.D. dissertation, Ohio State University.

Hinrichs, E. (1986) "Temporal anaphora in Discourses of English", *Linguistics and Philosophy 9,* 62-82.

Hopper, P.J. (1982) *Tense-aspect: between semantics and pragmatics*. Amsterdam: Benjamins.

Hornstein, N. (1990) *As time goes by: Tense and universal grammar*. Cambridge, Mass.: The MIT Press.

Galton, Antony P. (1984) *The logic of Aspect: an axiomatic approach*, Clarendon Press, Oxford.

Gorškova K.V & G.A. Haburgaev (1981) Istoričeskaja grammatika russkogo jazyka. Moskva: Vysšaja škola.

Isačenko, A.V. (1960) *Grammatičeskij stroj russkogo jazyka v sopostavlenii s slovackim. Čast' 2-aja: Morfologija.* Bratislava: Izdatel'stvo slovackoj akademii nauk.

Jackendoff, R. (1996) "The Proper Treatment of Measuring Out, Telicity and Perphaps even Quantification in English", *Natural Language and Linguistic Theory* 14, 305-354.

Jackendoff, R. (1987) *Consciousness and The Computational Mind.* Cambridge, Mass.: The MIT Press.

Jakobson, R. (1932) Zur Struktur des russischen Verbums. *Charistia Guglielmo Mathesio oblata*. Prague, 74-84.

Jakobson, R. (1957) "Shifters, Verbal Categories and the Russian Verb" in L.R. Waugh & M. Halle (eds.) *Russian and Slavic Grammar: Studies 1931-1981.*Berlin" Mouton, 1984.

Junghanns, U. (1997) "On *byt'* (and *byti*)", in U. Junghanns & Zybatow, G. (eds), Formale Slavistik (*Leipziger Schriften zur Kultur-, Literatur-, Sprach- und Übersetzungswissenschaft*; 7). Frankfurt am Main: Vervuert Verlag, 251-265.

Kamp, H. (1979) "Events, Instants and Temporal Reference", in R. Baurle, U. Egli & A. von Stechow (eds.) *Semantics from Different Points of View.* Berlin: Springer-Verlag, 376-417.

Kamp, H. (1981) "Evénements, Représentations discoursive et Référence Temporelle", *Languages* 64, 39-64.

Kamp, H. (1981a) "A Theory of Truth and Semantic Representation", in J. Groenendijk, T. Jnassen & M. Stokhof (eds.) *Formal Methods in the Study of Language, Part I.* Mathematisch Centrum, Amsterdam, 277-322.

Kamp, H. & C. Rohrer. (1983) "Tense in Text" in R. Bauerle, C. Schwartze and A. von Stechow (eds.), *Meaning, Use and Interpretation in Language.* Berlin: de Gryter Linguistik, University of Konstanz.

Kamp, H. & U. Reyle (1993) *From Discourse to Logic; Introduction of Model-theoretic Semantics of Natural Language, Formal Logic and Discourse Representation Theory.* Dordrecht, Boston and London: Kluwer Academic Publishers.

Klein, W. (1994) *Time in Language.* London: Routledge.

Klein, W. (1995) "A time-relational analysis of Russian aspect", *Language* 71-4, 669-695.

Krifka, M. (1989) 'Nominal Reference, Temporal Constitution and Quantification in Event Semantics', in R. Bartsch, J. van Benthem, P. van Emde Boas (eds.), *Semantics and Contextual Expression,* GRASS, Volume 11, pp. 75-115. Foris Publications, Dordrecht.

Krifka, M. (1992) "Thematic Relations as Links between Nominal Reference and Temporal Constitution", in I. Sag & A. Szabolcsi (eds.) *Lexical Matters*. US: Leland Stanford Junior University, 29-53.

Krifka, M. (1998) "The origins of telicity" in S.Rothstein (ed.) *Events and Grammar*. Dordrecht: Kluwer, 197-235.

Kuznecov, P.S. (1959) *Očerk istoričeskoj grammatiki russkogo jazyka.* Moscow: Nauka.

Lascarides A. & N. Asher. (1993) "Temporal Interpretation, Discourse Relations and Commonsense Entailment", *Linguistics and Philosophy* 16, 437-493.

Landman, F. (1991) *Structures for Semantics*. Dordrecht: Kluwer.

Lindstedt, J. (1984) "Nested Aspects" in C. de Groot & H. Tommola (eds.) *Aspect Bound. A Voyage into the Realm of Germanic, Slavonic and Finno-Ugrian Aspectology*, Dordrecht: Foris, 23-38.

Maslov, Ju.S. (1959) 'Glagol'nyj vid v sovremennom literaturnom bolgarskom jazyke; Značenie i upotreblenie', in S.B. Bernštejn (ed.) *Voprosy grammatiki sovremennogo literaturnogo bolgarskogo jazyka*, 157-312. Moscow: Nauka.

Miklosič, F. (1883) *Vergleichende Grammatik der slavischen Sprachen*, vol.4, Wien.

Mittwoch, A. (1988) "Aspects of English Aspect: on the Interaction of Perfect, Progressive and Durational Phrases", *Linguistics & Philosophy* 11, 203-254.

Moens, M. (1987) *Tense, Aspect and Temporal Reference*, Ph.D. dissertation, University of Edinburgh.

Naumann, R. (1995) *Aspectual Composition and Dynamic Logic*. Ph.D. dissertation, Düsseldorf University.

Neeleman, Ad. (1994) *Complex Predicates*. Ph.D. dissertation, Utrecht University.

Neeleman, Ad & F. Weerman. (1999) *Flexible Syntax: A theory of case and arguments*. Dordrecht: Kluwer.

Oversteegen, E. (1989) *Tracking time: a proposal for representation of temporal expressions in Dutch*. Ph.D. dissertation, Utrecht University.

Parsons, T. (1990) *Events in the Semantics of English; A Study in Subatomic Semantics.* Cambridge, Mass.: The MIT Press.

Partee, B. (1973) "Some structural analogies between tenses and pronouns", *The Journal of Philosophy* 70, 137-166.

Partee, B. (1984) "Nominal and Temporal Anaphora", *Linguistics and Philosophy* 7, 243-286.

Pianesi, F. & A. Varzi (1996) "Refining temporal reference in event structures", *Notre Dame Journal of Formal Logic* 37.1, 71-83.

Prior, A.N. (1967) *Past, Present and Future*. Oxford: Clarendon Press.

Ramchand, G. (2001) " Aktionsart, L-syntax and Selection". A paper presented at *Perspectives on Aspect*, Utrecht University.

Reichenbach, H. (1947) *Elements of Symbolic Logic*, New York: The Macmillan Company.

Reinhart, T. (1984) "Principles of Gestalt perception in the temporal organization of narrative texts", *Linguistics* 22, 779-809.

Reinhart, T. (1986) "States, events and reference time", Lecture given at the MIT Lexicon project.

Reinhart, T. (1999) "Tense and Aspect", a course given at UiL OTS, Utrecht.

Reinhart, T. (2000) "Reference time", a talk given at "Language in Use Symposium", Utrecht.

Rothstein, S. (2002) "What is lexical aspect?", a talk given at Trans Seminar of Syntax and Semantics, UiL OTS, Utrecht University.

Russkaja Grammatika. (1982) N.Ju. Švedova (ed.). Akademija Nauk SSSR, Institut russkogo jazyka, Moscow: Nauka.

Schmitt, C.J. (1996) *Aspect and the Syntax of Noun Phrases*. Pd.D. dissertation, Univeristy of Maryland.

Schooneveld, van C.H. (1951) The aspect system of the Old Church Slavonic and Old Russian verbum finitum *byti*. Word 7.2, 96-103.

Schoorlemmer, M. (1994) "Aspect and verbal complementation in Russian" in S. Avrutin, L. Progovac & J. Toman (eds.) *Formal Approaches to Slavic Linguistics, The MIT meeting 1993*. Michigan Slavic Materials, vol.36. Ann Arbor: Michigan Slavic Publications.

Schoorlemmer, M. (1995) *Participial Passive and Aspect in Russian.* Ph.D. dissertation, Utrecht University.

Smith, C. (1991/1997) *The parameter of aspect*. Dordrecht: Kluwer.

Swart, H. de (1998) "Aspect Shift and Coercion", *Natural Language and Linguistic Theory* 16, 347-385.

Swart, de H. & A. Molendijk. (1996) "Negation and the Temporal Structure of Narrative Discourse", unpublished manuscript, Stanford University/University of Groningen.

Taylor, B. (1977) "Tense and Continuity", *Linguistics and Philosophy* 1.2, 199-220.

Tenny, C. (1989) 'The aspectual Interface Hypothesis' in I. Sag & Szabolsci, A. (eds.), *Lexical Matters*, Center for the Study of Language and Information, Stanford.

Tenny, C. (1994) *Aspectual Roles and The Syntax-Semantics Interface.* Kluwer: Dordrecht.

Timberlake, A. (1985) "Reichenbach and Russian aspect" in Flier, M. & A. Timberlake (eds.) *The Scope of Slavic Aspect*. Columbus, OH: Slavica.

Vendler, Z. (1967) 'Verbs and Times' in *Linguistics in Philosophy*. Ithaca: Cornell University Press.

Verkuyl, H.J. (1972) *On the Compositional Nature of the Aspects*, Reidel, Dordrecht.

Verkuyl, H.J. (1978) "Thematic Relations and the Semantic Representation of Verbs Expressing Change", *Studies in Language* 2, 199-233.

Verkuyl, H.J. (1993) *A Theory of Aspectuality: the interaction between temporal and atemporal structure*. Cambridge University Press.

Verkuyl, H.J. (1998) *Tense, Aspect and Aspectual Composition* in UiL OTS Working Papers, February (1998.

Verkuyl, H.J. (1999) *Aspectual Issues: Studies on Time and Quantity.* CSLI Publications, Stanford, California.

Verkuyl, H.J. (2001) *On the Compositionality of Tense*, unpublished manuscript, Utrecht University.

Verkuyl, H.J. & J.A. Le Loux-Shuringa. (1985) "Once upon a Tense", *Linguistics and Philosophy 8*, pp.237-261.

Vet, Co. (1980) *Temps, Aspect et adverbs de temps en français contemporain*, Genève, Droz.

Vikner, Sten. (1985) "Reichenbach Revisited: One, Two, or Three Temporal Relations?", *Acta Linguistica Hafniensis*, vol.19.2, pp. 81-95.

Vinogradov, V.V. (1947) *Russkij jazyk (grammatičeskoe učenie o slove)*. Moscow: Učpedgiz.

Winkel, Lammert A. te. (1866) 'Over de wijzen en tijden der werkwoorden', *De Taalgids* 8, Leiden.

Yadroff, M. (1997) "The Mophological Category of Aspect and Zero Objects of the Verb", in M. Čertkova (ed.) *Trudy aspektologičeskogo seminara filologičeskogo fakul'teta MGU im. M.V.Lomonosova*, vol.1, Moscow.

Zaliznjak, A.A. (1977) *Grammatičeskij slovar' russkogo jazyka*. Moscow.

Samenvatting in het Nederlands

De vraag die in dit proefschrift centraal staat, betreft de aard van aspectuele verschillen in het Russisch. Het belangrijkste doel is het aanwijzen van een eigenschap of een verzameling eigenschappen waarmee we een uniforme definitie kunnen geven van perfectief en imperfectief aspect in het Russisch. Bijvoorbeeld, als A betekent 'perfectief zijn', dan is het uiteindelijke doel om een eigenschap B te vinden, zodanig dat we kunnen zeggen 'A dan en slechts dan als B'. Op deze manier kan een strikte definitie van perfectief aspect gegeven worden.

Het verschijnsel aspect in het Russisch kan geïllustreerd worden aan de hand van het volgende voorbeeld. De Russische zinnen in (1) zijn vrijwel identiek; het enige verschil tussen (1)a en (1)b is de *aspectuele* vorm van het werkwoord:

(1)   a.Petja stroil dom
         Petja bouwde-IMP (een/het) huis-ACC
         '*Peter bouwde een huis*'
         b. Petja po-stroil dom
         Petja PF-bouwde (een/het) huis-ACC
         '*Peter heeft een huis gebouwd*'

De term *aspect* verwijst hier naar de tegenstelling tussen *perfectief* en *imperfectief*. In (1)a is de vorm van het werkwoord *stroit* 'bouwen' imperfectief, en in (1)b is het perfectief. In het Russisch worden de aspectuele verschillen uitgedrukt in de verbale morfologie. Perfectieve vormen zijn vaak, maar niet altijd, afgeleid van imperfectieve vormen door middel van prefixatie. Bijvoorbeeld, het perfectieve werkwoord *po-stroit* 'PF-bouwen-INF' dat voorkomt in (1)b, is afgeleid van het imperfectieve *stroit* 'bouwen-IMP-INF', waarvan de verleden tijd gebruikt wordt in (1)a, door toevoeging van het prefix *po-*. De vraag die gesteld moet worden met betrekking tot de zinnen in (1) is de volgende: hoe beïnvloeden de aspectuele verschillen de interpretatie van de zinnen in (1)a en (1)b? Hoe moet de aard van de aspectuele verschillen in het Russisch gekarakteriseerd worden?

In de zoektocht naar een expliciet antwoord zijn er twee benaderingen van aspect: een op basis van teliciteit en een op basis van gezichtspunt ('*viewpoint*').

Een van de meest problematische kanten van de teliciteits-benadering is dat de notie waar deze aspectuele theorie op gebaseerd is, namelijk de notie van teliciteit, vaak niet precies gedefinieerd wordt. Een probleem met deze aanpak is zijn

ontologische oriëntatie, wat elke keer blijkt als het concept van *eindpunt* opduikt. Als een specifieke implementatie van teliciteitstheorie gebaseerd is op de notie van eindpunt, raakt de hele theorie onvermijdelijk afhankelijk van gebeurtenissen (*'eventualities'*) en hun eigenschappen. Het is duidelijk dat een predikaat geen eindpunt kan hebben, dat kan alleen een gebeurtenis.

Dit probleem kan omzeild worden door te zeggen dat een predikaat de eigenschappen van een gebeurtenis die het beschrijft kan *weerspiegelen*. Oftewel, als een gebeurtenis een eindpunt heeft, is een predikaat dat deze gebeurtenis beschrijft, telisch. Onder deze visie is een telisch predikaat een predikaat dat een expliciete specificatie geeft van de temporele grenzen van een beschreven gebeurtenis; voorbij deze grenzen kan de gebeurtenis niet voortgaan. Maar het echte probleem duikt dan in een andere vorm weer op. Het is aangetoond dat begrensde predikaten geen vastliggende informatie verschaffen over de eindpunten van een gebeurtenis: de gebeurtenis zelf kan heel goed verder gaan voorbij de aangewezen temporele 'grenzen' die aangegeven worden door een begrenzende expressie.

De enige mogelijke manier om de notie van teliciteit *taalkundig* betekenis te geven, is om het te definiëren over *talige* entiteiten, i.e. predikaten zelf. Alleen dan kan een semantische definitie van teliciteit gegeven worden. De definitie die aangenomen wordt in dit proefschrift, is gebaseerd op de notie van homogeniteit, die de referentiële eigenschappen karakteriseert van zowel nominale als verbale predikaten: een predikaat is telisch alleen als het niet homogeen is. Deze definitie opereert op het predikationele niveau, i.e. ze beschrijft de eigenschappen van een combinatie van een werkwoord met een argument. De uiteindelijke definities van telische en atelische predikaten die in hoofdstuk IV geformuleerd worden zijn de volgende:

DEF.1:   Voor alle P, I, x_1, x_2, …x_n, is een predicaat P (x_1, x_2, …x_n, I) atelisch desda
             P (x_1, x_2, …x_n, I) & $\exists I' \subset I$ (P (x_1, x_2, …x_n, I'))
DEF.2:   Voor alle P, I, x_1, x_2, …x_n, is een predicaat P (x_1, x_2, …x_n, I) telisch desda
             P (x_1, x_2, …x_n, I) & $\forall I' \subseteq I$ (P (x_1, x_2, …x_n, I') $\rightarrow$ I'=I)

Uitgaande van deze theoretische grondslag wordt de teliciteitsbenadering toegepast op de Russische data. In hoofdstuk II van dit proefschrift wordt de correlatie tussen teliciteit en perfectiviteit onderzocht op basis van de homogeniteitstest en drie andere diagnostieken voor teliciteit, namelijk de adverbiale modificatie test, de conjunctie test en de progressief test. In hoofdstuk II, sectie 2, wordt de volgende tentatieve hypothese geformuleerd:

H1:   De definitie van perfectiviteit kan gegeven worden in termen van teliciteit,
         namelijk teliciteit $\leftrightarrow$ perfectiviteit.

Twee delen van de equivalentierelatie worden zorgvuldig onderzocht. De eerste implicatie, namelijk teliciteit $\rightarrow$ perfectiviteit, blijkt niet juist te zijn. Zodoende kan vastgesteld worden dat teliciteit geen voldoende voorwaarde is voor perfectiviteit.

De tweede implicatie, perfectiviteit $\rightarrow$ teliciteit, blijkt ook onjuist te zijn. De algemene conclusie is dat H1 niet correct is, omdat teliciteit noch een voldoende, noch een noodzakelijke voorwaarde is voor perfectiviteit. Zoals aangetoond wordt in hoofdstuk II, is er een aanzienlijke klasse van perfectieve werkwoordsvormen, de *po*- en *pro*-werkwoorden, die geen teliciteit van een predikaat tot gevolg hebben, en een andere klasse van perfectieven, namelijk de 'begin'-werkwoorden, die onstabiel gedrag vertonen met betrekking tot teliciteit, volgens de tests.

Dit resultaat van de toepassing van de teliciteitstheorie op Russische data leidt logisch naar een andere aanpak, in termen van gezichtspunt. Deze benadering van aspect wordt doorgaans aangeduid als een 'informele' aanpak, omdat de notie gezichtspunt moeilijk te formaliseren is. Een zeer algemeen gebruikte *beschrijving* van de perfectief/imperfectief tegenstelling in termen van gezichtspunt wordt gegeven door Comrie (1976:4):

> "… the perfective looks at the situation from outside…, whereas the imperfective looks at the situation from inside…"

In dit proefschrift stel ik een formalisatie van de notie gezichtspunt voor in termen van referentietijd ('*Reference time*'), naar een voorstel van Reinhart (2000). The notie van R-tijd wordt uitgebreid besproken in hoofdstuk IV, alsmede een geunificeerde theorie van R-tijd (Reinhart 1986, 2000). In deze theorie, die geïmplementeerd wordt in termen van interval-semantiek, wordt de basisrelatie tussen R-tijd en E-tijd als volgt gedefinieerd:

DEF. 3:   a. E-tijd:
        Als P een n-ary predikaat is en $x_1, x_2, \ldots x_n$ zijn argumenten zijn, dan is ieder interval *I* zodat P $(x_1, x_2, \ldots x_n, I)$ (informeel: P holds at *I*) een *predikatietijd*, betiteld als E(ventuality) tijd
    b. E$\subseteq$R:
        $\exists$R, $\exists$I zodat P$(x_1, x_2, \ldots x_n, I)$ & I$\subseteq$R

In hoofdstuk IV wordt systematisch uitgelegd dat Reinharts theorie van R-tijd het mogelijk maakt om twee belangrijke gebruikswijzen van de notie te unificeren: het gebruik voor de beschrijving van temporele systemen in talen en het gebruik voor het opstellen van de regels van de temporele voortgang in verhalen. Een temporeel model dat Reinhart (1986) voorstelt voor het Engels, is gebaseerd op drie verschillende relaties die vastgesteld worden tussen Reichenbachs noties S-tijd, E-tijd en R-tijd, die alledrie behandeld worden als temporele intervallen:

(2)   Het temporele systeem van het Engels:
- de relatie tussen E en R wordt vastgesteld, i.e. de default is dat E$\subseteq$R;
- de relatie tussen S en E bepaalt de waarheidscondities en de temporele interpretatie van een zin;

- de relatie tussen S en R bepaalt perspectief en morfologische tijdsmarkering.

In hoofdstuk V wordt betoogd dat de toepassing van dit systeem op het Russisch zeer bevredigende resultaten geeft. Het levert een constructie op van het temporele systeem van het Russisch, en maakt een beschrijving van de aspectuele verschillen in het Russisch mogelijk.

(3)   Het temporele systeem van het Russisch:
- de relatie tussen E en R wordt vastgesteld;
- de relatie tussen S en E bepaalt de temporele interpretatie en de morfologische tijdsmarkering;
- de relatie tussen S en R bepaalt perspectief en dus aspect
- de relatie tussen E en R draagt bij aan het aspectuele systeem omdat het de progressief oplevert

De definities voor perfectief en imperfectief aspect in het Russisch zijn de volgende:

DEF.4:   Perfectief aspect in het Russisch wordt bepaald door de configuratie
$S \cap R = \varnothing \ \& \ E \subseteq R$

DEF.5:   Imperfectief aspect wordt gedefinieerd als niet-perfectief, i.e.
$\neg \, (S \cap R = \varnothing \ \& \ E \subseteq R)$, oftewel $S \cap R \neq \varnothing \lor E \nsubseteq R$

In de theorie die hier wordt voorgesteld, wordt gezichtspunt bepaald door de relatie tussen R-tijd en S-tijd: gegeven dat in het default geval E altijd in R bevat is, krijgt de spreker, wiens positie altijd geassocieerd wordt met S-tijd, een extern perspectief, informeel gesproken, alleen als de S- en R-intervallen niet overlappen. Met andere woorden, de positie van de spreker kan niet in hetzelfde temporele domein zitten als de gebeurtenis. Dit domein is het R-tijdsinterval.

Als niet voldaan wordt aan de conditie op de lege intersectie tussen de S- en R-intervallen, dus, als de twee relevante intervallen overlappen, is er imperfectief aspect. In dit geval krijgt de spreker een intern perspectief op de beschreven gebeurtenis binnen één en hetzelfde domein, weer bepaald door het R-tijd interval.

Een andere perfectiviteitsconditie, weergegeven in DEF.4, is dat E besloten is in R. In hoofdstuk IV and V wordt een speciale operatie beschreven die de inclusierelatie tussen R en E omdraait, wat progressief geeft in het Engels, en daarmee overeenkomstig, imperfectief in het Russisch. Imperfectief aspect ontstaat dus als aan tenminste één van de perfectiviteitscondities niet voldaan wordt. De definitie van perfectief aspect wordt gegeven in de vorm van een nevenschikking van twee condities, terwijl imperfectief aspect consequent wordt gedefinieerd als niet-perfectief, dus als een disjunctie van de ontkenning van de perfectiviteitscondities.

De benadering van Russisch aspect die wordt verdedigd in dit proefschrift

- formaliseert de notie gezichtspunt
- leidt de correlatie tussen progressief en imperfectief af, en het daarmee samenhangende gegeven dat perfectieve zinnen die in de niet-verleden tijdsvorm staan, niet de interpretatie van actuele tegenwoordige tijd kunnen krijgen
- voorspelt een aantal correlaties tussen Engelse tijden en Russische tijds/aspect-vormen.

Curriculum vitae

Olga Borik was born in Moscow on May 17, 1972. She finished high school in Moscow in 1989.

In 1990, she began her studies at Moscow State University, at the Department of General and Applied linguistics. She specialized in syntax and semantics and in 1995, Olga obtained a BA in Linguistics after finishing a thesis on the syntactic feature of unaccusativity in Russian.

In the fall of 1996, Olga enrolled in a two years postgraduate program at the Department of Linguistics at the University of Tromsø. She received her M.Phil. degree in 1998. Her Master's thesis was on the syntax of the reflexive *sja*-constructions in Russian. In September 1998, she started as a PhD student at the Utrecht Institute of Linguistics OTS. There she carried out the research that resulted in this dissertation.