

INTERACTIONS BETWEEN LEXICAL, TEMPORAL AND ASPECTUAL MEANINGS

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ABSTRACT

In my paper a universal aspect theory is presented which is based on the integration of the various types of states of affairs into the textual web of descriptions of situations and changes in situations. The states of affairs are thereby grouped according to their boundary characteristics. The grammatical meaning of the verbal aspect interacts with the lexical meaning of a given verb in group-specific ways, so that the kind of interaction in the case of a given aspect opposition can be used in order to classify verbs. In addition to the Slavic aspect opposition of perfective vs. imperfective, the aspectual systems of English, Modern Greek and the Romance languages are taken into consideration. The interaction between aspect and tense as well as the interaction within the aspect dimension itself, which plays a role if a language has more than one aspect category, is also discussed. The perfective imperfect and the imperfective aorist of Bulgarian are given as examples of problematic cases, along with the functions of the *ing*-form of the perfect in English. Generally the problem of the coming together of more than one aspect grammeme in one verb form is solved by means of a hierarchization, which can be deduced from the particular interaction meaning in question. The grouping of verbs into aspect-sensitive semantic classes is only stable in the centre of the classes, but we find language-specific peculiarities on their peripheries. In addition, regroupings are also possible in the course of the development of a language.

1. Introduction

Probably no other area of grammar shows such a striking mutual relationship between grammatical and lexical meaning as the “dimension of aspect”.¹ We define this term as the abstract and comprehensive system of possible aspect categories found in the languages of the world. A grammatical category of aspect, such as verbal aspect in Slavic languages, is consti-

tuted by its grammemes, which are traditionally defined as members of an opposition known as the opposition between the imperfective and the perfective aspects.

These labels only very indirectly reflect the semantic oppositions by which the grammemes are characterized. These oppositions are usually regarded as privative in the sense that the perfective grammeme presents the state of affairs expressed by the verb as an indivisible single whole, i.e. in its totality, whereas the imperfective grammeme is unmarked with regard to this function: it can mean either incomplete realization or non-relevance of totality in the statement in question.²

“Totality” is an abstract construct which has more specific senses when actually related to verbs in a text. These specific senses result from the **interaction** of the meaning of the aspect grammeme with the lexical meanings of the verbs. In the following they will therefore be called **interaction meanings**.³

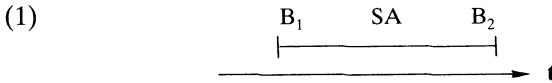
2. Totality and reference to boundaries

As a necessary prerequisite to a discussion of the interaction of verbal semantics and the semantics of aspect grammemes, we should first clarify what is meant by the term totality as regards states of affairs. In my view it is best to understand by this, the complete realization of the states of affairs taking into account their characteristic temporal boundaries (limitations). The specific results of this complete realization will be discussed in more detail below.

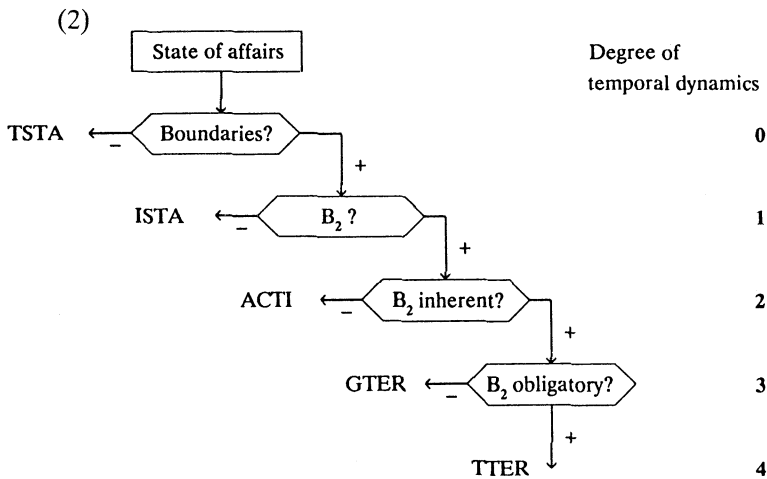
Verbs can express states of affairs which correspond to the states or events in the real world as they are conceptualized by the speakers of a language. The beginning or the end of a state of affairs can be conceived of as probable or improbable on the basis of the speaker’s knowledge of the world. These probabilities are reflected in the lexical semantics of the corresponding verbs. Verb meanings, as a result, have different boundary characteristics. To a large extent, these boundary characteristics define the aspect-sensitive quality of a given verb since they also determine the interaction meanings. In this paper I will try to give a classification of verb meanings which is determined exclusively by their boundary characteristics.⁴

If we assign the boundaries B_1 and B_2 to a state of affairs SA on a time axis running from left to right, where B_1 marks the beginning and B_2 marks

the end of this state of affairs (see diagram (1)), the question arises as to which of these boundaries are typical for the meanings of verbs of a particular semantic class and what its specific qualities are.



We can postulate an algorithmic classification as in diagram (2) with five types of boundaries as the basis for the grouping of verb meanings:⁵



The stronger the limitation on a state of affairs, the higher its degree of temporal dynamics in the composition of the text. In the right-hand column of diagram (2), the degree of dynamics is given in scalar form. Now to some examples of the individual groups and to an explication of the diagram: in order to simplify the following explication I will represent abstract concepts in the form of English verbs in braces; it is clear that in actual cases verb meanings have to be determined language-specifically.

Let us begin with totally static verbs (abbreviated TSTA), e.g. {contain, weigh}, whose meanings typically show a lack of boundaries. This is characterized by a minus sign in the first determining question in the algorithm (2). These states of affairs are inalienably connected with their subjects. Their degree of temporal dynamics is 0, as shown in the right-hand column.

In contrast to this, the inceptively static class (abbreviated ISTA), e.g. {know, understand}, has a degree of temporal dynamics of 1, since here the beginning of the state of affairs is probable, i.e. a boundary B_1 exists; there is, however, no probable final boundary B_2 . Applied to extralinguistic reality, this means that before you *know something* you have to *come to know* it and before you *understand something* you have to *come to understand* it, and that these qualities, once acquired, remain potentially unlimited in duration. This is not the case in the next group, which consists of activities (abbreviated ACTI), e.g. {work, read}. It is impossible for anybody to *read* or *work* for a limitless period of time. Thus, in addition to a boundary B_1 there is also a boundary B_2 in the form of a probability for the end of the process, which is brought about simply by the external impossibility of a limitless duration of the action. B_2 is also typical for the next group, which have gradually terminative (telic) meanings (abbreviated GTER) e.g. {write something, drown}. Here, however, the existence of B_2 is due to the exhaustion of an inherent “quantity” rather than to the temporal probability of the termination of an action. For this kind of inherent boundary B_2 it is typical that an end result is attained, here e.g. the existence of a *letter* or the *death* of the subject respectively. This end result is indicated in advance by a gradual approach, a “prefinal stage”. The strictest form of a right-hand boundary, whose degree of temporal dynamics is 4, is to be found in verbs with totally terminative meanings (abbreviated TTER) e.g. {find, explode, reach}, the end of which is unchangeably determined as soon as the state of affairs has begun, without any possibility of interrupting it.⁶

3. Interaction of the aspect categories with the lexical groups

Just as verb meanings can be classified according to the criterion of temporal dynamics, so too can aspect grammemes be distinguished on the basis of their functional dynamics in introducing lexical meanings into the textual web of situations. For example, the function of the Slavic imperfective aspect is “to describe a state of affairs as a given situation” S, whereas the perfective aspect expresses that a “change in the situation” CS is taking place by viewing the state of affairs as a whole. The imperfective aspect, of course, has a less dynamic function than the perfective aspect. I symbolize these functions as the “S-aspect” and the “CS-aspect” respectively. In Italian, for example, the *passato remoto* (aorist) is a CS-aspect, the imperfect

is an S-aspect, in French the same is true for the *passé simple* and the *imparfait* respectively, and in Modern Greek for the aorist and the imperfect.⁷

These fundamental characteristics of the aspects found within a text cause the well-known phenomena of taxis⁸ to occur when several verbs enter into a relation with each other: *sequence* in the case of two (or more) verbs in the CS-aspect, *simultaneity* in the case of two verbs in the S-aspect, and *incidence*⁹ when S- and CS-aspect occur together. Examples for this in Russian:

- (3) a. *Ivan vošel v komnatu i zažeg svet.* (CS + CS = sequence)
 'John entered the room and put on the light.'
- b. *Ivan sidel i pisał.* (S + S = simultaneity)
 'John was sitting and reading.'
- c. *Vse veselo razgovarivalis', kogda vdrug razdalsja vystrel.*
 (S + CS = incidence)
 'Everyone was talking cheerfully, when suddenly a shot was fired.'

When two or more verbs appear in the CS-aspect, as in (3a), the sequential meaning results from the occurrence of a second change against the background of the change in the situation expressed by the first verb.¹⁰ In (3b), on the other hand, the states of affairs expressed by the two verbs are part of the same complex situation but with no intermediate change. In (3c) a change of situation occurs on the basis of the situation described by the first verb.

Taxis meanings evidently result from the interaction of several aspectual verb forms. This type of interaction meaning is a syntagmatic interaction of the meanings of aspect grammemes so that it differs from that which develops from interaction between aspect categories and lexical groups. We shall not deal with this type any further; instead, we shall concentrate on those interaction meanings resulting from the combination of an aspect grammeme with a lexical verb meaning, as occurs in every single concrete verb form in aspect languages, whereby the interaction meanings are dependent on the group to which the verb in question belongs.

CS-aspects, by virtue of their conceptualization of the state of affairs as a whole, highlight the typical boundary qualities of the verbs. This has the following consequences for the individual verb groups:¹¹ The totally static verbs (TSTA) with their degree of temporal dynamics of zero can never be

conceived as a whole owing to the complete lack of boundaries. It follows, for example, that in Russian TSTA verbs can never be combined with the perfective aspect. Verbs such as *vesit* 'weigh', *prinadležat* 'belong' are thus imperfectiva tantum. Such incompatibilities between lexical and grammatical meaning represent a special case of interaction. In the case of the inceptively static group (ISTA) there exists a probable initial boundary B_1 , which is put into effect by the CS-aspect. For verbs of this group an inceptive meaning in the perfective aspect, the aorist etc. is therefore characteristic. Examples of this are in Russian *znat* (imperfective)/*uznat* (perfective) 'know',¹² in Italian *sapeva/seppe* 'know', in French *savait/sut* 'know' and in Spanish *sabía/supo* 'know'.

In the case of the activity group (ACTI) both B_1 and B_2 are present; however, since there is no inherent limitation in the form of an approach to a goal, in contrast to the terminative verbs below, a complete conception of the initial and the final boundary can only be understood here temporally. Corresponding perfective verbs which express that an activity has lasted for a certain period of time can be found in Russian in the so-called "delimitative aktionsart". Such verbs as *porabotat* 'work for a period of time' are often falsely ascribed to the perfectiva tantum. In the framework of the present theory of lexicon/grammar interaction, however, they can be grouped together perfectly well with activity verbs. That is, we propose to group them under one lexeme as aspectual pairs ("aspectually complete", i.e. non-defective lexemes). In this way, aspectual pairs (aspectually complete lexemes) of the type *rabotat/porabotat* 'work' are obtained.¹³

In other languages the CS-aspect of these verbs has clearly delimitative components, too, as in the Italian equivalents *lavorava/lavorò* 'work', best shown by the fact that here (in non-habitual cases) a combination with an adverbial of limited duration is only possible with the perfective (aorist) form, for example *lavorò due ore* 'he worked for two hours', but not with the imperfective form **lavorava due ore*.

In the case of gradual terminatives (GTER), the CS-aspect has the effect of an obligatory realization of the inherent boundary B_2 with the typical result of the state of affairs. In the case of total terminatives (TTER), the CS-aspect does not bring any additional information to the basic meaning of the verb: its application is thus empty (see below).

In the case of both terminative groups, the interaction with S-aspects such as the imperfective aspect in Russian is of particular interest. Gradual terminatives show a situation before reaching B_2 , a prefinal stage with a

graduation of the result of the state of affairs. Depending on the verb in question it can be, indeed, either a quantitatively partial completion, as in *stroit'/postroit'* 'build', or a tendency as in *umirat'/umeret'* 'die', and in some cases with a conative component as in *ubeždat'/ubedit'* 'convince'. The same applies in other languages, e.g. *moriva/mori* 'die' or *persuadeva/persuase* 'convince' in Italian. Thus, the S-aspect here can represent a state of affairs as an actual, temporally localized process; we will refer to this sense as the "processualizing partial function" of the S-aspect.

This is not possible in the case of totally terminative verbs since the obligatory conceptualization of their boundaries is part of their lexical meaning. A combination of the TTER meanings with the imperfective aspect can thus only refer to non-actual, habitual situations, as in Russian *nachodit'/najti* 'find'. The same is true in other languages, as in Italian *trovava/trovò* 'find'; we will refer to this sense as the "habitualizing partial function" of the S-aspect.

The processualizing and habitualizing partial functions of S-aspects like the Slavic imperfective aspect or the Romance imperfect may appear in other languages as grammemes of their own. Thus, the English progressive is a "Processualis" and the *used-to* construction a "Habitualis". The Processualis presents states of affairs as transient, i.e. it describes situations before a change occurs. As a result, it presupposes at least a probable final boundary. This boundary, however, need not necessarily be an inherent part of the verb meaning; thus only verbs of the ACTI and the GTER group can occur in combination with this aspect, whereas states (TSTA, ISTA) and total terminatives are incompatible with it; compare for example the unacceptable expanded forms **is weighing*, **is knowing*, **is seeing*, **is finding* in English.

The form *is seeing*₂ does, of course, exist with more dynamic meanings of the verb, for example {visit}. It must always be kept in mind that the classification of verbs according to the criterion of temporal meanings is a classification of **verb meanings**, i.e. verbs with more than one reading (meaning) can belong to different classes or, in other words, verbs of different classes can be homophonous on the expression level.¹⁴ On the other hand, static verb meanings can be made dynamic in special contexts on the syntactic level. In cases like this a combination with the Processualis may be possible, for example: *I am seeing less well with every year that passes or These boxes of chocolates seem to be weighing less each time I buy one.*¹⁵ This contextually conditioned shift of aspectual behaviour does, however,

not change the static basic meaning of these verbs on the lexical level but must be described by means of context rules.

The special case of lexical interaction with the aspects found in complete contrast to incompatibility is its empty application, possibly with an intensification of the aspect-sensitive meaning specific to the particular classes. It has already been said that the application of CS-aspect forms such as the *passato remoto* or the perfective aspect to the total terminatives is an empty application. But this is also true for the application of the Processualis to activity verbs. In the case of the inceptively static verbs the application of a Habitualis, which in fact has no other function than to transform actions into states and which, because of this, can also be called “Statalis”, is an empty application.¹⁶ If we now extract another partial aspect of the S-aspect used merely to express states of affairs as general truths, we obtain a “Universalis”, whose application to verbs of the TSTA group is an empty application. Such a Universalis is developing in Turkish as a residual function of the so-called “extemporal” of the type *gider* ‘goes’, which is being increasingly supplanted by the Processualis of the type *gidiyor* ‘is going’.¹⁷

It is typical for the GTER group that the states of affairs in question are *directed towards a result*. Members of this group can thus be said to have an empty application of the perfect. Since the perfect, however, has a number of other functions besides the resultative one (e.g. the experiential function), this is only partially true, so that the perfect is to some extent an exception within the cases of empty application as interaction between aspect and lexical semantics.¹⁸

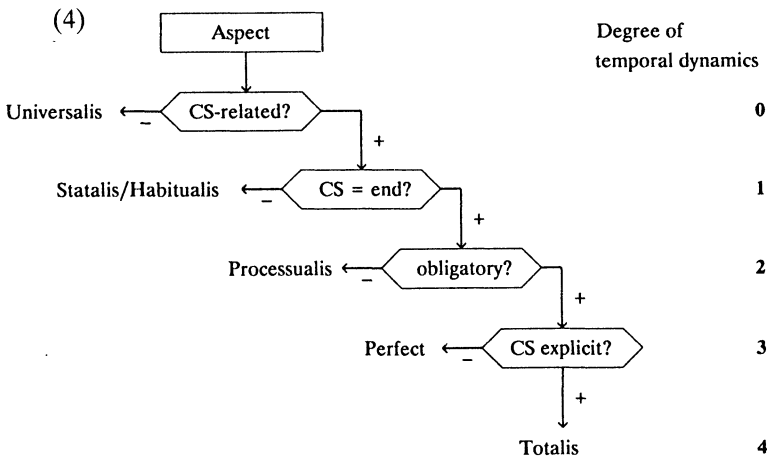
4. Grouping of aspect grammemes

From the empty application of grammatical aspects to particular lexical classes the existence of a semantic affinity relation between them can be deduced. This leads to the conclusion that in the case of the interaction of an aspect with verbs belonging to different lexical groups, the meaning of the latter is transformed in such a way that it becomes more similar to the aspectually relevant meaning of the verb group showing affinity to this particular aspect: in other words, the function of aspect grammemes corresponds to the “grammatical adaptation of other verbs to the dynamics characteristics of the lexical affinity group of the grammeme in question”. CS-aspects can thus adapt to the obligatory totality of the totally terminative verbs; this is called totalization. The processualizing aspect corresponds

to an adaptation to the processuality of activity verbs, whereas habitualization or statification corresponds to the adaptation to the class of inceptively static verbs. In addition, we have a universalization as adaptation to the TSTA class. Finally, the perfect corresponds at least with a partial function to a “resultativization” according to the pattern of the gradually terminative verbs.

As achieved in diagram (2) for the aspect-sensitive classification of verbs, the aspects may again be grouped hierarchically, but in this case the deciding criteria can be found in the situation-changing qualities. The result is diagram (4), where the aspects are grouped according to the position of the corresponding lexical affinity class.

The *Universalis* is here classified without any relation to a change in situation, according to the criteria we have given (\neg CS-related). The *Statalis* refers, if at all to CS, to the beginning of the habitual situation in question (\neg CS=end). In contrast, in the case of the *Processualis*, the change in situation is imminent and is reached facultatively (\neg obligatory). In the case of the perfect, which expresses a situation as the result of a state of affairs which has happened earlier, the CS may be deduced indirectly from the transition from the action, when the resulting state does not yet exist, to the state (\neg explicit).



In the Totalis, e.g. a Romance aorist, the change in situation is explicitly the main function. In Russian the first three aspect functions together form the imperfective aspect and the last two form the perfective aspect.

Diagram (4) is an abstract model for the dimension of aspect, and it is intended to show connections between the individual categories. Both diagrams (2) and (4) are, in principle, universally valid. But they are not rigid in so far as corresponding verb meanings in each language do not necessarily belong to the same group, and in that in the course of the history of one language, changes in the group classification and in the functions of the aspect grammemes may occur. Let us look at the example of the state of affairs {sit}. According to the interaction meanings of lexical semantics and CS-aspect we have illustrated, namely *inceptivity* for the inceptively static group but *delimitativity* for the activities and the exclusion of the Processualis in the inceptively static group, we can conclude that the Russian lexeme *sidet'/posidet'* 'sit' is to be put into the ACTI group, as is the case with English *be sitting/sit*; whereas the equivalent Modern Greek verb *káthome* with its inceptive aorist *káthisa* in contrast with the static imperfect *kathómun* is to be grouped into the ISTA group. This is also true for Italian *sedette/sedeva*. Historically, English *to sit* has been a member of the ACTI group for only a relatively short time; during the last century it was still commonly used in the simple form even for descriptions of current situations. From this lack of a Processualis (Progressive), it follows that *to sit* belonged to the ISTA group at that time.

As has already been said, the system of classification of verb meanings in boundary and interaction classes demands a differentiated categorization of verbs with more than one meaning. This is also particularly true in the case of boundary behaviour that changes according to valence context;¹⁹ in this case, we also have to speak of different meanings (or lexical senses) of the verbs in question. Thus, what has been said about the English *to sit* is only true when used for people or animals (*sitting/sit*₁ = ACTI). When it is used to refer to things, however, it belongs in the inceptively static class without the possibility of forming a progressive (*sit*₂): **The dress is sitting well on her*. The same is true for *to stand* which has an ACTI meaning (*standing/stand*₁) when used for people, but an ISTA meaning, when used to refer to things, without the possibility of forming a progressive (*stand*₂): **The building is standing next to the river*. In Russian the atterminative *čítat'* 'read' belongs in the ACTI group with its delimitative partner *počítat'*, whereas the

transitive *čítat'* as in *čítat' knihu* 'read a book' belongs in the GTER group²⁰ with the resultative partner *pročítat'*; in short, we have two lexemes, *čítat' / počítat'* and *čítat' / pročítat'*, which belong to different dynamics classes but are homophonous in the case of imperfectivity.

In some languages, qualities can be transformed from states to temporary patterns of behavior; a probable final boundary B₂ is thus introduced. For example in English *to be silly* has more than one sense as shown by its aspectual behaviour. It may be found either in the inceptively static class or in the activity class with a Processualis such as *you are being silly*.²¹

When the aspect is extended in this manner to verb classes with which it is incompatible, the danger arises that the system may be destroyed, since the original class definition becomes more fluid. As a result, it is possible that aspect grammemes are lost or change their function. An example is the gradual shifting of the Turkish Processualis with *-iyor* into the area of state and Statalis. The same seems to be true for the once existing Processualis in Welsh; cf. Comrie (1976: 25).

When the type of compatibility of a verb with an aspect grammeme changes, we always have to deal with the problem of determining which of the two components changes its boundary characteristics, the lexeme or the grammeme. This is a difficult problem which must be resolved for each case individually. In general we can say that as long as only single verbs or small semantic groups of verbs change their aspectual behaviour, the meaning of the aspect grammeme remains more or less constant. But when the number of verbs with an altered aspectual behaviour increases, the aspect grammeme loses its specific meaning more and more, and the aspect opposition as a whole may even get lost. If in the latter case the old aspect grammeme is replaced by a new one, as in the Turkish example, we again have to find out if the new grammeme was only dragged into the resulting gap or if it pushed the old one out.

But let us return to synchronic problems. The group-forming structure of the GTER class is particularly complex, because here the relationship between action and result plays an important role. This relationship can language-specifically lead to varying degrees of connections between the two components in the case of certain verbs. For example an imperfective expression of the type *umiral* 'was dying' from the perfective *umer* 'died' in Russian does not exclude the possibility of recovery, whereas the English expression 'was dying', does: **She was dying, but did not die*. In Italian the acceptance of the corresponding sentence *Moriva, ma non morì* varies according to the speaker.

On the contrary, the meaning {write something} is related to a lesser degree to its result in the Romance languages, English, and Modern Greek than in the Russian *pisat'*/*napisat'*, where the resultative juxtaposition *On pisal, no ne napisal pis'mo* is meaningful, whereas, for example, its literal translation into English **He was writing a letter, but did not write it* is not. In order to express the same meaning as in the Russian sentence we would have to negate the result explicitly by a separate resultative verb, for example: *He was writing a letter, but did not finish (writing) it*. Thus, the perfective *napisat'* seems to be much more resultative than the English *to write*.

It is perfectly possible that the resultative component in a language is so strong that drawing a relation with the causing action by means of the S-aspect is completely impossible, although such a connection exists in the extra-linguistic reality. This is another case where differing classifications can be expected in different languages; thus in Russian the imperfective *prichodit'* 'come' can never have a processual meaning. The same is true of *slučat'sja* 'take place', whereas in Italian *veniva* and *succedeva* are quite possible in this sense as are their English equivalents *was coming* and *was happening*. In Russian these verbs should be classified in the TTER class together with their perfective equivalents *prijti* and *slučit'sja*. It is interesting that in the case of *slučat'sja* there even exists a synonym *proischodit'* with the meaning 'take place, occur', which allows the process component and, like the examples given in the other languages, belongs in GTER.

The great number of possible ways to deduce boundary qualities for verbs from the states of affairs in the real world can lead to the relexicalization of interaction meanings. In Russian, for example, the perfective form *uznat'* of the imperfective *znat'* 'know' has developed a second meaning, namely that of an active bringing-about of the beginning of the state. Parallel to this *uznat'*₂ 'inform oneself', a secondary imperfective verb has developed which has the same meaning which resulted in the lexeme *uznavat'*/*uznat'*₂ being put into the GTER class. In the same way the verb *polučit'* 'get' from the TTER class has developed an active meaning 'pick up' so that *polučat'*₂/*polučit'*₂ belong in the GTER class.²²

Although certain states of affairs, which are peripheral in their group, can fall into different classes from language to language, the aspect-sensitive system as a whole has a constant, basic stock of verb meanings which are central in the various groups and show the corresponding interaction meanings in combination with the aspects. Thus the verbs of inert perception are characterized by their constant inclusion in the group of ISTA verbs

with an inceptive meaning of, for example, Russian *videt* 'see' in the perfective form *uvidet*, in the aorist of *ide/évelepe* in Modern Greek and of Italian *vedeva/vide*, and with an absence of the *ing*-form in the case of English *to see*. This is surprising because {see} is, from a theoretical point of view, a transient state of affairs. In the reality of language, however, the possibility of limiting this state of affairs by means of an agent does not exist here, contrary to states of affairs of physical position like {sit}.

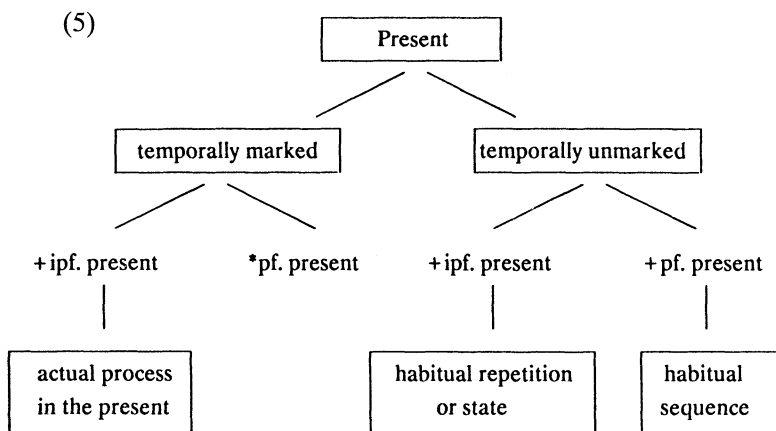
The aforementioned cases of re-grouping or relexicalization of interaction meanings do not invalidate the model of aspect-sensitive classification presented in this paper. On the contrary, it is only as a result of the theory of interaction that a description of these processes is made at all possible.

5. Interactions of aspect and tense

Interactions exist not only between aspectual and lexical meanings but also between the grammatical meanings of the aspect and the tense category. First of all, a case of systematic incompatibility can be mentioned, this being between the present in its marked temporal meaning *hic et nunc* (actual present), and the perfective aspect, which excludes a processual conceptualization of the state of affairs. Due to this, a perfective present with the temporal meaning of an actual present does not occur in Russian. This is symbolized by an asterisk in the left branch in diagram (5). Corresponding forms do in fact exist, but they are used to describe atemporal-habitual states of affairs. Here, the present occurs with its temporally unmarked meaning, i.e. without reference to an actual present, which dominates the perfective aspect meaning without causing incompatibility.

The perfective present is, of course, not the normal way of expressing atemporal-habitual meaning in Russian, but it can normally replace the imperfective present when two or more actions are combined in a habitual sequence of states of affairs.²³ This shows that the meaning of the perfective aspect in the case of the atemporal present is indeed present, but this meaning is hierarchically ordered one step below the category of tense, as shown in the right branch of diagram (5).

Thus the meaning of totality causes the usual change in situation with the sequential taxis meaning. The atemporal present, however, prevents the temporal localization of the sequence in question on the time axis so that it is presented as a potentially limitless repetition.



Only the present may have an atemporal or temporally neutral meaning, along with its basic temporal meaning. This is why the perfective aspect occurs with a habitual function only with the present. As a matter of fact, this is also true when perfective present forms refer to the past (historical present). When past tense forms (for example *napisal* 'wrote') are used, however, the perfective aspect can refer exclusively to temporally localized states of affairs and never to habitual ones. In this case non-localized actions and states can be expressed in Russian only with the imperfective aspect.²⁴

As a matter of fact — contrary to what is shown in diagram (5) — the present does occur with the perfective aspect in a temporal function. The hierarchy, however, is reversed in this case, i.e. the perfective aspect dominates the temporal actual meaning. This can be seen in the fact that the CS meaning of the perfective aspect is applied to the present as its basis; the changed situation is logically to be found in the future. The reference to the future of the perfective present in Russian is thus a typical interaction meaning.

Whereas the incompatibility of the perfective aspect with the temporal present is a systematic, that is, a content-conditioned incompatibility, non-systematic, though not purely arbitrary, gaps in the possibility of combining tense and aspect also exist.

For example, we find differences of aspect of the type imperfect vs. aorist in the Romance languages only in the past and not in the future.

Complications of meaning do not exist here, as they do in the present. This is already shown by the fact that any state of affairs in the preterite with a difference in aspect can be transferred into the future, without changing anything other than the temporal localizing. Thus the neutralization of aspect in the future of the Romance languages occurs only on the formal level. In contrast the aspectual differentiation in the future in the form of a perfective and an imperfective future exists in the Slavic languages, for example in Russian with *napišu* (perfective present with future meaning 'I will write') vs. *budu pisat'* 'I will be writing'. But it also appears in Modern Greek with its aspect system which is more similar to that of the Romance languages, e.g. *tha grápsō* 'I will write' vs. *tha gráfo* 'I will be writing'.

6. Interactions of grammemes of more than one aspect category

In some languages more than one aspect category, i.e. opposition of grammemes, can be differentiated. In these cases more than one aspect category can be expressed by one verb form, in other words, one can expect an interaction of aspect categories in such verb forms. The problems arising are relatively complex, since the different behaviour, with regard to the interaction of the various aspect categories with the lexical meaning, plays a role. Only some basic questions can be dealt with here.

Relatively few problems are caused by the combination of aspect grammemes with a similar meaning. In addition to the opposition of perfectivity of the Slavic derivational type to be found in Russian, Bulgarian still has the old inflectional differentiation in the past between aorist and imperfect, which can basically also be reduced to the opposition of totality vs. non-totality. As a result the anticipated combinations of perfective aorist and imperfective imperfect clearly prevail. Nevertheless, other combinations occur as well. Due to the incompatibility of perfectivity and imperfectivity, this is again only possible by means of a hierarchization. The old aspect category seems to dominate the newer one here. Dominance in this case means that the hierarchically inferior category is first applied to the lexical meaning, and only thereafter does the superior one come into effect, which could be formally expressed by the use of brackets of the type "imperfect (perfective(lexical meaning))". Thus, in the case of the perfective imperfect, the meaning of perfectivity only results in the sequential meaning, habitualized by the imperfect. On the textual surface level, the perfective imperfect therefore behaves like a normal imperfect; it describes a given

situation. Internally, this situation consists of a repetition of changes in situation, which stems from the perfective aspect. An example of this is (6a). Here we have a description of the aimless “to-and-fro-ing” of total single actions as a given situation:²⁵

- (6) a. *Toj...krivneše* (perfective Imperfect) *kām selo,*
posle se otbieše (perfective Imperfect) *pres livadite.*
 ‘Again and again he turned towards the village and then went through the meadows again.’

In the case of the imperfective aorist in Bulgarian the inflectional aspect category likewise dominates the derivational one. A single total state of affairs always results. The aorist only allows the actual processual meaning of all the principally possible meanings of the hierarchically dominated imperfective aspect, which is then conceptualized delimitatively. See example (6b), where the “listening-into-himself” is described with its temporal extension but embedded in the sequence:

- (6) b. *Toj se vslušva* (imperfective Aorist) *edna dve minuti...*
i butna vratata (perfective Aorist).
 ‘He listened carefully for a couple of minutes and then flung open the door.’

A similar interaction of two aspectual categories can also be found in Spanish. It is true that there is nothing which could be compared to the perfective Imperfect here; however, the aorist can be combined with the Processualis which is formed with *estar* + gerund. As a typical interaction meaning delimitativity results here as well, as in example (6c):

- (6) c. *Ayer te estuve buscando todo el día.*
 (Aorist (Processualis (GTER)))
 ‘I was looking for you all day yesterday.’

Here the Processualis causes an actual-iterative interaction meaning with the terminative verb, which is then conceptualized delimitatively by the aorist.

Like the English progressive, the Spanish Processualis has only one of the possible functions in the area of imperfectivity, i.e. the actual one of an action in progress. Consequently the functions of the imperfect are limited to this particular meaning when combined with it. This has led on the other hand to the fact that the Spanish non-expanded imperfect preferably expresses habituality, though not exclusively.

In Italian there is also a Processualis, which is formed in a similar way to the Spanish one, i.e. with *stare* + gerund, but its grammaticalization is not so developed. This can here be seen in the fact that the non-expanded imperfect generally also has the meaning of an action in progress and that the Processualis is obligatory only in rare cases. Still more important in this respect is the fact that a combination of the aorist with the *stare*-construction is not yet possible, and, also in contrast to Spanish, that the Processualis occurs only very rarely in the future.²⁶ From this it can be concluded that an aspect grammeme in a hierarchically inferior position can only put its function into effect when it is firmly established in the system.

The interaction of more than one aspect category often represents a transient stage in language history, which is overcome by the loss of particular possibilities of combination or of an entire aspect opposition. In this way Russian, in contrast to Bulgarian, has lost its inflectional aspect category of aorist and imperfect.²⁷

7. The interaction with the perfect

The perfect, which has a range of interesting partial functions, cannot be treated here in any greater detail.

Bulgarian shows, for example, that the perfect can in principle be combined with the perfective as well as with the imperfective aspect. It can be seen that the perfective perfect has the interaction meaning of a resultative perfect, whereas the imperfective perfect has that of an experiential; this means that the meaning of the perfect as a whole is split up when combined with the aspects. Traces of this can also be found in Russian, in the history of which the perfects of both aspects have become past tenses, while the corresponding interaction meanings of the perfect continue to exist in the form of these past tenses; cf. Breu (1988: 66f.).

Further combinations of the perfect could be mentioned, for example, with the English progressive in (7):

(7) *I have been writing a letter to my friend.*

(perfect(Processualis(GTER)))

Here again a hierarchical ordering seems to exist, whereby the processual meaning interacts with the lexical meaning first of all, not allowing a static meaning, for example. In combination with the progressive the perfect then remains without its usual resultative meaning.

8. Conclusion

Under appropriate conditions the given interactions can be found in many languages of the world. For instance, the problem of the interaction of a derivational and an inflectional aspect category in the past crops up in Georgian as well. In the case of non-systematic gaps in the field of the possibilities of combination of aspect and tense, the past seems mainly to have the most pronounced differentiation of aspects; however, a tendency towards an extension to the future seems to exist, as can be seen in Modern Greek. In typological respects it seems that we get a universal implication: if aspect exists in a given language in future forms, then it also exists in past tense forms, but not the other way round.

In many cases I have only been able to scratch the surface of the problem, and the question of the interaction of aspect categories with the opposition of active and passive voice has not been treated at all. In general, it can be stated that aspectual differentiations tend to develop more easily in the active than in the passive voice, but that these differentiations possibly later expand.

The central realm of interactions is clearly that of aspect and lexical semantics, whereas aspect categories which interact with one another can be regarded as exceptions. It is an important task of aspectology to determine which verb meanings are grouped into which class by means of the aspect categories of the individual languages, and it would be of particular interest to determine the universal centre of the various classes and to find out in which cases transient meanings on the periphery, with a tendency towards change of classes, occur in the individual languages.

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NOTES

1. My thanks go to Hans-Jürgen Sasse (Cologne) for helpful comments on an earlier version of this paper and to the anonymous reviewer for *Studies in Language*, whose criticism and comments helped me in clarifying unclear points. I am also indebted to Bernard Comrie for a number of helpful comments.
2. For a short introduction to the functions of verbal aspect in Russian and different definitions of the category cf. Forsyth (1970: 2-16).
3. The term "interaction meaning" refers to the interaction of lexical and grammatical meaning in a verb form. It has nothing to do with other uses of the term "interaction" as in "discourse interaction" and the like.
4. The following classification is treated in more detail in Breu (1985: 9-21).
5. The questions in this algorithm have been designed in such a way that they reflect the increase in rigidity of the limitations for the states of affairs concerned, starting with the question if there exist any boundaries at all. As it is necessary for a state of affairs to have begun before it can come to an end, a positive answer to the first question means that it has at least an initial boundary B_1 . For this reason the rest of the algorithm only treats the characteristics of its final boundary B_2 , starting with the question if it has one at all and then asking if B_2 is inherent (in the negative case it is only probable) or even obligatory.
6. Our classification of **verb meanings** on the basis of boundary characteristics clearly differs from Vendler's (1957) types of time schemata, which are derived from the syntactic behaviour of **verbs**, in particular, their compatibility with adverbials of time and their usage in "continuous tenses" (Processualis). Nevertheless there is a certain relationship between Vendler's "activity terms", "accomplishment terms" and "achievement terms" with our ACTI, TTER and GTER group respectively, while his "state terms" have two equivalents, the ISTA and the TSTA group. Lexical-grammatical interaction meanings do not, however, play a role in Vendler's treatment of verb classes.
7. On aspect in Italian based on the theory introduced here cf. Breu (1992); on aspect in Modern Greek cf. Breu (1985: 21-26). For an application of the principles of this theory to a variety of languages cf. Sasse (1991).
8. On the concept of taxis in aspectology compare Bondarko (1987), especially pp. 234-296.
9. Pollak (1988: 107-124) considers the existence of aspectually conditioned incidence schemes to be a particularly important characteristic of aspect languages. Compare also Comrie (1976: 3), who introduces his comparative observations of aspect with the incidence scheme (background — event).
10. The sequential meaning is not obligatory in every case since, under certain conditions, it is possible that the two events in the CS-aspect are not directly connected with one another but both occur directly against the background of the same given situation.
11. As mentioned in the introduction, languages with an aspect system normally do not have a verb form neutral with respect to aspect. Therefore, one member of the aspect opposition is unmarked in the sense that its forms are also used in those cases where aspect is

irrelevant because the given information is not seen as part of a textual web of situations (“obščefaktičeskoe značenie”, isolated facts), for example the imperfective aspect in Russian, the aorist in Italian and Modern Greek (cf. Breu 1985: 22f. and 1992: 167). Interaction between aspect and verb meanings can obviously only be tested in aspectually relevant sentences.

12. Comparing *uznat'* with the corresponding Romance verbs clearly shows that its basic lexemic meaning is really 'know', while 'come to know' is the result of the interaction of this meaning with the perfective aspect. Contrary to its usual treatment in grammars and dictionaries it need thus not be treated as a separate lexeme (or aktionsart) but forms an aspectual pair together with the imperfective *znat'*.
13. For many, but by far not for all verbs of the ACTI group, perfectivization with explicit reference to the left border B_1 is also possible, namely by means of the ingressive aktionsart, for example *zapet'* 'start singing', *zagovorit'* 'start speaking'. For *rabotat'* 'work' such an ingressive aktionsart *zarabotat'* 'start working' exists only when it refers to engines. Contrary to the delimitative perfectives these aktionsarten do not include right border reference in their meanings, but bring into focus only the left border of the state of affairs and are therefore not purely aspectually related to their corresponding unprefixated verbs. To put it in other words: While in these cases 'sing for a period of time' is lexically the same as 'sing' (because 'for a period of time' results automatically from viewing this state of affairs as a whole), 'start singing' is not. On the other hand some states can be perceived as limited in duration. In these cases, contrary to *znat'* 'know', a delimitative perfective may exist, as for example *pobolet'* 'be ill (for a period of time)', and we can say that *bolet'* 'be ill' has two meanings, one without reference to the right border and therefore with an inceptive perfective (*zabolet'* 'start being ill') and one with reference to the right border and with a delimitative perfective. Note that, contrary to primary states, primary activities lexically always have right border reference as the corresponding actions in the real world cannot last for an unlimited period of time.
14. In synchronic respects “polysemy” and “homophony” are understood here and in the following as two corresponding terms to express the relation “one expression — many meanings” with the only difference that “polysemy” refers to the semasiological point of view (from expression to meaning), whereas “homophony” refers to the onomasiological point of view (from meaning to expression).
15. I am grateful to Bernard Comrie for these examples.
16. The empty application of the Habitualis to ISTA-verbs is not so obvious as in the other cases. But sentences such as *I used to know it* or *He used to love her* clearly show that it usually does not habitualize states. If in such cases there is an interaction meaning at all, it is not on the aspectual level. Special contexts can, of course, (with or without a Habitualis) imply the iteration of states. Thus a sentence like *Every time he asked me, I knew the answer* refers to several cases of *knowing*. The same is true for *When he asked me, I used to know the answer*. In the last sentence *used to* has the same iterating function as *every time* in the first sentence. In corresponding sentences without these constructions there is only one instance of *knowing*. This seems to show that *used to* in the second sentence does not refer directly to *to know*, but to the whole complex sentence (*It used to happen that, when...*). On the other hand, adding *used to* to *know* in the first sentence would again result in an empty application.

17. On the functions of the aspect in Turkish compare Johanson (1971), in particular pp. 118-142.
18. The perfect as an aspect grammeme must not, of course, be mixed up with the perfective aspect. Terminology is especially confusing here. A comprehensive division of the perfect into its partial meanings is given in Breu (1988: 49-71). For the different ways of formal expression of the perfect in the languages of the world cf. Dahl (1985: 129-131).
19. These cases of an influence of actants (subject, objects) on the boundary behaviour of verb meanings must be distinguished from the broader sentence context, consisting of adverbials, conjunctions and so on.
20. This is only true if *kniga* refers to a concrete object. In the case of a generic reading, where *kniga* only characterizes the type of "reading" ("to book-read"), *čitat'* (*knigu*) is not terminative and can for example have a delimitative perfective partner *počitat'* (*knigu*) 'to read a book for a while' ("to book-read for a while"). Thus transitivity is here only a condition for terminativity, but it does not imply it.
21. This case is in a certain way comparable with the Russian static verbs of the type *bolet'* 'be ill', see above.
22. Sometimes we find developments in which the interaction meaning is so different in the perfective and the imperfective aspect of one lexeme that the connection of content no longer exists for a native speaker. The Russian verbs perfective *nastojat'* 'push through' and imperfective *nastaivat'* 'insist on' must now be seen as independent lexemes. The same is true for *izbežat'*/*izbegat'*₂ 'escape' and *izbegat'*₁ 'avoid'.
23. In addition to habitual sequences, other cases of perfective present occur in Russian, for example in hypothetical constructions. But on the whole the use of the perfective present is very much limited (for the perfective future see below). Other Slavic languages, including Old Church Slavonic, allow for a much wider use of the perfective present. It seems that there the dominance of the tense category over the aspect category is (still) so strong in the present that the aspectual opposition tends to some degree to be neutralized.
24. For the perfective Imperfect of Bulgarian, expressing habitual actions in the past, see below.
25. Contrary to the atemporal perfective present in Russian the past tense meaning remains. Thus there is no temporal neutralization; instead, one of the (aspectual) functions of non-totally dominates here.
26. Comrie's (1976: 73, 115) statement that in Italian there is no future Processualis (Progressive) at all is contradicted by native speakers who already accept sentences like *Quando arriverai, starò lavorando* 'When you come, I will be working' (incidence).
27. Here it has to be mentioned that an aorist of secondary, i.e. formed by means of suffixation, imperfective verbs cannot be found at all in the history of Russian, so that an imperfective aorist occurred only in the case of underived verbs.

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