

Introduction

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Event structure is a term that is used both more and less technically by linguists, but which we can define here in a general way as the formal characterization or representation (in whatever terms) of the different components of eventualities and the relations between them. Such components include both the types of participants eventualities can have and aspects of the eventualities themselves, such as whether or not they have a homogeneous part structure, whether they involve causation or change, and whether they are incremental. A theory of event structure for linguistics should explain how our conceptualization of eventualities is encoded in language, what morphosyntactic and semantic notions and processes best characterize these different components, and what cross-linguistic variation exists in the possible structures and interpretations of the expressions that we use to describe eventualities. Thus, a crucial task in the development of such a theory is the exploration of eventuality-denoting expressions from diverse categories in typologically distinct languages. However, it is reasonable to assume that, given the relation between language, the world, and our perception of the world, a linguistically responsive theory of event structure should also have broader implications for the study of eventualities in the domains of philosophy and psychology.

The chapters in this volume all revolve around three key components of event structure: telicity (understood informally for the moment as the existence of a “natural” endpoint to an event), change, and the notion of state. We have chosen to focus on these because they are intimately connected to each other, they are fundamental to understanding the linguistic description of eventualities, and though they have been the object of considerable study, many questions remain concerning their nature and analysis. In addition, a significant number of the chapters explore these components of event structure from some sort of cross-categorical perspective, rather than focusing exclusively on the behavior of verbs. This perspective has several advantages. First, and most obviously, it increases the amount and variety of data that can be brought to bear on the analysis of event structure. Second, it increases the

possibility that the study of event structure phenomena can shed light on general organizational principles of human language, particularly with respect to the interface of morphology and syntax with semantics. Finally, the cross-categorial view facilitates the identification of event-structure sensitive parametric variation in language that might otherwise go unnoticed.

In the remainder of this introduction, we first briefly discuss some of the key open questions surrounding the notions of telicity, change, and state that are addressed in this volume. We then review the main issues that emerge when event structure is considered at the interface between the lexicon, syntax, and semantics and illustrate some of the benefits of the cross-categorial perspective that we have emphasized in the elaboration of this volume, particularly when accompanied by cross-linguistic data. The introduction closes with an overview of the individual chapters.

1.1 Telicity, change, and state

Telicity and change as properties of eventualities are clearly intimately connected: one of the most prototypical ways to associate an eventuality with a natural endpoint is for the event to involve a change from one state to another, explicitly defined, state. For example, the sentences in (1.1) describe situations whose endpoint is reached, respectively, when the house is destroyed, the soup is 10 degrees cooler than it was at the start of the cooling, when the cow is at the barn, and when the plane is at the gate.

- (1.1) a. The fire destroyed the house.
 b. The soup cooled 10 degrees.
 c. The cow walked to the barn.
 d. The airplane arrived at the gate.

Nevertheless, the class of telic predicates and the class of predicates used to characterize change of state (including change of location) are arguably logically distinct from each other. The variable telicity of certain change of state or location predicates has long been recognized, the so-called degree achievement predicates, illustrated in (1.2), constituting a classic example (see e.g. Dowty 1979 on temporal *in/for* PPs as diagnostics for telicity and atelicity, respectively; see Hay et al. 1999; Kennedy and Levin 2008 for more recent discussion of degree achievements):

- (1.2) a. The soup cooled *in/for* 10 minutes.
 b. The clothes dried *in/for* an hour.
 c. The sky darkened *in/for* a matter of minutes.

In contrast, it may be less obvious that there might exist telic predicates that do not include reference to a change of state. Indeed, in some characterizations of the semantics of telic predicates, it is taken for granted that all telic predicates either have a complex event structure or refer to an interval that minimally includes

a change of state (see e.g. Dowty 1979; Pustejovsky 1995; Ramchand 1997). However, this view is not uncontroversial. The crucial cases are the so-called achievement verbs such as *arrive*, (Vendler 1967). Achievement verbs are typically characterized as telic and punctual; however, this punctuality is more often than not only approximate: a typical example is Dowty's (1979) definition of this class in terms of a BECOME operator which forms part of the decomposed lexical semantics of achievement verbs and entails that they refer to the minimal interval that includes the moment prior to a change, when a state of affairs ϕ does not yet hold, and the first moment after the change, when ϕ does hold. On such a view, a sentence like (1.1d) will refer to the interval consisting of the moment immediately prior to the plane's arrival at the gate and the first moment that it is there.

Despite the intuitive appeal of this view, authors such as Vendler (1967), Mittwoch (1991), Piñón (1997), Kearns (2003), and Marín and McNally (2011) have supported the position that canonical achievement verbs, at least in the languages they look at, in fact refer only to one single moment in time, namely the boundary between the state existing prior to a change and the state existing after that change, without referring to the change itself.¹ The punctual analysis of achievement predicates represents a minority position within the literature on Aktionsart; nonetheless, it is able to account for a large number of facts, including the asymmetries in the form and behavior of Spanish deverbal nominals discussed in Fábregas, Marín and McNally (this volume). This latter case is just one example of the way in which cross-categorical data can be crucial to our understanding of event structure.

If we take the position that true achievement predicates are genuinely punctual, the standard treatment of the degree achievement verbs as members of this class must (despite their name) be rethought, since such predicates clearly do refer to events of change, as Dowty argued (see e.g. Kennedy and Levin 2008 for a recent analysis) and, as Piñón (1997) observes, changes by definition cannot be punctual. Degree achievement verbs might thus be better grouped with Vendler's (1967) class of accomplishment verbs, which Vendler took to include, for example, *eat* and *build*. One reason to consider this a positive result is that the sort of variable telicity manifest with degree achievement verbs also occurs with many verbs commonly assigned to the accomplishment class, again depending on the expressions accompanying them. For example, when the theme argument of *eat* bears a determiner, the result definitely can be a telic predicate, while when it is a bare plural or mass, the result is necessarily atelic:

- (1.3) a. The child ate the rice in a few minutes.
 b. ??The child ate rice in a few minutes.

¹ Marín and McNally (2011) further argue that not all achievement verbs are telic.

These sorts of facts led to Krifka's (1989) observation that there is a homomorphic relation between the part structure of certain events and the part structure of certain participants in those events, that is that some predicates have what has come to be known as an incremental theme argument (Dowty 1991). Early attempts to unite the analysis of degree achievements with incremental theme verbs like *eat* by extending the incremental analysis of telicity to include incremental paths and properties appear in Ramchand (1997) and Hay et al. (1999); however, a definitive analysis of the facts has remained elusive despite the vast amount of work on the topic in subsequent years. As space does not permit a full review of this literature here, we focus for the remainder of this section on just those issues that are of particular relevance to this volume.

One fundamental question is how best to formalize the relation between telicity, change, and (result) states, and the explicit role that incrementality plays, if any. Here the literature can be divided into two large blocks: those works which build in one way or another on Krifka's observation and treat telicity as a property that is deeply connected to incrementality or scalarity, and those that relate the telicity of an event to the existence of a complex subevent structure that explicitly includes an activity or change plus a result state of some sort. Though these two approaches are not necessarily mutually exclusive, we think it is fair to say that they have developed relatively independently of one other, and that a better comparison between them is a pending task. The chapters by Kennedy, Rothstein, Beavers, and Lim and Zubizarreta in this volume are representative of the first approach; the chapters by Malaia and Wilbur, Gehrke, Koontz-Garboden, Mateu, and Snyder arguably work with notions of telicity that are closer to the second approach.

Within the tradition of research that relates telicity and incrementality, there have been several general lines of analysis. On Krifka's original analysis, telicity is characterized in terms of the referential properties of verbal (or verb phrase) predicates. Simplifying greatly, predicates with what he calls "quantized reference"—roughly, the inability to describe both an individual x and one of its proper parts—are claimed to be telic; those with what he calls "(strictly) cumulative reference"—roughly, the ability to describe both an individual x and a larger individual of which it is a proper part—are claimed to be atelic. Crucially, if a verb has an incremental argument, the homomorphic relation between the event described by the verb and the individual bearing the incremental role will guarantee that the sort of reference the verb phrase has will be correlated with the sort of reference the nominal bearing the incremental theme argument has, accounting for variable telicity.²

² The correlation between the referential properties of verb phrases, those kinds of complements, and telicity was already observed in Verkuyl (1972) but was not explained in terms of a homomorphism between the event and entity domains or the notion of incremental theme.

Though the proposal to characterize (a)telicity in terms of cumulative/quantized reference represents an important insight into the nature of telicity, it has faced empirical challenges that have led some researchers to abandon it. One notable example is the failure of certain incremental theme nominals with cumulative reference to force atelicity, discussed notably in Zucchi and White (2001) and illustrated in (1.4):

(1.4) The child ate at least five sandwiches in one hour/??for one hour.

Though Beavers (this volume) defends the Krifkian approach, extending it in an effort to overcome some of these problems, Landman (2008), Landman and Rothstein (2010), and Rothstein (this volume) argue that the relation between incrementality and telicity is better understood in somewhat different terms. Specifically, they propose that the incremental homogeneity of an event (or lack thereof) is what determines whether a description of that event is telic or not. Roughly put, an event e is incrementally homogeneous with respect to an event type and a verbal description just in case for every interval i which includes the onset of the e and that is within the run time of e , there is some cross-temporally identical event e' of the same event type and describable by the same verbal expression, and that holds at i .³ A predicate which describes an incrementally homogeneous event will be atelic; one which describes a non-incrementally homogeneous event will be telic. Thus, a predicate such as *eat at least five sandwiches* is predicted to be telic, as the event it describes is not incrementally homogeneous with respect to the event type and description in question: for example, that subpart of an event of eating at least five sandwiches that consists of the eating of just the first sandwich, is not describable as an event of eating at least five sandwiches. Though this difference in prediction seems clear, Krifka's analysis and the incremental homogeneity analysis are certainly very close, and further comparison between them would be illuminating.

A third, somewhat different approach to incrementality and telicity has grown out of the analysis of degree achievements in Hay et al. (1999) and subsequent work in that vein (e.g. Kennedy and Levin 2008; Kennedy, this volume). This line of research has focused on the role of scale structure (Kennedy and McNally 1999, 2005) in determining telicity. Kennedy and Levin argue that degree achievement verbs denote measure of change functions along a particular dimension typically provided by the adjective from which the degree achievement is derived; for instance, *cool* denotes a measure of change function on a temperature scale. They argue that the telicity of a predicate is determined by the type of scale associated with the measure of change function. If the scale has an endpoint (i.e. is closed in Kennedy and McNally's 2005 terms), the predicate will be telic; if it does not (and no contextual information

³ This is Landman (2008) and Landman and Rothstein's (2010) formulation; Rothstein (this volume) uses a slightly different formulation.

induces an artificial endpoint, such as happens with cooling to room temperature), it will be atelic. The challenge for this sort of analysis, as Piñón (2008) argues, is how to analyze non-scalar incremental theme verbs such as *eat*; the goal of Kennedy's chapter in this volume is precisely to address this challenge.

The variety in the ways in which telicity, change, and result states have been characterized formally, both with and without incrementality, is indicative of the complexity involved in resolving a second major issue in semantic approaches to event structure, namely that of determining what coherent verb classes can be established based on event structural properties. In fact, there has never been agreement on this point: researchers have long disagreed about how many basic aspectual classes of predicates there are and what their characteristics are (see Dowty 1979 for an overview of the antecedents to Vendler's work; see also e.g. Moens and Steedman 1988; and Smith 1991 for other aspectual classifications). A notable recent contribution to this issue is Rappaport Hovav's (2008) argument that a unified class of lexical accomplishment predicates as characterized by Vendler does not in fact exist and Rothstein's argument in this volume to the contrary. The fact that these two authors also emphasize in their work different contributing factors in the analysis of telicity (Rappaport Hovav placing greater focus on scales; Rothstein, on iterability and incremental homogeneity) very likely plays a role in their differing positions on verb classification. It also serves as a reminder of the evident, but sometimes forgotten, fact that lexical classes such as Vendler's are shaped by the formal notions and theoretical assumptions we rely on when constructing them.

Having laid out these very general considerations for a general semantic theory of event structure, we now turn to the issues that arise when we examine how event structure is manifest in natural language.

1.2 Event structure in a cross-categorial perspective

1.2.1 *Broadening the empirical and theoretical base*

Studies of event structure in recent years,⁴ both in the semantic domain and at the syntax–semantics interface, range over a series of recurrent topics which go beyond the basic semantic issues discussed in the previous section and for which cross-categorial research in a range of languages is particularly crucial. One important issue dealt with in these studies is the way in which the verb relates to its arguments, especially to its external argument. The idea that external arguments are attached in the syntactic derivation through a Voice phrase (Kratzer 1996) appears to be widely accepted, as is the idea that Voice identifies a component of CAUSE in an abstract

⁴ Among the most relevant are Erteschik-Shir and Rapoport (2005); Kempchinsky and Slabakova (2005); Reuland et al. (2007); Dölling et al. (2008); Rothstein (ed.) (2008); and Rappaport Hovav et al. (2010).

syntax which decomposes change-of-states verbs into subcomponents. Yet it is still a matter of debate how different voices (passive, active, middle/reflexive) are encoded in the morphosyntactic representation, and what lexical-semantic operations underlie such representations, for instance, whether we have causativization or anticausativization operations, or what the significance and derivational contribution of morphological marking on certain verbs in specific processes is. The chapters by Koontz-Garboden, Gehrke, and Lim and Zubizarreta, in particular, touch on these issues.

Another important issue is that of modification in the event structure; recall that the role of adverbial modification in the definition of the predicate's Aktionsart was one of the reasons why Davidson (1967) introduced an event variable into the semantic representation of predicates (as emphasized in Dölling et al. 2008). The study of adjectival passives presented in Gehrke (this volume) offers a novel example of how modification can provide crucial insight into lexical-semantic representation.

Finally, event structure can also be influenced by temporal location, since events can be seen as ongoing or completed; these elements of perfective or imperfective “viewpoint” aspect also interact with Aktionsart in systematic ways (see especially the studies in Rappaport Hovav et al. 2010). Rivero and Arregui's chapter provides an interesting case study in this domain.

It is important to note that, in addition, there is a theoretical question crosscutting the discussion of all of the above-mentioned issues, namely what approach to meaning composition best accounts for the Aktionsart facts, argument realization, and modification, and inferences related to viewpoint, among other things. This debate involves the relative role of the lexicon versus syntax, and is usually referred to in terms of lexicalist versus derivational approaches to event structure or lexicon-driven versus construction/syntax-driven approaches.

In lexicalist approaches (see e.g. Jackendoff 1990; Levin and Rappaport Hovav 1995, 2008; Rappaport Hovav and Levin 2010 as well as the chapters by Koontz-Garboden, Gehrke, and Fábregas, Marín, and McNally in this volume), it is basically assumed that the lexical-semantic structure of the predicate determines its syntactic behavior. In (neo)-constructionist approaches (e.g. Hale and Keyser 1993; Borer 2005b; Ramchand 2008; see also the chapters by Lim and Zubizarreta, Mateu, Snyder, and Rivero and Arregui in this volume) the main idea is that it is the interaction between lexical roots and functional heads, sometimes articulated through specific syntactic operations such as movement or incorporation, that “construct” the meanings of verbs, giving rise to different types or “flavors” of event structures. Certain aspects of the constructionist approach have been taken up more recently by lexicalist theories, as manifest, for instance, in the distinction between idiosyncratic roots and a fixed structural component of lexical roots (event schemas or templates). The combination of these elements and the mapping operations from these templates to syntactic

structure seem to obey general constraints on lexicalization (Rappaport Hovav and Levin 2010) which are recognized by all approaches.

In constructional approaches, we find two main lines of work which are not easy to describe in a few words. On the one hand, there are those proposals that assume that lexical entries still carry certain syntactically relevant information; this information triggers the projection of unique syntactic projections for given lexical entries (for instance, the host of the root being V or A will determine whether it projects or does not project a complement or a specifier) and/or gives rise to the application of specific lexical-syntactic operations such as incorporation or conflation that apply at the level of a lexical-relational syntax prior to overt syntax (Hale and Kayser 1993, 2000; Mateu 2002; Harley 2005). On this view, certain central components of event structure such as aspect are seen as orthogonal to argument structure (Erteschik-Shir and Rapoport 2005). On the other hand, in pure constructionist approaches, sometimes called *exo-skeletal* approaches (Borer 2005a, b), the structure itself, which belongs to the syntactic component, is independent of the content of the “listemes” (essentially uncategorized roots), which belong to the cognitive module. Despite their differences, what these approaches both share is the very plausible assumption that functional vocabulary and syntactic structure can carry by themselves information about formal semantic properties such as quantization, specificity, boundedness, etc., as well as proximity to formal semantic analyses and the use of concepts and operations from the field of semantics.

We are thus dealing with a very rich domain of inquiry, crucial for the understanding of the interaction between (narrow) syntax and the interpretive component, with a series of open issues and debates, and a menu of alternative ways to approach empirical and theoretical issues. As we have noted at the beginning of this Introduction, a promising strategy for choosing among competing explanations as well as for establishing the foundations of new ones is to look for cross-linguistic evidence. To give some examples, the introduction of Slavic languages, especially Russian, into the study of lexical as well as grammatical aspect has helped to develop a better understanding of the role played by terminativity versus quantization in the determination of telicity and view point (Rothstein 2008c). The study of Hebrew temporal verbal constructions supports the view that habituality may be not an aspectual marker but rather a modal one (Rappaport Hovav et al. 2010), it is also relevant to get closer to the comprehension of the “aspect of Agency” (Doron 2005). At the same time, deeper insights can also come from a cross-categorial view of event structure. Most of the studies of event structure we have referred to touch upon questions related to the verb and the verb phrase. However, although it has been less frequently used, an equally useful strategy for developing a theory of the internal structure of events is to explore how events and event types are expressed in nonverbal categories (e.g. nouns and participles) and to pay special attention not only to underived verbs but to deadjectival or denominal ones.

Both cross-linguistic and, especially, cross-categorical perspectives are reflected in the second part of this volume; these perspectives lend this part a three-fold interest. First, the chapters broaden the empirical base for developing a theory of event structure with new observations regarding different sorts of stative expressions in different languages, and add new theoretical insights to already familiar data. To give just two examples, which, like the others we provide here, will be elaborated on in greater detail in Section 1.3, a new look at the states described by adjectival passives in German (Gehrke, this volume) leads to a very suggestive semantics–pragmatics interface analysis of those constructions and highlights the need for distinguishing between event types and event tokens in lexical semantic representation; and Rivero and Arregui (this volume) present data from South and West Slavic involuntary state constructions to shed new light on the respective contributions of functional and morphological categories to event composition.

Second, most of the papers in this part of the volume offer a particular focus on the relation between change and state across various categories such as deverbal nominalizations, deverbal adjectives, and deadjectival verbs. Again, by way of illustration, Koontz-Garboden (this volume) shows how careful consideration of deadjectival change-of-state verbs and deverbal (derived stative) adjectives lends support to a general semantic principle that he terms the Monotonicity Hypothesis (MH). Fábregas, Marín, and McNally (this volume) exploit a version of the MH, which they refer to as the Aspect Preservation Hypothesis, together with Marín and McNally's (2011) analysis of the aspectual properties of Spanish inchoative *se*-form psychological verbs to make predictions about the morphological form and semantics of nominals referring to psychological states. Lim and Zubizarreta use a comparison of the Korean inchoative auxiliary *-eci* in combination with gradable adjectives and verbs to provide new arguments for treating change of state as a kind of abstract path, as well as for the role of boundedness or delimitedness, as distinct from telicity, in the theory of event structure.

Finally, the chapters by Mateu and Snyder suggest that some generalizations regarding event structure—which are observable only once specific cross-categorical phenomena are considered, such as the derivation of denominal verbs or patterns of compounding—can provide insight into certain macro- and microparameters underlying linguistic variation. The proposal of such parameters is very much in line with the notion of parametric variation currently dominant within the Minimalist Program and related frameworks. As the theoretical issues raised in these works are less often the focus of attention in work on event structure, we devote specific attention to them in the next subsection.

1.2.2 *Event structure and parametric variation*

The notion of parameter has a long history and goes over a route that to a large extent reflects the various twists given to the very notion of language faculty and the view of

the cognitive module within the generativist paradigm. Broadly speaking, a parameter reflects a hypothesis about why and how languages can be different if they all are instantiations of a Universal Grammar (UG); more strictly, at least as originally defined within the Principles and Parameters (P & P) model, a parameter is an option allowed by a very reduced set of (universal) principles, the very few ones that permit choices. Parameters were supposed to have binary values, to “cluster” together different types of phenomena, and to make predictions about language acquisition more than about external properties of language. In this sense, Snyder (this volume) is correct when he clearly distinguishes between typological and parametrical explanations: the former aim to find regularities among visible syntactic patterns, while the latter seek to find the deep factors of UG underlying variation across languages. The extent to which typological explanation can provide insights to parametric approaches remains an open question.

In the development from the P & P framework to the Minimalist Program (MP, Chomsky 1995) a distinction between macroparameters (variation restricted to core syntactic principles) and microparameters (variation restricted to the lexicon) emerged. Omitting details and setting aside the non-trivial questions of whether there really are macroparameters or not and whether macro- and microparameters are mutually exclusive, currently the standard view within this program appears to be that variation can only be an interface phenomenon and that it is restricted to the lexicon (Borer 1984; Chomsky 2005).⁵ This conclusion emerged almost as a matter of necessity after the establishment of the Minimalist Program (see Boeckx 2011; Gallego 2011, for interesting discussion of this issue). If, as the MP assumes, the factors regulating language design are (1) genetic endowment, which should be regular across the species, (2) principles not specific to the language faculty, and (3) experience, it is the latter, namely the factor that provides the child with the input necessary to develop a grammar, that will provide material to make the relevant choices for parameter setting. In other words, the mostly theoretically internal assumptions about language design lead to the conclusion that the locus for parametrization should be at the interface between syntax and other grammatical components, namely, morphology, phonology, and semantics, as these are the places where lexical items are inserted or where their features are combined and interpreted.

The next question is what features are responsible for variation: formal ones (those that define the closed classes of functional categories triggering basic syntactic operations, such as Merge in the MP), phonological ones, or semantic ones? This is a complex question for which there are no clear answers at this moment and that we can only hint at here. Taking into consideration results of research in recent years, Distributed Morphology (Halle and Marantz 1993) has provided interesting evidence

⁵ Incidentally, by “lexicon” many things can be understood: the set of irregularities, combinations of different types of features, root information anticipating syntax, etc.

to locate some variation in the spelling out of morphophonological features, specifically, in the realization of the formal features related to agreement. Minimal differences within the same language or between languages of the same family show the impact of phonetic-phonological features in language variation. In the semantic domain, there have been proposals for microparameters related to the content of prepositional heads. Folli and Ramchand (2005), for instance, correlate the differences in the availability of directed-motion constructions in English and Italian with the availability of Path-denoting prepositions in English (*into*) and the lack thereof in Italian; however, since prepositions are typically considered functional elements, this microparameter could be another case of a variation in the materialization of formal features in the morphophonological component of the lexicon. A new form of a semantic parameter is proposed in this volume. Specifically, Snyder proposes as a macroparameter the (in)availability of the semantic operation of Generalized Modification, in substitution of the structurally grounded Compounding Parameter that he proposed in earlier work (Snyder 1995, 2001); this parameter is argued to have consequences for variation in the availability of both nominal compounding and resultative constructions. These latter examples, both involving crucial data for theories of event structure, are illustrative of the contribution that the study of event structure should make to the development of theories of parameterization in language.

1.3 The chapters in this volume

The volume is divided into two parts. The first part consists of four papers that address foundational issues concerning two of the key notions that are the focus of the volume: telicity, on the one hand, and change, on the other. Particularly relevant is the notion of incremental change and its relation to telicity.

In “Lexical aspect and multiple incremental themes,” John Beavers defends an essentially Krifkian (1989) approach to telicity, extending it to account for cases where there appear to be two incremental arguments rather than just one. The basic empirical observation is that telicity is often determined not just by the participant that has come to be known as the incremental theme but also by that participant’s trajectory along a path, and that the contribution of these two participants to telicity is interdependent. To account for this interdependence, Beavers proposes a more sophisticated and empirically superior version of the generalized Figure/Path Relation that he has developed in earlier work. This relation, as its name suggests, holds between a figure (the “traditional” incremental theme), a path, and an eventuality. Though most obviously applicable to motion predicates, Beavers shows how the analysis can be extended to change-of-state predicates if the scale along which the change is measured is conceived of as an abstract path. Interestingly, he observes that the analysis is not so clearly applicable to verbs of

creation/consumption unless they are in the conative variant (e.g. *eat at* instead of *eat*). Beavers therefore suggests that what differentiates creation/consumption verbs from other incremental theme verbs is not the irrelevance of a Figure/Path Relation, but rather the fact that the endpoint of the abstract path is lexicalized—for instance, in the case of eating, the endpoint would be the state of complete disappearance of the figure. However, perhaps it should not be surprising that verbs like *eat* pose a challenge for Beavers' analysis, given that Rappaport Hovav (2008) argues on the basis of a variety of facts that Vendler's (1967) accomplishment verbs do not form a unified class, no matter how useful the notion of accomplishment may prove to be for larger constituents.

Precisely this claim by Rappaport Hovav is the focus of Susan Rothstein's contribution, "Another look at accomplishments and incrementality." Rothstein argues that a coherent class of accomplishment verbs can in fact be identified in distinction to the class of activity verbs. Building on Kamp's (1979a, b) insight that what distinguishes events described by telic predicates from those described by atelic ones is the non-iterability of the former, Rothstein argues that the accomplishment verbs are just those that denote sets of extended but non-iterable regularities. The notion of extendedness distinguishes accomplishment verbs from achievement verbs, while non-iterability distinguishes accomplishment verbs from activity verbs. The analysis is formalized using the incremental homogeneity account of telicity developed in Landman (2008) and Landman and Rothstein (2010), an alternative to Krifka's approach. Rothstein observes that if extendedness and non-iterability are the only common defining characteristics of accomplishment verbs, we might find the variety in the ways that an event can be extended and non-iterable to result in internal variation in the class of accomplishment verbs. She argues that, in fact, three subclasses of accomplishment verbs can be identified which differ according to whether they entail a prototypical activity or not, and whether the incremental chain they entail is highly structured or not.

The challenge of uniting the analysis of incremental theme verbs like *eat* with those of other incremental predicates also surfaces in Christopher Kennedy's chapter, "The composition of incremental change." Kennedy presents an analysis of these verbs which builds on Kennedy and Levin's (2008) scalar "measure of change" analysis of degree achievement predicates. The extension to incremental theme verbs is not trivial because authors such as Gawron (2007), Rappaport Hovav (2008), and Levin and Rappaport Hovav (2010) have argued that verbs like *eat* do not themselves lexicalize scales or introduce measures of change. Kennedy follows these authors on this point and proposes, as an alternative, that the source of the measure of change function is the nominal complement to the verb. Taking as a starting point Krifka's (1989, 1992) measure function analysis of nouns, Kennedy argues that nominal complements to incremental theme verbs undergo a type shift that converts them into measure of change functions; he then shows how these

functions can be composed with the incremental theme verbs. Kennedy extends the analysis to partitive complements in examples such as *eat some of Mr Unagi*. The analysis naturally accounts for the fact that expressions of measurement in sentences containing incremental theme verbs typically appear on the nominal; on the other hand, Kennedy observes that a pending issue is how to guarantee that the measure of change type shift occurs only with some verbs (such as the class the chapter focuses on), and not others.

In the final paper in this section (“Telicity expression in the visual modality”), Evie Malaia and Ronnie Wilbur present data from sign language which is relevant for one of the most fundamental questions in the analysis of telicity: whether something like an endpoint or end state should form an explicit part of the representation of a telic predicate. The results of their motion capture study, which compared the characteristics of telic versus atelic predicates in American Sign Language (ASL) and Croatian Sign Language (HZJ), show significant differences between the two kinds of predicates, most notably in HZJ. Malaia and Wilbur use these data to support Wilbur’s (2003) Event Visibility Hypothesis, which posits that sign languages encode telicity via a perceivable “end-marking” manifest in features such as the slope of deceleration from peak velocity to the end of the sign and related kinematic properties such as the duration and peak velocity of the sign or the timing of peak velocity within the predicate. This perspective from the visual mode provides an interesting counterpoint to the standard sorts of linguistic data brought to bear on our understanding of telicity because, the authors suggest, the representation of event structure in sign language is more likely to reflect the perceptual processes involved in our individuation and segmentation of eventualities than is oral/aural language. For this reason, comparative studies of the representation of telicity and other aspects of event structure in sign languages promise to provide insight into whether our perceptual capacities and biases condition event structure representation in sign languages in a uniform way, or whether, on the contrary, signed languages, like speech-accompanying gesture (see e.g. Kita and Özyürek 2003), reflect parametric variation in the representation of event structure, even independently of influences that might come from the spoken languages in their environments.

The second part of the volume consists of seven chapters that make crucial use of various kinds of cross-categorial data to address theoretical and empirical issues involving telicity, change of state, and stativity. The first four of these chapters focus on event structural issues involving both verbal and nonverbal categories. The subsequent chapters explicitly address the question of typological and parametric variation in the interaction between lexical and supra-lexical categories, in order to shed light on event structure in resultative constructions. Finally, the last chapter provides insights into how small differences within and across the expression of certain kinds of stative eventualities in various Slavic languages can be explained as a result of microvariation in the presence or absence of modal and aspectual features;

thus it provides a case study in the interaction of lexical and functional syntax and semantics in determining the event structure associated with a clause.

The contribution by Andrew Koontz-Garboden (“The Monotonicity Hypothesis”) illustrates the implications of a cross-categorial view for the analysis of the causative/inchoative alternation, and more generally for stative and change-of-state predicates. Koontz-Garboden argues that a universal principle called the Monotonicity Hypothesis (MH) governs word formation. The MH states that word formation operations do not remove operators or other information from lexical semantic representation; thus, marked lexemes should always be derived from unmarked ones. Crucially, under the MH, there cannot be such operations as anticausativization, in which a CAUSE operator is deleted in the derivation of an inchoative verb from its causative counterpart. Koontz-Garboden observes that if the MH did not hold, we would also expect to have words naming simple states (what Koontz-Garboden refers to as “property concept states”) like *red* that are derived from change-of-state verbs such as *red* or *red* from a word naming a result state like *reddened*. The MH thus predicts that the semantics of property concept state predicates should be included in the semantics both of change-of-state verbs and words describing result states, and that the latter should be morphologically more complex than the words for property concept states. Koontz-Garboden analyzes the relations in form and meaning between these three types of words to show how the MH does in fact explain patterns of data in various languages; he then shows how one particular case that appears to challenge the predictions of the MH, namely that of deverbal adjectives with putative property concept meanings (e.g. *the darkened portion of skin*, where the skin is understood to always have been dark rather than having undergone a change in color) does not in fact counterexemplify the MH. In addition to making a contribution to an area that is still comparatively understudied within formal semantics, namely interaction of compositional semantics with morphological derivation, Koontz-Garboden’s chapter has implications for the theory of event structure insofar as it suggests that any proposal concerning the semantics of morphologically stative, change-of-state, and causative predicates in any language will have to be consistent with the MH, a factor which has not been taken into account in a systematic way in previous work on event structural representations for different types of predicates.

Antonio Fábregas, Rafael Marín, and Louise McNally (“From psych verbs to nouns”) propose the adoption of the Aspect Preservation Hypothesis (APH), which can be considered a special case of the Monotonicity Hypothesis, as a methodological principle for exploring the semantics of nominals derived from psych(ological) verbs. The APH states that the lexical aspect of a verb is preserved under the semantically most neutral nominalization processes. The authors observe that this hypothesis is apparently challenged by psych verbs and psych nominalizations in Spanish if it is the case, as is often claimed, that not all psych verbs are stative while all psych nominalizations are. An initial problem for Spanish, given that many

psych verbs appear in different syntactic configurations (e.g. experiencer object *indignar* “to be(come) indignant” versus experiencer subject *se-form indignarse* “to be indignant”), is from which form of the verb the psych nominal is derived. The APH would correctly predict the behavior of nouns derived from verbs with non-agentive subjects and object experiencers (e.g. *indignación* “indignation”) given that these verbs are stative, as the corresponding diagnostics show. However, Picallo (1991) argues that psych nominals are all derived from the *se*-forms when there is a choice between possible bases, and Marín and McNally (2011) argue that not all *se*-form psych verbs are stative—crucially, while what they refer to as non-punctual *se*-form verbs (e.g. *preocuparse* “to be worried”) are stative, so-called punctual *se*-form psych verbs (*asombrarse* “to be amazed”) are not. After providing a series of new diagnostics to test for the stativity of psych nouns, Fábregas, Marín, and McNally take a careful look at the morphosyntax of these nouns and show that, interestingly, many punctual psych verbs do not have corresponding derived psych nouns but rather have only underived psych noun counterparts (e.g. *asombro* “amazement”), which are irrelevant for the APH. This leaves only a reduced set of nouns (e.g. *crispación* “tension,” *excitación* “excitement”) which appear to pose a problem. The authors argue that these nominals derive not from the *se*-form but from a stative stem associated only with an experiencer role; interestingly, there is evidence that those punctual *se*-form verbs that do not undergo nominalization lack this stem. Thus, the generalization that only stative verbal bases generate derived psych nouns can be maintained. Insofar as the analysis is successful, it reinforces the somewhat unorthodox analysis of the aspectual properties of reflexive psychological verbs defended in Marín and McNally (2011) and its implications for our understanding of the ways in which language can express telicity, change, and stativity; in addition, like Koontz-Garboden’s contribution, this chapter points to the relevance of monotonicity as a general principle regulating derivation.

In “Passive states,” Berit Gehrke shows how, by exploiting a somewhat richer event structure representation in the semantics than is sometimes assumed, as well as uncontroversial assumptions about syntax, it is possible to account for subtle differences in the constructions used to describe states that are or can be the consequence of some event. The empirical focus of the paper is the adjectival (“_{BE}”) passive in German, formed, as its name suggests, with the verb *sein* “be” plus a participle. Gehrke argues that the complex behavior of _{BE}-passives is naturally explained if the complement to *sein* can be either an adjective phrase (AP) whose head is an adjective lexically derived from a verbal participle, or an AP phrasally derived from a VP. What the two types of complements share is the fact that they introduce reference to an instantiation of a consequent state kind of an event *kind*, rather than a consequent state of an event *token*. The assumption that the past participle in this type of passives denotes an event kind allows the author to make fine-grained distinctions among possible and impossible modifiers in the constructions, as seen for example in the

distribution of two types of *by*-phrases appearing with BE-passives. Gehrke then shows how her account can lead to a reanalysis of the different readings of BE-passives proposed in previous literature (e.g. Kratzer 2000; Maienborn 2007a), and by the end of the chapter it is also evident how the appeal to the contrast between event-structural representations involving event kinds versus event tokens might lead to a natural account of the contrasts between these BE-passives and German “BECOME” passives, formed with the verb *werden* “become.” Crucially, Gehrke shows that only verbs which license an event structure with a stative component, or which appear in a context which creates a consequent state, are able to license BE-passives; thus, her chapter, like those of Koontz-Garboden and Fábregas, Marín, and McNally, underscores the need to carefully examine lexically-encoded event-structural information in order to understand grammatical phenomena.

Dongsik Lim and María-Luisa Zubizarreta’s “The syntax and semantics of inchoatives as directed motion: The case of Korean,” like Koontz-Garboden’s contribution, has not only a cross-categorial but also a cross-linguistic dimension. The authors present an analysis of the Korean *-eci* inchoative light verb construction, comparing it to inchoative constructions with *se*-form verbs in Spanish within Hale and Keyser’s (1993, 2002) l(lexical)-syntax framework, an approach to syntax which is especially sensitive to the influence of lexical aspect on syntactic phenomena. *-eci* combines with both adjectives (to yield a predicate meaning roughly “become A-er”) and certain transitive verbs (specifically, those of change of state, creation and transfer, or change of location), in the latter case with an interpretation that at first glance resembles that of a passive (e.g. *cis-eci*, lit. “build-eci” is roughly translatable as “become built”). Lim and Zubizarreta present various arguments that *-eci* is not a passivizer, and that the light verb has a uniform effect whether combining with an adjective or a verb; interestingly, this argumentation points to striking similarities between verbal *-eci* constructions and adjectival BE-passives in German, discussed in the chapter by Berit Gehrke. Once the passive analysis is discarded, the question becomes what unites the adjectival and verbal variants of the construction. The core of the analyses is the proposal, adapted from Zubizarreta and Oh (2007), that *-eci* is the spell-out of a (little) *v* node and takes as its complement a constituent contributing a concrete or abstract path along which the theme participant moves: for example abstract movement along a scale in the case of gradable adjectives and verbs of change of state, and movement along a concrete path in the case of directed motion and transfer verbs. The authors extend the l-syntax framework to introduce new functional syntactic projections which are coupled with specific functional semantic elements from the scalar semantics of Kennedy and McNally (2005), Svenonius and Kennedy (2006), and Kennedy and Levin (2008): for example, a Deg(ree) projection connects *-eci* with its adjectival complement and introduces the semantics that Kennedy and McNally (2005) assign to an abstract positive form degree morpheme. Lim and Zubizarreta’s analysis thus serves as a test case for the usefulness of l-syntax

as a framework for linking lexical semantics with more functional aspects of semantic structure. It also further underscores the deep connections between scalar change, directed motion, and telicity that are observed in various chapters in the volume.

Like Lim and Zubizarreta, Jaume Mateu also makes use of Hale and Keyser's l-syntax in his chapter, "Conflation and incorporation processes in resultative constructions." Mateu revisits Talmy's (1991, 2000) widely known typology of verb-framed languages (those where a path or result forms part of the verb's semantics) versus satellite-framed languages (those where it does not, and the path/result is contributed by "satellite" phrases accompanying the verb) through a detailed analysis of various kinds of resultative constructions in different languages. Resultative constructions are known to vary cross-linguistically in nuanced ways. Building on the l-syntactic approach to the derivation of denominal verbs, manner of motion verbs, particle verbs, V-V compounds as well as AP and PP resultative constructions in various languages, Mateu claims that the distinction between the processes of *conflation* (compounding of a verbal root with a null light verb) and *incorporation* (head movement of a verbal root into an empty verbal head), from Haugen (2009), is crucial to understanding the differences between so-called strong resultatives versus weak resultatives, discussed in Washio (1997). The strong/weak distinction crosscuts the verb-framed/satellite-framed distinction since it focuses on the way in which structures are derived, rather than simply what the observable elements in the verb phrase are, and Mateu shows how the clarification of this difference is useful for understanding the apparent mixed properties of certain types of languages, such as Japanese. Mateu's chapter lends support to proposals such as Haugen's by showing how they can be extended from lexical to phrasal phenomena. It also points to the possibility that at least part of the typological distinction characterized by Talmy may be formally captured in terms of parametric variation in the l-syntactic operations that languages use. Finally, Mateu's insistence on the availability of conflation versus incorporation as the crucial parameter helps shed light on the initially puzzling parameter proposed in Snyder (1995, 2001)—the Compounding Parameter—which is the subject of the following chapter.

William Snyder's contribution "Parameter theory and motion predicates" shares with Mateu's, and to a certain extent with Lim and Zubizarreta's, the use of the analysis of root-level composition and compounding to shed light on facts involving resultatives, broadly understood as event descriptions involving change and a result state. Like Mateu, Snyder takes the position that Talmy's typological distinction between verb-framed and satellite-framed languages is better understood in terms of parametric variation and that the crucial parameter crosscuts Talmy's classification; however, Snyder differs from Mateu in focusing on the semantic dimension of that variation. Working within an event based semantics, Snyder proposes that the Compounding Parameter is better understood as the macroparametric availability or unavailability of a process of semantic composition known as "Generalized

Modification” (GM). GM establishes “a pragmatically suitable relation” between two kind-denoting expressions that stand in a head–modifier relation, such that the result of composition describes a subkind of the kind described by the head. Just as, for example, *frog* and *chair* can be combined in compound *frog chair*, which describes a subtype of chair pragmatically related to (the kind) frogs, Snyder observes that, for example, *wipe clean* could be the result of GM, where the phrase describes a subtype of wiping event which is pragmatically related to (the kind of state) cleanliness. Snyder argues that the parametric (un)availability of GM explains variation among languages in the availability of root compounding, the derivation of AP resultatives, and the derivation of motion constructions with directional PPs. However, crucially, he further claims that GM interacts with other parameters such as the availability of incremental P (Gehrke 2008) or small clause complements to the verb, and that this interaction accounts for at least some of the variability inside typologically verb-framed languages, such as the existence of both strong and weak resultatives in Japanese. Interestingly, while Mateu argues that English allows conflation while Japanese does not, Snyder argues that both allow GM. Directly or indirectly both Snyder’s and Mateu’s contributions shed light on complex questions such as the difference between typological frames and language parameters, the properties of language that are highlighted by typological versus parametric views, and the role of the lexicon and semantic generalizations in the establishment of parameters of language variation both in a formal and more descriptive sense of the term “parameter.”

Finally, María-Luisa Rivero and Ana Arregui’s chapter, “Building involuntary states in Slavic,” looks at the contribution to event structure of elements that are not included in the verb’s template, specifically the functional and morphological categories (tense, aspect, and an abstract Circumstantial Modal head) and that of the “manner phrase” that play a role in the event composition of Slavic *Involuntary State* constructions (IS). ISs have a similar syntax in all Slavic languages but a different semantics, indicating a case of microvariation. In West Slavic and Russian they have factual readings; in South Slavic they have a desiderative reading. As for the syntax, the authors claim that both types of IS include a High Applicative Phrase whose head is an abstract circumstantial modal; however, factual ISs take a manner phrase as a second specifier while desiderative ISs do not. Moreover, desiderative ISs differ from factual ones in that they are restricted to a particular type of Viewpoint Aspect in the High Applicative structure, namely the intentional (imperfective) type, which is claimed to be absent in West Slavic and Russian. This factual reading, in contrast, is not aspectually restricted. An interesting contribution of this chapter is that it extends the domain of event composition outside the VP domain (or First Phase, in Ramchand’s 2008 terms) up to a (High) ApplP (Third Phase) with a modal head. In a similar vein to Lim and Zubizarreta, the authors assert that constructional meaning is built through the interaction of canonical lexical constituents with

functional elements that carry semantic weight. Like Snyder, they claim that both micro- and macrovariation among languages can result from the interplay of syntactic and semantic elements, made explicit in Rivero and Arregui's work on the functional structure of the sentence. The result is a parallelism between semantic analysis and syntactic analysis where, specifically, ApplP is a locus not only for syntactic alternation (as in the case, for example of double object constructions) but also for variation in "the syntax–semantics interface of the Modal in the applicative, and IMPF in Aspect." Finally, this chapter, like those by Fábregas, Marín, and McNally and by Gehrke, enriches our understanding of the characterization of states in language.

