Aspectual Inquiries

Edited by
Paula Kempchinsky and
Roumyana Slabakova

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To our colleague, fellow aspectologist
and friend,
Alice Davison

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PAULA KEMPCHINSKY AND ROUMYANA SLABAKOVA

ISSUES AND INTERFACES IN THE STUDY OF ASPECT

The study of aspect—the internal temporal structure of an event—has a long philosophical tradition and a comparatively short but extremely fruitful history of linguistically-based research. The philosophical study of aspect can be dated to the event typology in Aristotle's Metaphysics; the birth of the linguistic study of aspect is usually dated to Vendler's extremely influential 1957 article on "Verbs and times" (reprinted in Vendler, 1967), which analyzed the distributional properties of different event types. One could argue, therefore, that the study of aspect represents one of the first attempts to examine properties of the syntax–conceptual/intentional interface.

We believe that the study of aspect is in fact fundamentally concerned with interfaces, both in the sense of interfaces formally recognized as such in the architecture of the grammar and in the sense of interfaces between subdisciplines of linguistics. The question of the relative contribution of lexical properties of a verb vs. constructionalist representations of lexical aspect (situation aspect, or *aktionsart*) necessarily entails focusing on the interaction between lexical semantics and syntactic projection. In turn, the interplay between lexical aspect and sentential aspect (viewpoint aspect) in determining whether the event is interpreted as bounded in time forces us to look more closely at the relationship between the lexical layer of the clause and the functional layer, as well as examining the interface between the syntactic representation and the semantic representation of the clause. Many researchers working on the acquisition of the linguistic parameters of aspect have identified this interplay between situation aspect and viewpoint aspect as a fundamental factor in the acquisition process, both of first and of second languages, highlighting the relevance of acquisition research to semantic–syntactic research on aspect. The ways in which aspectual interpretation enters into the discourse, and how discourse factors affect aspectual interpretation, makes the study of aspect a particularly useful tool for elucidating the interface between the sentential level of clausal semantics and the broader, multisentential level of the passage.

It was from this perspective that we organized the "Workshop on the Syntax, Semantics and Acquisition of Aspect", held at the University of Iowa in May of 2002 and funded by the National Science Foundation (Grant 0111290). The purpose of the workshop was precisely to bring together scholars in different areas of specialization in linguistics to discuss the syntactic and semantic characterization of aspect from the perspectives of generative syntax, discourse representation theory,

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and psycholinguistics. Although researchers within any one of these fields are familiar with the work of others in the same field, there has been less communication across fields. Our goal in organizing this workshop was to purposefully set out to bring these different threads of research together, and thus create a context in which these various researchers could engage in active discussion and as a result further our understanding of this linguistic phenomenon.

The papers gathered in this volume represent the results of this workshop. Prior dissemination of initial drafts of the workshop papers on the workshop website, plus a schedule which provided extensive time for discussion at the end of each presentation and a roundtable discussion to wrap up the workshop, encouraged active and fertile interaction among the participants. To further this cross-disciplinary communication, each of the authors received comments on the first draft of the written version of the papers from another workshop participant, from a different subdiscipline.

In this introduction we provide a brief review of the issues within the field of aspectology that arose in the workshop presentations, followed by a summary of the main contributions of each paper. We believe that fellow aspectologists—to borrow the term from the Slavic tradition—will find useful and insightful additions here to the growing abundance of linguistic literature on the topic.

1. GENERAL OVERVIEW

1.1. The determination of lexical aspect

The aspectual properties of verbal predicates—often designated *Aktionsart*—have been investigated from various perspectives. The typology of Vender (1957/1967) as refined by Dowty (1979), the Vendler–Dowty classification, is the point of departure for many subsequent studies. This classification divides predicates into four classes, based on the properties of definiteness (or telicity) and process (or duration): states, activities, accomplishments and achievements. As is well-known, each of the aspectual classes displays characteristic linguistic behavior. Thus, the atelic classes of states and activities are compatible with durative adverbials, while the telic classes of accomplishments and achievements are compatible with frame adverbials:

(1) a.   That box contained a letter for a week/*in a week.
    b.   Mary drew circles for an hour/*in an hour.
    c.   Mary drew a circle in an hour/*for an hour.
    d.   Mary discovered the answer in an hour/*for an hour.

An ongoing issue in the study of aspect has been whether the four Vendlerian aspectual classes (or alternative classifications) are lexical primitives, e.g. a feature of the verb, or whether event types are compositional: the "lexicalist" vs. "constructionalist" debate. Verkuyl (1972, 1993), in a model-theoretic approach, proposed that situation aspect ('inner aspect', in his terms) is a property of sentence

structure, derived on the basis of three parameters: (i) a verbal feature expressed informally as [ADD TO], which in effect means that the verb can combine with its direct object in order to use the object as a counting device, (ii) a nominal feature, [SQA] (Specified Quantity of A, following Gruber 1976), which determines whether the object has specified cardinality or not, and (iii) the nature of the thematic relation between the verb and the object, totally affected or not. Durative aspect (e.g. activities and states) is considered to be unmarked, and will obtain when any one (or all) of the three parameters has a negative value. Terminative aspect, the marked form, obtains only when all three parameters have a positive value, as illustrated in (2), focusing on the contribution of [±SQA]:

(2) a.   Mary drew **circles** (for an hour).
        [+ADD TO], [−SQA], [+TOTALLY AFFECTED]: durative
    b.   Mary drew **twenty circles** (*for an hour).
        [+ADD TO], [+SQA], [+TOTALLY AFFECTED]: terminative

The essential semantic notion underlying this system is that of path: a verb which is [+ADD TO] combines with its object to form a PATH, which is then a bounded path if the object is [+SQA] and [+TOTALLY AFFECTED].

Verkuyl's work served to highlight the importance of the relationship between the verb and its direct object for the determination of aspect; hence the interest in aspectual or event classification for syntacticians. Tenny (1987), much refined in Tenny (1994), was the first significant work within generative syntax to examine the connection between the verb–direct object relation and event type. She proposed that lexicon to syntax mapping of verbal arguments is determined by aspectual roles: the *Aspectual Interface Hypothesis*. This hypothesis claims that universal lexicon to syntax linking principles are sensitive only to links between (subparts of) events and the event participants. In particular, the role of the direct object in delimiting the event is highlighted by her *Measuring-Out Constraint on Direct Internal Arguments*, according to which the direct object of a verb undergoes no necessary internal motion or change unless said motion or change measures out the event over time. Furthermore, direct objects are the only overt arguments of the verb which can fulfill this aspectual role.

Tenny's work focuses on the initial mapping of arguments in the syntax, not on subsequent syntactic movement. In addition to the effect of the internal structure of the direct object on aspectual classification, illustrated by the activity/accomplishment alternation of (2a) vs. (2b) above, there are of course other ways in which the overall syntactic structure of the verb phrase affect event interpretation, such as the addition of a resultative phrase or a goal PP:

(3) a.   Bill hammered the metal (for two minutes).
    a.′ Bill hammered the metal **flat** (in two minutes).
    b.   Sisyphus pushed the rock (for days).
    b.′ Sisyphus pushed the rock **to the top of the hill** (in an hour).

Much of the syntactic work on aspect has focused in particular on accomplishment/activity alternations such as those above, which prima facie appear to provide the strongest empirical evidence for the constructionalist position. Nevertheless, Rappaport Hovav and Levin (1998) argue for a lexicalist-based approach to these alternations. Their basic underlying assumption is that it is the lexical properties of the verb which determine the syntactic frame in which it may appear, and hence its aspectual interpretation. They propose that the basic elements of verb meaning are represented by primitive predicates such as ACT, CAUSE and BECOME, organized according to certain specified event structure templates, which define the aspectual classes. Thus, for example, an achievement has the template [BECOME [x <STATE>]], while an accomplishment may have, as one of its possible templates, [x CAUSE [BECOME [y <STATE>]]]. Mapping from the lexicon to the syntax is governed by conditions such as the *Subevent Identification Condition*, which specifies that each subevent in the event structure must be identified by a lexical head in the syntax. Aspectual alternations occur via the process of *Template Augmentation*, according to which a less complex event type (e.g. an activity or a state) may be augmented to a more complex event type (an accomplishment or an achievement), but the reverse does not hold. Hence verbs whose basic event type is activity may appear in the event structure template of accomplishments.

An important issue within the constructionalist side of the debate is the nature of the functional projections involved in the syntactic representation of aspect. Some researchers have proposed that there are functional projections specifically dedicated to aspect. Borer (1994) proposes that there is an Aspect Phrase headed by the feature [±EM] (Event Measure) whose specifier position both licenses the aspectual role of the direct object and is the locus of accusative Case checking; hence, in a sense she recasts the purely functional category of AgrO (Chomsky 1993) in a more interpretive mode (also see Borer, this volume). In contrast, Schmitt (1996) and Zagona (1999) specifically propose that the formal category Agr is the locus of aspectual calculation; the purely formal need to check Case provides, as it were, the necessary syntactic configuration for the semantic features of the verb and its internal argument (e.g., Verkuyl's features of [+ADD TO] and [+SQA]) to become visible to each other. Travis' work on event phrases in syntax (Travis 1994, 2000a) also examines this question. She proposes to use the split VP structure originally proposed by Larson (1988) to represent in the syntax each of the predicate operators in the semantic representations of the lexical aspectual classes. The lower VP represents the most deeply embedded stative predicate, while the head of the higher VP corresponds to the CAUSE operator of, for example, accomplishment predicates. In her contribution to this volume she revisits this issue and provides a refinement of her earlier work.

1 2. The representation of sentential aspect

There are two main issues in the study of sentential aspect: (i) the nature of the interaction between sentential aspect and lexical aspect in deriving the interpretation

of the event, and (ii) the syntactic representation of sentential aspect within a highly articulated clausal structure.

Perfective vs. imperfective sentential aspect corresponds to the notions of 'boundedness' and 'unboundedness', and is sometimes conflated with the notions of 'telicity' and 'atelicity'. The two types of aspect can clearly be grammaticalized in different ways, as illustrated by the Bulgarian examples below. Preverbs (aspectual prefixes on the verb) encode telicity, while aspectual tense suffixes encode boundedness. Preverbs and aspectual suffixes are given in bold.

(4) a.   Ivan gotv-i   jadene.   (atelic bounded)
          Ivan cook-AORIST   food
          'Ivan cooked (an unspecified quantity of) food.'

     b.   Ivan z-gotv-i   jadene.   (telic bounded)
          Ivan PREVERB-cook-AORIST food
          'Ivan cooked (some specified quantity of) food.'

     c.   Ivan gotv-ese   jadene kogato ti   dojde. (atelic unbounded)
          Ivan cook-IMPERFECT food   when   you came
          'Ivan was cooking (an unspecified quantity of) food when you came'

     d.   Ivan z-gotv-jase   jadene stom bese svoboden.
          Ivan PREVERB-cook-IMPERFECT food   when was free
                                              (telic unbounded)
          'Ivan cooked (some specified quantity of) food whenever he was free.'

Given the general lack of grammaticalization of lexical aspect in the Germanic and Romance languages, linguists working on these languages have been somewhat divided on the question of the distinction of the two aspects. Verkuyl (1993) argues that viewpoint aspect ('outer aspect') may modify situation aspect, but cannot undo it. For him, there is no essential difference between the two with respect to their interpretive effects, although he recognizes a structural difference, in terms of their place in the syntactic representation of the sentence. The essence of both is that the event (or "temporal entity") is conceived of as bounded; beyond that, he finds the distinction between the two "distracting" (*op. cit.*, p. 11). Smith (1991) points out a clear semantic distinction between lexical telicity and temporal boundedness; as she puts it, telic events finish or are completed, while atelic events, even when temporally bounded, only stop or are terminated.

It is precisely the notion of boundedness that underlies Giorgi and Pianesi's (1997) analysis of perfective vs. imperfective aspect. To distinguish the semantic interpretation of a past imperfective sentence from a past perfective one (as in Italian *Gianni mangiò/mangiava una mela* 'Gianni ate.PERF/ate.IMPERF an apple'), they propose the semantic primitive of TOPOLOGICAL CLOSURE. A perfective predicate may denote only topologically closed events; therefore, the temporal variable associated with the sentence must be existentially bound. Conversely, an imperfective predicate denotes a topologically non-closed event, and the temporal variable may be bound by, for example, a universal quantifier (cf. Bonomi (1997),

who proposes that the imperfect always introduces a quantificational structure of universal quantification over circumstances.) Since a topologically non-closed event is one which does not contain a boundary, this means that a predicate expressed with imperfective morphology must have a process subevent in its event structure.

The issue then becomes how to represent the interaction of sentential aspect and lexical aspect in the syntax, in terms of the functional categories involved. That is, how is the necessary relation between sentential aspect and the relevant subevent of the event structure of the predicate established? One possible approach to this question is provided by Demirdache and Uribe-Etxebarria (1997, 2000, 2002), who set out to provide a syntactic structure for tense and sentential aspect; their general analysis will be discussed in greater detail in the next section.

Nevertheless, an open question is whether such aspectual interactions are represented in the syntax or are more properly treated as post-syntactic, as in Discourse Representation theory. This question is particularly acute for apparent aspectual class alternations which seem to be due not to differences in verb phrase syntax, but rather strictly to morphological distinctions of perfectivity. This is the case in, for example, the Romance languages. Normally stative predicates, when appearing in a perfective tense, denote the inception of a resulting state rather than the state itself, and hence show the linguistic characteristics of achievement predicates, as illustrated by the fact that they may be modified by point of time adverbials (and see Zagona, this volume):

(5) a.   María conocía a Juan por muchos años/*ayer al mediodía.
          'Maria knew (IMPERFECT) Juan for many years/yesterday at noon.'
     b.   María conoció a Juan ayer al mediodía.
          'María knew (PRETERITE) Juan yesterday at noon.'
          = María met Juan yesterday at noon.

The alternation in (5) is an example of aspectual shift. De Swart (1998), working within DR theory, proposes that such examples of aspect shift are coerced by the discourse context, and as such are distinct from aspectual alternations which are overtly marked by explicit grammatical markers. In this sense, sentential aspect works as an "eventuality description modifier", but the coercion itself is due to the interaction of sentential aspect with the immediate linguistic context and external real world knowledge.

The interaction of the two types of aspect thus also bears on the broader question of the nature of the syntax–semantics interface, as well as on the nature of the interaction between the grammar *per se* and extragrammatical factors such as discourse context. These two broad issues have also surfaced in research on first and second language acquisition of aspect.

1.3. The role of aspect in language acquisition

The first and second language acquisition of tense and aspect has probably been the most prolific topic of research in the field of applied linguistics. The body of literature on, say, acquisition of questions, negation, null subjects, even of inflectional morphology, pales in comparison. Furthermore, tense and aspect have been approached from a number of research perspectives with different epistemological affiliations. Although we cannot do justice here to this enormous body of work, we shall briefly mention the main findings, some prominent explanations, and some trends in recent research.

Since the 1970s, the following four associations have been observed when children and adults are learning their first and second languages:

(6) (a) Learners first use (perfective) past marking on achievements and accomplishments, eventually extending use to activities and statives.

  (b) In languages that encode the perfective/imperfective distinction, imperfective past appears later than perfective past, and imperfective past marking begins with statives, extending to activities, accomplishments, and achievements.

  (c) In languages that have progressive aspect, progressive marking begins with activities, then extends to accomplishments and achievements.

  (d) Progressive marking is not incorrectly overgeneralized to statives.

Based on those observations, the claim of the *Primacy of Aspect* (POA) *Hypothesis* (Antinucci & Miller, 1976; Bloom, Lifter & Hafitz, 1980; Bronckart & Sinclair, 1973) is that the language acquirer initially marks aspect, rather than tense. Many explanations for the observed associations have been proposed so far. The *Prototype Theory* explanation argues that these associations are due to some mapping of prototypical features. For example, the prototype for the category "progressive" can be characterized as "action in progress". The lexical classes that exhibit this meaning are activities, having the semantic features [dynamic] and [atelic]. Within L2 acquisition research, Bardovi-Harlig (1998) has argued for a role for discourse factors. The discourse explanation argues that narrative structure influences the distribution of tense-aspect morphology in interlanguage: predominantly perfective in the foreground, predominantly progressive in the background. The hypothesis is that ultimately the acquisition of the appropriate verbal morphology is tied to the discursive ends for which the perfective/ imperfective distinction is employed.

Early generative approaches to the issue include Bickerton's (1981, 1984) Language Bioprogram explanation that two semantic contrasts are pre-programmed, so they emerge early in child language: the state–process distinction, and the punctual–nonpunctual distinction. A more recent offering is Olsen and Weinberg's (1999) Subset Principle (Berwick, 1985; Wexler & Manzini, 1987) explanation. Children begin the acquisition process constrained by parametric options.

Furthermore, due to learnability considerations, they initially hypothesize the smallest possible grammar, which they can later abandon in favor of a more inclusive grammar only on the basis of positive evidence. In the acquisition of aspect, the most restricted association that children can posit is one-to-one. Since there exist natural languages (for example, Mandarin and Korean) that make use of straightforward associations—'one lexical aspectual feature is always linked to one grammatical aspect morpheme'—it is argued that children assume this most restrictive mapping as their initial hypothesis. At the onset of the acquisition process, imperfective is mapped onto dynamic, durative predicates, and perfective is mapped onto telic predicates. If these initial values are incorrect for a specific language, upon hearing child-directed speech that disconfirms them, children will relax their initial undergeneralization.

What has not been clear from this body of research, however, is the extent to which L1 and L2 acquirers actually know the relevant semantic interpretations of the aspectual distinctions. In her pioneering work on child acquisition of lexical aspect, van Hout (1998) defines the theory of telicity at the interface of the lexicon, syntax, and semantics. She is interested in how Dutch children acquire the event-semantic knowledge of verb-frame alternations (e.g., activity versus accomplishment, signaled by presence of an object of [+SQA]). van Hout finds that children up to the age of five do not know the exact aspectual implications of the transitive–intransitive alternation, nor do they aspectually distinguish predicates with [+SQA] objects from those with [–SQA] objects. These findings are compatible with similar experimental results from English child language acquisition (Wagner 1997). The question arises, then, of how to integrate the claims of the POA Hypothesis, according to which children use lexical aspect to bootstrap themselves into viewpoint aspect, and the findings of van Hout and Wagner, according to which children are not aware of grammatical markers of lexical aspect.

Furthermore, as van Hout and Hollebrandse's (2001) and Wagner's (1998, 2001) research findings suggest, even children who produce adult-like aspectual viewpoint morphology may have non-adult aspectual interpretations. Explaining why this is so is one of the most promising areas of future research on aspect acquisition. Within second language acquisition, work by Montrul and Slabakova (2002, 2003), Slabakova and Montrul (2002, 2003), Slabakova (2001) as well as Kozlowska-Macgregor (this volume) follows this intriguing avenue of further research into interpretive properties of language development (see Slabakova (2002) for an overview of recent acquisition research on aspect).

2. THE ARTICLES

The papers from the workshop clustered within three main areas of research, and are so organized in this volume. The papers in Part I are primarily concerned with the internal structure of the clause and its relationship to lexical aspect. The papers in Part II examine, from a variety of perspectives, the interaction of aspect, tense and discourse, while the papers in Part III present research results from studies on aspect in first and second language acquisition and in language attrition. As we had

hoped would be a result of the workshop, several common themes arose which cut across these divisions, and we have chosen to summarize the contributions to this volume in an order which highlights these links.

A number of papers address the issue of the relationship of event structure and the syntactic projection of arguments, and the determination of the true locus of situation aspect: as a lexical property of verbs, or as a result of the syntactic structure into which the verb and its arguments merge. The paper by **Elizabeth Ritter** and **Sara Rosen** sets out a programmatic approach to the investigation of how event information is encoded in the syntax. Noting that a considerable body of research converges on the view that certain functional categories are the grammatical expression of event information, they propose a tripartite classification in terms of how languages organize arguments in the syntax: object split languages, subject split languages, and topic-comment languages. The first two types grammaticize the "contours of the event", either by encoding event delimitation (object split languages) or event initiation (subject split languages). The third type, by their proposal, does not encode event structure at all in syntactic structure, but rather organizes arguments on the basis of their discourse function.

Object split languages—that is, languages which do not mark all objects alike—generally distinguish between objects on the basis of definiteness. The definiteness distinction may in turn be related or not to event delimitation, depending on whether the [Quant] feature on the head of Aspect Phrase is uninterpretable or interpretable. Subject split languages, on the other hand, show Case distinctions on subjects based on either animacy/person restrictions or on agentivity vs. non-agentivity. Ritter and Rosen propose that such languages grammaticize event initiation, with the relevant functor category being TP, carrying a [person] feature. Finally, in the third type of language, topic–comment languages, there are no event features to be checked in the syntax, nor, as a consequence, phi-features. Such languages, therefore, are predicted to have no subject requirement.

Clearly within the realm of aspect studies, the most extensively studied type of language in Ritter and Rosen's classification are languages which grammaticize event delimitation, where, following in particular work by Krifka (1989, 1992), the relevant semantic property of the object (Verkuyl's +SQA) is usually assumed to be quantization. This is precisely the issue taken up in her paper by **Hagit Borer**, who argues that the relevant notion is not quantization, but rather quantity. She starts by examining the syntactic and semantic characterization of quantity in nominals. She notes that if in DP there is assumed to be a functional projection of Quantity Phrase (#P), in which prenominal quantifiers such as *some, too much* or *three* are located, then it is desirable to assume that the nominal plural affix –*s* is not a head of #P, but rather is a classifier. Syntactically, bare plurals are like mass nouns in lacking #P. Semantically, bare plurals do not presuppose the existence of singulars, in contrast with vague quantifiers such as *more than three (apples)* which do, at least, imply the existence of (in this case) at least three singulars. Borer proposes that a nominal (specifically, a direct object) may license telicity whenever #P within DP has some value, thus deriving the lack of telicity with bare plurals.

The crucial distinction, Borer argues, between quantization (as in Krifka's work) and quantity is that quantization requires that every subpart of a quantized P be not P, while P may be quantity iff P is not homogeneous, which does allow for the possibility that some parts of P may be P. She proposes that semantic quantity is mediated through a specific functional structure, Asp_Q. In Spec of this projection, a nominal with quantity transfers the quantity value to the head Asp_Q, rendering the event represented by the V as a quantity event. In languages such as English, the quantity nominal is necessary for telic interpretation precisely because the nominal is the source of the feature [quantity], while in Slavic-type languages the preverbal prefix which typically appears on accomplishment predicates assigns quantity value directly to the head of Asp_Q. In the final part of her paper Borer shows how the weaker notion of quantity applies profitably to the computation of telic events: a predicate may be non-homogenous, and hence telic, even if some subparts of the event are proper subparts (the case of *run to the house*), or proceed past the 'endpoint' (*fill the room with smoke*) or involve actions which cannot be measured by changes in the direct object (*read a book*). Borer argues that "co-finality" is in fact just a special case of telicity, rather than the defining case.

Lisa Travis also takes as her point of departure the link between properties of the object (Case-marking, movement) and the calculation of telicity, questioning the view that it is (functional) specifier positions outside of the verb phrase which are crucial for the computation of aspectual classes. Her goal is to explore an alternative approach, according to which the syntactic structure and operations relevant to the computation of aspectual classes occur entirely within the verb phrase, specifically, within vP. The structure which she assumes for vP includes a Aspect projection between vP and VP, as in Ritter & Rosen's discussion of event delimitation languages, and is the location of one of the three positions within vP relevant for the calculation of telicity: the head v of vP, the head Asp of AspP, and the head X of a lexical complement category within VP, generally PP or AP.

Any of these three positions—v, Asp or X—may express the endpoint of an event, according to specific options realized by individual languages. In addition, the heads Asp and v may also encode a beginning point, and v may encode an arbitrary point in the event. Thus in Malagasy a morpheme merged into the head Asp encodes either the endpoint of the event or the beginning point, depending on the basic lexical class of the main verb. The Slavic preverbs, which for Travis are in v (rather than in some Asp(ect) position, as for Borer) may express the natural endpoint, beginning point, or arbitrary endpoint in the event, depending on the particular preverb. A given language may in fact employ more than one of these three telicity markers, as she shows with her analysis of complex verbs in Navajo and Slave. The overall picture which emerges from her analysis is that situation aspect is syntactically encoded in terms of positions within vP, but is quasi-lexical in nature in that vP is assumed to be the domain of idiosyncratic lexicalization; that is, it is the l-syntax domain (Hale & Keyser, 1993).

The acquisition study by **Martyna Kozlowska-Macgregor** addresses precisely the theoretical issue of the aspectual contribution of the Slavic perfective preverbs to VP interpretation, using data from Polish. Exploiting the distinction

between syntactic (s-) and lexical (l-) syntactic features involved in morpho-syntactic derivations as proposed by Travis, Kozlowska-MacGregor describes two homophonous prefixes *po-*. One instantiation of *po-* conveys that the event or state continued for a while; the other *po-* morpheme is used with plural objects and describes a bounded series of events completed one after another. She argues that these two morphemes have semantic features, and consequently different syntactic positions: one in l-syntax and the other in s-syntax. The empirical base of the paper is an L2 study which tested whether English learners of Polish are aware of these subtle interpretive properties. The theoretical account is validated by the strong performance of the Polish native speakers, while the near-native speakers' performance reveals an unstable, complex system, in which knowledge of l-syntactic features is present but knowledge of s-syntactic features is not.

The paper by **Raffaella Folli** and **Heidi Harley** also focuses on one of the three telicity markers in Travis' schema: the nature of v. They set out to show that the main empirical problem for constructionalist approaches to aspectual calculation—namely, the lack of alternation patterns of the activity to accomplishment variety across all transitive verbs—can be satisfactorily accounted for if the locus of variability is taken to be not the lexical verb, as in lexicalist approaches, but rather the light verb v. Specifically, they propose that v is available in three "flavors": v_{DO}, v_{CAUSE} and v_{BE}, with each requiring a particular type of complement structure and imposing specific requirements on their external arguments. Thus v_{DO} may appear with an incremental theme and must have an animate subject, as in *John ate the apple*, but v_{CAUSE} must appear with a resultative complement of a change of state and need not have an animate subject, as in *The sea ate the beach away*. A fundamental assumption of their analysis is that the event structure of predicates is decomposable both syntactically and semantically. In structures with v_{CAUSE}, there must be a syntactic projection which encodes the resultant state, because what CAUSES do is to initiate a change of state. For Folli & Harley, this syntactic projection is a small clause structure. The alternation between event types and hence between "flavors" of v has language-specific reflexes; in this paper they concentrate on the role of the verbal particle in English and on the role of the inchoative reflexive morpheme *si* in Italian,

Folli & Harley go on to briefly discuss some possible extensions of their approach, noting various verb classes in which animacy restrictions—for them, the result of inserting one type of v versus another—surface systematically with changes in event structure. This recalls Ritter & Rosen's discussion of subject split languages which encode such animacy distinctions grammatically.

A different case of aspectual alternation is analyzed by **Mai Tungseth**: the variable behavior of combinations of verbs of motion and certain stative prepositions in Norwegian, shown in (7):

(7)   Jon syklet i grøfta   i en time/på to sekunder.
         Jon biked in ditch.DEF for an hour/in two seconds
         'Jon biked in the ditch for an hour/into the ditch in two seconds.'

Also adopting an essentially constructionalist approach to aspectual classification, she argues that the two different interpretations of sentences such as (7) are a function of the location of the PP *i grøfta* in the syntactic structure. In both cases, the PP is assumed to be the complement of a generally phonologically empty F head. In the telic, directed motion interpretation, this FP appears in a complement position to the verb, while in the atelic, located motion interpretation, the FP is outside the VP in an adjunct position. VP constituency tests such as VP-topicalization and *do*-substitution support this analysis: only when the PP is interpreted directionally, as shown by the co-occurrence of interval adverbials, does it behave syntactically as part of the VP. These constituency tests are further bolstered by data on accent placement and on binding; for example, a direct object may bind a possessive anaphor within the PP only when the PP has a directional interpretation.

The basic analysis is cast in terms of feature-checking: the head F of the FP dominating the PP carries an uninterpretable [dir(ectional)] feature which must be checked by the corresponding interpretable feature on the verb. On the assumption that this checking must take place within the verb's complement domain, the FP will have the [dir] feature checked only when it is in a complement position to the verb. Locative PPs, on the other hand, are assumed to represent the default reading; hence, the F head of the dominating functional projection has no feature to be checked, and so may appear in adjunct position. Tungseth extends the analysis to case of complex directional PPs, in which a directional particle is proposed to be the overt realization of the [dir] feature.

Although Tungseth's analysis is cast within a constructionalist stance, it does appeal as well to a minimal notion of lexically-based variation, in that it proposes that it is the interpretable [dir] feature carried by the verb which satisfactorily checks and deletes the uninterpretable feature on the FP. **Cristina Schmitt** initiates her paper by highlighting the difficulty of separating non-compositional meaning from compositional meaning, particularly within Distributed Morphology (DM), which essentially eliminates the division between lexical rules and syntactic processes. If "lexical" properties of a verb include both the idiosyncratic (encyclopedic) meaning of the root, plus its abstract aspectual features, and if both of these contribute to licensing of the verb's arguments, then the task of separating the one from the other becomes a tricky one. Her aim in this paper is to tackle this problem by concentrating on the aspectual properties of copulas and copula-like verbs, since these are verbs which as lexical items are severely underspecified. To do this, she focuses on the Portuguese copulas *ser*, *estar* and *ficar*, and she employs tools from both DM and the Generative Lexicon (GL) as set forth in Pustejovsky (1995). Since for DM copula-like verbs are essentially the analytic spell-out of the processes which create synthetic words, isolating their properties is a means of precisely identifying these processes. At the same time, she proposes to show that the basic aspectual 'ingredients' of a verb's lexical representation such as STATE, PROCESS or TRANSITION, as proposed by Pustejovsky, can characterize the basic meanings of these three copulas. Copulas are v elements; *ser* is a 'pure v', *estar* denotes a state and is hence v + P[STATE], and *ficar* denotes a transition and is

therefore v + P[TRANSITION]. These aspectual features can also account for predictable meaning shifts, according to the nature of the complement—for example, 'act be' readings of *ser* and 'become' vs. 'stay' readings of *ficar*, depending on whether the complement is an AP or a PP.

That a PP within VP plays a crucial role in determining telicity is well-known from examples of the type *John pushed the cart to the river*, where the PP is a Path (Tenny, 1994; Jackendoff, 1996) establishing a spatial axis which measures the progress of an event participant. **Karen Zagona** in her paper provides an analysis of the temporal interpretation of double access readings, as in (8), based on a temporal notion of Path:

(8)   John said/announced that Mary is in Seattle.

The term 'double access reading' (DAR) reflects the fact that the time of the embedded (stative) predicates includes both the time of the matrix event and speech-time. Zagona notes that the availability of the DAR is aspectually constrained in that the matrix verb must be non-stative, and proposes that if a constituent bears features which allow it to be construed as a (temporal or spatial) Path, then that constituent can be interpreted as a (temporal or spatial) location. In (8) the embedded clause provides a temporal location for the matrix event. More precisely, she adopts Jackendoff's principle of Structure Preserving Binding, by which an event is interpreted as bounded if there is an identity relationship [Event^i Path^i Time^i]. Zagona gives evidence showing that for verbs of communication, the (temporal) Path is the communicative activity itself. Since the temporal relationship of the embedded CP in sentences such as (8) to the matrix event is one of inclusion but not identity, it must therefore be the case that the CP is syntactically outside the scope of the operation of Structure Preserving Bounding. This suggests that it is structurally akin to a depictive adjunct, which she proposes is adjoined to AspP, where AspP is the functional projection headed by sentential (grammatical) aspect, dominating VP. As she notes, this makes these CPs structurally parallel to the locative PPs in the aspectually ambiguous Norwegian sentences analyzed by Tungseth. In the final section of the paper she considers an alternative syntactic analysis, based on a structural analysis of Path constituents along the lines of Hale and Keyser's (1993) analysis of verbs such as *put*.

The paper by **Hamida Demirdache** and **Myriam Uribe-Etxebarria** also considers temporal relations in spatial terms, focusing on the syntax and semantics of sentential Aspect and Tense. They have argued in previous papers that there is a single, uniform grammar for temporal and aspectual relations, based on the notion that tenses, aspects and time adverbials are dyadic predicates of spatiotemporal ordering. Tense has an external argument of Utterance-Time (UT-T) and an internal argument of Aspect Phrase, headed by Aspect, which in turn has an external argument of Assertion-Time (AST-T) and an internal argument of VP, whose external argument is Event-Time (EV-T). Like purely spatial entities, these predicates locate some Figure with respect to the Ground, and thus establish relations of inclusion, subsequence or precedence. In this paper the authors focus on

temporal modification by time adverbials, proposing that temporal modification is semantically and syntactically parallel to nominal modification. A time adverbial is base-generated adjoined to the temporal phrase whose reference it restricts. For example, in the sentence *Abdel had left the house at 3 pm*, the PP may either be adjoined to EV-T, yielding the reading that the leaving occurred at 3 pm, or it may be adjoined to AST-T, yielding the reading that the leaving had occurred prior to 3 pm. They extend this analysis to bare locating time adverbs such as *yesterday*, which they claim are headed by empty Ps of central coincidence, hence establishing an inclusion relation, and also discuss various syntactic restrictions on the co-occurrence of multiple adverbs.

In the final section of their paper, Demirdache & Uribe-Etxebarria turn to the analysis of the temporal relations between subordinate and matrix clauses, which they argue are governed by two economy principles. A temporal derivation is optimal if this derivation yields some ordering of the Assertion Time of one clause relative to that of another clause, and if no step in the derivation is semantically vacuous. They demonstrate how the interaction of these two principles accounts for both possible and impossible temporal relations between clauses, both for complement subordinate clauses and adverbial subordinate clauses. Their model explicitly assumes that temporal interpretation happens at various steps in the derivation, and is therefore couched within a view of the grammar that conceives of a multiple interface between syntax and semantic interpretation.

The interaction of lexical aspect and grammatical aspect is addressed by the intriguing study by **Asya Pereltsvaig**, focusing again, as in Kozlowska-Macgregor's study, on the issue of Slavic perfective preverbs/prefixes. Her objective is to determine what exactly these prefixes encode in the grammar of attrited Russian speakers (usually second-generation immigrant speakers, whose native Russian system has changed since they have become English-dominant). Assuming that Russian prefixes are grammatical aspect markers, Pereltsvaig argues that the attrited Russian grammar, unlike standard Russian, does not include a functional projection for encoding grammatical aspect, which she labels OuterAspP. This reduction of standard Russian phrase structure is possible if one assumes that grammatical aspect locates the event in time, as in the analysis by Demirdache & Uribe-Etxebarria, and that events and times are of the same ontological type. Accordingly, standard Russian encodes reference time in OuterAspP, speech time in T, and event time in vP, while in attrited Russian TP selects vP directly as a complement. Therefore T relates the interval E with respect to speech time. Essentially, attrited Russian uses the perfective morphology to encode lexical aspect. Fewer temporal relations are encoded, but the semantic computation still goes through because of the above assumptions. But what are the temporal relations that are lost in this simplified system? Pereltsvaig shows that the semantic relations of precedence and simultaneity, as expressed by the progressive (*John is eating right now*) and perfect morphology (*John had left by 5 o'clock*) cannot be expressed in American Russian. Thus a syntactic analysis of tense and aspect along the lines of Demirdache & Uribe-Etxebarria's proposal is put to work in accounting for language breakdown phenomena.

The idea that temporal and aspectual interpretation is based on the same set of semantic and syntactic primitives is further supported by **Nina Hyams'** study, in which she accounts for a curious pattern in child Greek: the use of a bare perfective form with third person singular frozen agreement. She argues that this form is a root infinitive analogue in Greek, a language without infinitives. The bare perfective form has a number of identifiable properties: it is non-finite, since the agreement morphology is not productive; it has a modal or irrealis meaning; it is restricted to eventive predicates; and it co-occurs with finite clauses. These properties bring the bare perfective in line with root infinitives in Germanic languages, French, and Russian. In the early grammar, Hyams argues, there is an opposition between modal and non-modal, or temporal, meanings, which children map onto non-finite and finite verbal forms, respectively.

Hyams analyzes the construction as follows: in the adult grammar, the hierarchy of functional projections is MoodP – TP/AgrP –AspP – VP. In the child grammar, on the other hand, TP/AgrP and AspP are underspecified. In other words, the time-denoting heads are eliminated; the perfective feature merges under V and is checked against Mood. In this way, the analysis derives the lack of productive agreement and the modal reference effect. But what is the connection between modality and perfectivity? Deontic, or volitional modality encodes a polarity transition: to require, want, or intend P means that at the present stage, no P is true, while P will be true in some future interval. The same transition feature $(\neg P$, then $P)$ is involved in perfective aspect. In line with the continuity hypothesis (child grammar falls within the hypothesis space constrained by UG), Hyams identifies cases in Romance dialects in which features originally lower down in the tree, e.g., the past feature, can also license Mood.

The interaction between lexical (situation) aspect, grammatical (viewpoint) aspect and tense is also a concern in the paper by **Carlota Smith**, but at the discourse rather than sentential level. Her unit of analysis is the passage, and she posits the existence of five "discourse modes", each of which can be characterized by a certain cluster of linguistic features. She sets out to demonstrate that aspectual situation categories identify specific types of discourse units, thus providing a framework for the linguistic study of discourse. In setting up this framework, she proposes to expand the classes of situation entities to include the classes of abstract entities and general statives, in addition to the more familiar eventualities of specific events and states. Each of the discourse modes has a predominant type of situation aspect; thus, for example, the Narrative mode is characterized by eventualities while the Report mode is characterized by a mixture of eventualities and general statives. A major section of her paper is devoted to the analysis of text progression in each of the five discourse modes. According to the discourse mode and hence the type of predominant situation entities, this advancement will either be temporal or atemporal. Atemporal text progression may be reflected by changes in spatial location—continuing the analogy of spatial and temporal progression—where this spatial location may be actual (Description, e.g. of a scene) or metaphorical, with changes of location through the information space of the text (Argument and Information modes). Smith illustrates text progression for the five discourse modes

with examples of written text extracted primarily form non-fictional sources such as magazine and newspaper articles. She argues that couching the study of discourse in terms of these discourse modes is potentially more useful than focusing on genres, because the latter is very context-dependent.

Two papers in the volume address the discourse functions of aspect within the framework of Segmented Discourse Representation Theory. **Patrick Caudal**'s contribution, in his own words, is an attempt at a formal semantic treatment of viewpoint aspect, but in actual fact it formalizes the way aspectual meanings are calculated right up to the level of integrating discourse information. He distinguishes his theory from recently proposed approaches to viewpoint aspect in the literature, namely, de Swart's (1998) proposal that the aspectual contribution of the tenses is to provide aspectual type shifts; Kamp and Reyle's (1993) stage decomposition approach within Discourse Representation Theory, and Pustejovsky's (1995) mereological approach, treating stage relations as part-of relations. Caudal's model actually incorporates features from some of the models mentioned above. He discriminates among at least three canonical types of eventuality stages: 1) the inner stages or core stages, ascribed to all eventualities, they are "picked out" by the neutral past simple tense (for example, for telic predicates, the inner stages include the terminus); 2) preparatory stages, or causal stages selected under some prospective readings of the progressive tenses, e.g., *John was reaching the summit*; 3) resultative stages, also ascribed to all eventualities and focused on by the perfect tenses. The defining property of stages is their ability to come into focus as a result of the application of viewpoint operators. He argues that much aspectual information, in the form of eventuality descriptors, is encoded in the lexicon; a verbal lexical item contains at least some information about stage salience. At the next level, he views aspectual tenses as "camera lenses" capable of focusing on a particular stage as per the viewpoint of the speaker (recalling Smith's (1991/1997) term of viewpoint aspect). Furthermore, aspectual VP modifiers (adverbials) also have the ability to bring stages into focus. Finally, context is the ultimate "focuser" of stages. Caudal's theory is inherently modular, since all these operations can be viewed as presupposing one another hierarchically and extending over time. Thus, his model is compatible with the findings of the acquisition studies by Pereltsvaig and Hyams, discussed above, as well as the study by van Hout, to be discussed below.

Building on the viewpoint aspect treatment proposed in Caudal's article, **Patrick Caudal** and **Laurent Roussarie** treat tenses not simply as viewpoint operators, but as illocutionary viewpoint functions which constrain rhetorical relations. They start out from the classic observation that not all aspectual tenses can appear in all speech acts. For example, the French *passé simple* cannot occur in hypothetical speech acts while the *imparfait* can. Following work by Asher and Lascarides (1994, 1998, 2001), the authors assert that the viewpoints themselves are a specific sort of speech act information, capable of interacting with discourse interpretation via discourse relations. One of the applications of this theory is demonstrated by describing and capturing formally the illocutionary force of the perfective and imperfective aspect in French. The perfective viewpoint is simply

assertive, while the imperfective viewpoint is discursively underspecified. This means that it can be associated with a variety of speech acts. Although its main contribution out of context is to provide the background discourse relation, this function is defeasible by context. All of the rest of the conversational implicatures of the *imparfait* (e.g., free indirect speech (9), politeness *imparfait* (10), and so on) are compositional interpretive effects and not part of its semantics.

(9)   Il partait, sa décision était prise.
        'He was leaving, he had made his decision.'

(10)   Je voulais voir mon fils.
        'I wanted to see my son.'

Similarly, the narrative use of the *imparfait* (used to describe subsequent finished events) is due to its use within the context of a literary narration, a fact which remains unexplained by existing viewpoint theories. It is conceivable that the added complexity of the imperfective as opposed to the perfective is reflected in longer processing time, later acquisition, and faster attrition.

In her experimental study of children's knowledge of viewpoint aspect in Polish, **Angeliek van Hout** specifically sets out to determine whether children display "imperfect" or "perfect" imperfectives in their grammar. To do this, she improves on the methodologies of previous studies on this topic. Whereas previous comprehension experiments gave children a choice of only two different situations, she presents children with three kinds of situations: complete, incomplete, and ongoing. In addition, the experimental setup requires the children to integrate an event variable into an existing discourse structure. Adults chose only completed situations when given perfective verb sentences and only ongoing situations for imperfective verb sentences, as the discourse structure integration for the specific situation posits. On perfective verbs, children behaved like adults; in contrast, they mapped all three types of situations onto imperfective verb sentences. Van Hout argues that the most plausible explanation for this non target-like pattern is that children are aware of viewpoint aspect semantics, but somehow fail to integrate this knowledge at the semantics–discourse interface. More specifically, children fail to relate the event of the test sentence to the relevant one in a sequence of events specified by the particular discourse structure of the test situation.

Apparent difficulties in the acquisition of imperfective grammatical aspect in second language acquisition are the concern of **Kathleen Bardovi-Harlig**'s contribution. Her point of departure is the Aspect Hypothesis (Andersen and Shirai 1994, see section 1.3 above), and she addresses the second part of this hypothesis: in languages that encode the perfective/imperfective distinction, imperfective past appears later than perfective past, and imperfective past marking begins with statives, extending next to activities, then to accomplishments, and finally to achievements (Shirai, 1991). This particular claim has been little investigated, perhaps because the bulk of the L2 studies in this area have been based on L2 English, and English does not have (simple) imperfective aspect. Bardovi-Harlig

surveys what has been established in the literature on second language acquisition of the imperfect. Several factors have been documented as influencing the distribution of imperfective morphology. Narrative structure (text structure) is one factor, in that the imperfective is typically found in the background part of the learner narrative (where native speakers would also use it). Another factor is the type of narrative: learners are more accurate with the use of imperfect in personal narratives than in impersonal ones. Many studies have found that only a very limited number of stative verbs appear with the imperfect, contrary to the Aspect Hypothesis claim; this is attributed to limited lexical knowledge. Bardovi-Harlig discusses the well-documented late acquisition of the imperfect and the possible sources of this delay, and suggests new avenues for research on the imperfect in second language acquisition, taking into account its poly-semantic nature and its discourse functions. That is, learners seem not to have acquired the discursive underspecification of the imperfect discussed by Caudal and Roussarie.

As we have shown in this introduction and review of the articles, approaching the study of aspect from the perspective of different subdisciplines broadens our understanding of the general phenomenon. We believe that the different angles brought together in this volume have resulted in a more comprehensive picture of the representation of aspect in the mind/brain of the speaker.

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PART ONE

ASPECT AND THE INTERNAL STRUCTURE OF THE CLAUSE

ELIZABETH RITTER AND SARA THOMAS ROSEN

TOPIC OR ASPECT

Functional heads, features and the grammaticization of events[*]

1. INTRODUCTION

In recent years, there have been a number of attempts to explain how and to what extent event information is encoded in syntactic structure. Proponents of the view that event information is encoded in the syntax (including Borer, 1994, 1998; van Hout, 2000; Kratzer, 1989; Manzini & Savoia, 1998; Ramchand, 1997; Ritter & Rosen, 1998, 2000, 2001; Travis, 2000a) have all assumed that it is the functional categories within the extended projection of the predicate that encode such information. Building on our own previous work, we provide evidence that if event information is grammaticized, it is encoded in the functional head responsible for licensing direct objects. Specifically, a language that grammaticizes event delimitation has Aspect in its inventory of functional categories. We assume that in such a language Aspect carries this information, and only objects that delimit the event check their phi/Case features in Spec, AspP (Travis, 2000a). Objects of non-delimited predicates either fail to check their features or check them *in situ*. This leads to object splits not only on the basis of delimitation, but also on the basis of properties of the object, including specificity or definiteness. Languages with object splits based upon aspect are languages that grammaticize event delimitation.

In contrast, a language that has no aspectual feature associated with the functional category that mediates object agreement and Case has no grammatical reflexes of delimitation (or telicity). We argue here that there are two alternative organizing principles for such a language. One alternative is to organize the arguments around agentivity. We assume that the phi and Case features of the subject are checked in Spec, TP, following Chomsky (2001). In languages that grammaticize agentivity, Tense carries information about agents, i.e., only agentive subjects check their phi/Case features in Spec, TP. Non-agentive subjects either have no phi features to be checked, or they check their features elsewhere. The result is a split in the behavior of subjects, based upon person or animacy, since prototypical agentive subjects are animate or human (Dowty, 1991). The claim, then, is that languages that have subject splits along the lines of person or animacy are languages that grammaticize agentivity.

The other alternative is to organize the arguments based on their discourse function, e.g. whether they serve as topic or comment. Reasonably there needs to be

some basic organizing principle that determines how the pieces of a sentence are put together. Observationally, there are two possibilities: the discourse—what it is that the speaker is talking about, and what he or she has to say on the topic; and the event being described—who is doing what to whom. In the first case, the relationship between the topic, the most prominent DP in the clause, and what follows is unpredictable; the topic may bear any thematic role in the event denoted by the verb. In the second case, the clause is structured around the verb and its arguments, and the interpretation of the most prominent DP, the subject, is predictable, given the meaning of the verb.

We follow Rizzi (1997) in assuming the existence of a Topic Phrase whose head (Top) lacks features; this lack of features permits an explanation of the following facts: (i) TopP is completely optional (there are no features to check); (ii) there is no topic agreement (again, there are no features); and (iii) whenever TopP is present, an XP moves into its Spec (if the head is empty the Spec must be filled). As a discourse feature, Topic appears at a syntactic edge. Edge-related processes are post-syntactic and do not have the capacity to look inside syntactic constituents.

The functional category Topic is fundamentally different from Tense and Aspect in two important respects (i) it is optional and (ii) it lacks phi and Case features. These differences are due to its distinct function: Topic provides information about the structure of the discourse, not the event. Cross-linguistic variation in the content of Tense and Aspect is attributed to variation in the feature content of these heads. Cross-linguistic variation in the frequency of topic sentences is related to the degree to which event information is grammaticized: Topic sentences will be most common in a language that fails to grammaticize either agentivity or delimitation simply because such a language will rely more heavily on discourse determined sentence structure when event information is unavailable as an alternative.

Thus, we will argue for a tripartite classification of languages. Some languages organize their arguments according to their discourse function while others organize them according to properties of the subject or the object. For those languages that use the arguments as the primary organizational component, some languages do so by means of delimitation or telicity while others do so by means of person or animacy of the subject.

Our approach is minimalist in that we assume only those functional projections that have independent semantic motivation, i.e., projections of temporal functional categories, Tense and Aspect, and a discourse-determined functional category, Topic. Additionally, we assume that the feature content of these heads is minimal—spatio-temporal features as required for Tense and Aspect (perhaps along the lines of proposals by Demirdache & Uribe-Etxebarria, this volume), and in some languages, these functional categories may or must also bear phi and Case features. An analysis of the content of Tense and Aspect will determine whether a given language grammaticizes event initiation and/or delimitation.

2. GRAMMATICIZING DELIMITATION

2.1. Object Splits

An object split language is one that does not mark all objects alike. For example, some objects receive accusative Case while others receive some other kind of Case; or some objects trigger verb agreement while others do not; or some objects undergo object shift while others do not. We have observed two types of object splits: (i) those that are conditioned by the definiteness or specificity of the direct object, and (ii) those that are conditioned by aspect—the delimitation of the event— in addition to the definiteness or specificity of the object.

Languages that grammaticize delimitation do so via object splits. Delimited events are quantized in the sense of Krifka (1989, 1992)—in other words, they are discrete and countable. The event participant that bounds, delimits or terminates the event is the delimiter, and the prototypical delimiter is an affected object (Tenny, 1994). The general claim is that objects that delimit tend to be quantized as well; they are definite or specific, discrete and countable. Borer (2004, this volume) discusses the notion of quantization in detail, and argues that quantity in the event cannot be equated with delimitation. The structural manifestations of telicity, she argues, are manifested of events with quantity, and not necessarily of events with perceived ends. We argue that the quantization of events and the quantization of direct objects are different manifestations of the same object checking relation.

Icelandic and Hebrew both have object splits based upon the definiteness of the object. Mandarin Chinese, Finnish and Russian all have object splits based upon definiteness of the object and delimitation of the event.

In Icelandic, object shift is not conditioned aspectually, as the examples in (1) and (2) show. Only definite direct objects may undergo object shift, and in particular, object shift in Icelandic is not sensitive to the delimitation of the event, as shown in (3) and (4) (examples from Collins & Thráinsson, 1996, p. 392; Diesing, 1997, p. 412).

(1) a.   Jón   las   ekki   [bækurnar].
            John read   not   the books
            'John did not read the books.'

     b.   Jón   las   [bækurnar] ekki.
            John read the books   not

(2) a.   Ég pekki ekki [Jón].
            I   know not   John
            'I don't know John'

     b.   Ég pekki [Jón] ekki.
            I   know John   not