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:

\[
\begin{array}{c|c}
\text{E} & \text{n} \\
\end{array}
\]

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:

\[
\begin{align*}
\text{a. PRES:} & = \lambda \phi \exists i [\phi[i] \land i = n] \\
\text{b. PAST:} & = \lambda \phi \exists i [\phi[i] \land i < n]
\end{align*}
\]

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:

\[
\begin{array}{c|c|c}
\text{E} & \text{n’} & \text{n} \\
\end{array}
\]

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:

\[
\begin{align*}
\text{a. Simple Present:} & \quad \text{b. Simple past} \\
\text{PRES (\( \phi \))} & \quad \text{PAST (\( \phi \))} \\
\exists i [\text{write (i) (l)(m) \land i = n}] & \quad \exists i [\text{write (i) (l)(m) \land i < n}]
\end{align*}
\]

The opposition between present vs. past in the domain of tense is considered basic: one of these two operators must apply 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.
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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:

$$\text{POST: } = \lambda \phi \lambda i \exists j [\phi[j] \land i < j]$$

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):

$$(7) \quad \begin{align*}
\text{a. Future Present:} & \quad \text{b. Future Past:} \\
\text{PRES(POST)}(\phi) & \quad \text{PAST(POST)}(\phi) \\
\exists i \exists j[\text{write}(j)(l)(m) \land i < j \land i < n] & \quad \exists i \exists j[\text{write}(j)(l)(m) \land i < j \land i < n]
\end{align*}$$

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:

$$\text{PERF: } = \lambda \phi \lambda i \exists k [\phi[k] \land k < i]$$

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):

$$(8) \quad \begin{align*}
\text{a. Perfect Present} & \quad \text{b. Perfect Past} \\
\text{PRES(PERF)}(\phi) & \quad \text{PAST(PERF)}(\phi) \\
\exists i \exists k[\text{write}(k)(l)(m) \land k < i \land i < n] & \quad \exists i \exists k[\text{write}(k)(l)(m) \land k < i \land i < n]
\end{align*}$$

There are two more configurations corresponding to the application of all three operators:

$$(9) \quad \begin{align*}
\text{a. Present Future Perfect} & \quad \text{b. Past Future Perfect} \\
\text{PRES(POST)(PERF)}(\phi) & \quad \text{PAST(POST)(PERF)}(\phi) \\
\exists i \exists j \exists k[\text{write}(k)(l)(m) \land k < j \land i < j \land i < n] & \quad \exists i \exists j \exists k[\text{write}(k)(l)(m) \land k < j \land i < j \land i < n]
\end{align*}$$

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 use 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, 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).
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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 $P(x_1, x_2, ..., x_n, I) \& \exists I' \subseteq I P(x_1, x_2, ..., x_n, I')$

**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 x₁, x₂, …xₙ are its arguments, then any interval I, such that P (x₁, x₂, …xₙ, I) (informally: P holds at I) is called *predication time* and labelled E(ventuality time).

b. E⊆R:
   ∃R, ∃I such that P(x₁, x₂, …xₙ, I) & I⊆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 ⊆ 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 ⊆ 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:
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:
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(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 de keuken gegaan. Daar heeft hij nog een brief gevonden die hij was vergeten.     
        John is early to.home come. He has the mail up.picked and is to the kitchen gone. There has he yet a letter found which he was forgotten.  
        John is early to home come. He has the mail up.picked and is into the kitchen gone. There has he a further letter found, that 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.