The logic of pronominal resumption. By Ash Asudeh. (Oxford studies in theoretical linguistics.) Oxford: Oxford University Press, 2012. Pp. xix, 463. ISBN 9780199206438. $45.

Reviewed by Nicolas Guilliot, *University of Nantes*

Ash Asudeh's *The logic of pronominal resumption* is devoted to the description and formal representation of resumption across natural languages, a general phenomenon by which a pronoun occupies the base position of a syntactic dependency. Building empirically on a representative sample of languages (Irish, Hebrew, Swedish, Vata, and English) and two types of syntactic dependency (unbounded dependencies and raising constructions, although only one chapter is specifically devoted to the latter), this book, composed of thirteen chapters, is on the one hand clearly inspired by traditional generalizations or distinctions made in the literature, but on the other hand brings a quite novel approach to resumption, coming mainly from the specific framework defended by the author—lexical-functional grammar (LFG) associated with glue semantics (based on linear logic proofs). My overall impression of the book is that it is a very valuable reading for anyone interested in that phenomenon and especially for those interested in how resumption can be formalized.

Building on traditional literature on the topic (McCloskey 2002, 2005, Sells 1984), the author uses three fundamental empirical generalizations as guiding principles for his own theory, which is clearly expressed in Chs. 1 and 2.

The first one is the distinction originating from Sells (1984) between true and intrusive resumptives, which the author restates as grammatically licensed versus processor resumptives (i.e. not fully grammatical, whose production would be related to processing).

The author also builds on a second well-established generalization in the literature based on a distinction between two lines of approach to resumption (distinguishing resumptive strategies across languages or within the same language) regardless of the specific model adopted (head-driven phrase structure grammar (HPSG), LFG, generative grammar): either a syntactic 'base-generation' of both the resumptive pronoun and the detached (wh-) constituent, and a binding relation between the two, or a 'movement' approach to resumption that equates the two elements to one syntactic function, the resumptive being more or less like a gap. These two approaches just follow from the duality of a resumptive construction, which interacts with both pronominal anaphora (binding processes) and movement or unbounded dependencies (see McCloskey 2005:96, Sharvit 1999, and also Rouveret 2011 for an extended discussion of the issue).

Building on these first two distinctions, the author ends up distinguishing between three kinds of resumption in unbounded dependencies: anaphora-like (true/grammatically licensed) resumptives, which he calls syntactically active resumptives (SARs); gap-like (true/grammatically licensed) resumptives—syntactically inactive resumptives (SIRs) in A's terminology; and intrusive or processor resumptives. Ch. 2 restates traditional arguments to distinguish between these three uses of resumption, such as island sensitivity, weak crossover, reconstruction, or binding by a quantified antecedent. A very precise analysis is developed for each type of resumption throughout the book: Irish (Ch. 7) and Hebrew (Ch. 8) display SARs, whereas cases of resumption in Swedish (Ch. 9) and Vata (Ch. 10) are used to illustrate the analysis of SIRs. Processor resumptives are discussed further in Ch. 11, with cases of resumption in English.

The last fundamental generalization that A uses (borrowed from McCloskey 2002) relies on the observation that resumptive pronouns are just ordinary pronouns, and that both should make strictly equivalent contributions. A uses this generalization as the starting point of his theory of resumption. But the main originality of his theory of resumption is undoubtedly the correlation with resource sensitivity, and more precisely the assumption that resumptive pronouns constitute a resource surplus (compared to gaps) in semantic composition, thus requiring some managing or

consuming device. The general intuition is that the difference between each kind of resumption (SARs, SIRs, and processor resumptives) resides in whether and how it can manage/consume the resource surplus created by the resumptive, through specific properties given to the complementizer system of the language. The intuition is first developed in Chs. 5 and 6, where the author presents an instructive discussion of different types of logic and of the resource sensitivity of natural language, before arguing that this intuition should therefore be formalized through the use of a resource logic. A valuable contribution of the book can be found in the introduction of the framework (LFG and glue semantics), which has a clear exposition in Chs. 3 and 4 that makes it easy even for a nonexpert reader to understand details of the analysis. Independent of the introduction of the framework, Chs. 7–11, illustrating each kind of resumption, contain precise representations of LFG structures and semantic proofs.

Having stated my overall impression of the book, I now would like to discuss further several points that on the one hand bring strength to the book, but on the other hand also raise some conceptual or technical questions.

One major originality of A's theory of resumption relies on the resource sensitivity hypothesis: that is, the fact that the contribution of the resumptive pronoun creates a resource surplus (compared to a gap that just corresponds to nothing in the framework defended by A), and therefore the resumptive needs to be consumed and licensed (by the complementizer system in his theory). Although I find completely justified the idea of relating different types of resumption to different properties of the complementizer system, its formalization in terms of resource-surplus (resumptive) and consumer (complementizer) gives the impression that resumption is unexpected in natural language, compared to gaps. In other theoretical frameworks, and especially the ones that consider gaps as bound variables (such as generative grammar), the occurrence of resumptive pronouns instead of gaps comes as no surprise, as a bound variable interpretation is clearly one of the possible interpretations of pronouns in natural language, hence confirming McCloskey's (2002) generalization that resumptive pronouns are just ordinary pronouns.

And even if the formalization of this resource management theory of resumption is quite convincing, one aspect remains puzzling: the fact that the complementizers licensing resumption (in the case of SARs or SIRs) end up contributing a lot in the semantic composition (up to three meaning constructors) and at different stages of the semantic proof. On the one hand, as A states, natural language is resource-sensitive in the sense that elements of combination in grammars cannot be freely reused or discarded. But on the other hand, the lexical entries of these complementizers have more than one use in the sense that they contribute several meaning constructors (for example, one that allows semantic combination between the relative clause and the antecedent, and another one that consumes the semantic surplus coming from the resumptive pronoun). I understand that the properties of the framework make that possible, but it just seems surprising for a nonexpert reader, especially in the context of the resource sensitivity hypothesis.

One interesting aspect of the book is the comparison with the generative approach. Very regularly, A compares his own take on the phenomenon with the way it is conceptualized and formalized in the generative literature. One good thing is that such comparisons help the reader to understand the analysis within the LFG-glue semantics framework (especially in Ch. 5 when A compares his view on the resource sensitivity hypothesis with similar principles in generative grammar, such as the theta criterion, the projection principle, or the principle of full interpretation). Another good thing is that it clearly shows some weaknesses in parts of the generative approach to resumption (for example, in the case of SIRs traditionally analyzed as the spell-out of gaps in generative grammar). Some of the arguments given against the generative approach, however, are not so compelling to me. For example, the author compares his analysis of complementizer patterns in Irish relative clauses (e.g. $[_{CP} \ldots aN \ldots [_{CP} aL \ldots \_\_]]$) with the one proposed in McCloskey 2002, which he discards on the basis that semantic composition in intermediate positions could not be handled with such an analysis (as the embedded CP would end up denoting a predicate instead of a proposition). One thing that makes it easier a priori in A's framework is that the relativizer (which basically composes the relative clause with the relative head) comes from the relative-CP rule, and is independent of lexical properties of the complementizer system. I

think, however, that several propositions seem reasonable in the generative framework to account for the general idea that *aL* is related to movement, and *aN* to binding, especially if the operator is not itself the lambda-abstractor. In a case like [… *aL* … __ *aL* … __], each movement step could be associated with lambda-abstraction, with the operator left uninterpreted (schematic representation: [*Op* λ_1. … [$_{CP}$ t_1 [λ_2. … t_2]]]). Notice that the embedded CP denotes a proposition, as expected. In a case like [… *aN* … *aL* … __], the lower movement step creates lambda-abstraction, while the upper lambda-abstraction comes from binding, as independently needed for base-generated resumption (schematic representation: [*Op* λ_1. … [$_{CP}$ *pro*$_1$ [λ_2. … t_2]]]).[1]

My last comment is related to A's analysis of intrusive pronouns as not fully grammatical processor resumptives. I found this idea both intuitive and at the same time quite problematic in some ways. It is intuitive in the sense that it is true that resumption in English or French is highly related to production (except if we consider dislocation in French as a resumptive construction). The author gives two main reasons to distinguish such resumptives from true/grammatical resumptives (SARs/SIRs). One argument relies on grammaticality judgments, and more precisely the fact that speakers just tend to consider them ungrammatical. The second argument goes back to Sells (1984), who gives several tests to argue that intrusive pronouns in English do not pattern like bound variables (for example, the fact that they could not be bound by quantifiers like *every* or *each*). But does this mean that they should be excluded from the grammar?

What this second argument shows is that such cases of resumptives do not seem to correspond to classical bound variables. But nothing prevents the resumptive from being interpreted as E-type, which should be another possible interpretation of the resumptive pronoun if we take McCloskey's generalization seriously. And as A himself suggests, these intrusive pronouns are very good candidates for such interpretation as they cannot be related to these quantifiers resisting E-type interpretation (*each* or *every*). If such cases are indeed related to an E-type phenomenon (see Guilliot & Malkawi 2011 for an analysis of resumption related to E-type), should we really consider them not to be fully grammatical, although they just seem to reflect another property of ordinary pronouns?

As for the first argument about grammaticality judgments, it is true that many constructed examples with resumptives, especially the ones testing resumption as a saving device (in strong islands), are not considered grammatical by native speakers, casting doubt on a general theory of resumption based on last resort. I completely agree with the author on that. But at the same time, such (un)grammaticality judgments should be used carefully as they may be influenced by many factors: sociolinguistic factors, competition with a more standard construction, and influence of the norm. Take other constructions in French such as *c'est qui qui* … 'it is who who …' instead of *qui est-ce qui* ... 'who is it that …', or *la voiture à ma sœur* instead of *de ma sœur* 'the car of my sister', which are produced systematically, but would not be judged as grammatical by the same speakers. Does it mean that our grammar should not generate them? And what about a model for which the distinction between grammar and production or parsing constraints is not so clear (see Cann, Kempson, and Marten's (2005) dynamic syntax)? Such cases of imbalance between production and grammaticality judgments thus raise very interesting and challenging questions about the relation between grammar and processing constraints. This goes beyond the author's analysis of such processor resumptives, which nevertheless has the great advantage of tackling the issue.

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[1] Or you could state that the operator performs lambda-abstraction only when inserted to bind something, that is, when there is no movement.

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Language in cognition: Uncovering mental structures and the rules behind them. By Cedric Boeckx. Oxford: Wiley-Blackwell, 2010. Pp. 264. ISBN 9781405158824. $48.95.

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In contrast with *Linguistic minimalism* (2006), written with the already committed students of language in mind, Cedric Boeckx's *Language in cognition* (*LinC*) is instead addressed to readers who are still unaware of the significance of the mid-1950s revolution in the study of language and the brain, and it attempts to open a smooth, helpful path for the readers toward that goal, in the process helping them to appreciate what we already know. As Marc Hauser points out in his book jacket endorsement, *LinC* shows 'why biology must form a core part of the mind sciences, and how the mind sciences, and especially language, can pose new challenges for biology'.

Linguistics plays three roles (13): (i) as a theory of a particular aspect of human cognition (the language faculty or, perhaps more to the point, the language organ), (ii) as a model for the investigation of other aspects of human cognition, and (iii) as a program for the formulation of 'questions about how the brain produces the mind' (in other words, psychoneurology, with some hints about its relation to physioneurology, terms not used in *LinC*; see Moro 2012).

Needless to say, the term 'cognition' does not cover a unitary phenomenon, as B makes clear; rather, it is an overall term that includes a number of systems—knowledge, understanding, interpretation, perception, belief, and so on. Language is just one of the systems that interact to form the whole complex of human cognitive structures.

B's aim, which he takes to be 'very modest' (clearly an understatement), is 'simply' 'to give the reader a sense of what it took to lay the foundations of modern cognitive studies' (12–13) and, by bringing out some of its richness and promise, hopefully to convince his readers of the significance of the advances of the last half century and help a number of them to realize that they too might be able to make a contribution.

As is to be expected, his guiding idea is Noam Chomsky's central claim that humans come genetically equipped with the capacity to develop knowledge of at least one spoken or signed language (visual or tactile, used by deaf/blind individuals—the Tacoma method) from the utterances they hear or the signs they see, and to make sense of those utterances or sign sequences. As B emphasizes, this capacity—like other capacities that have been studied, such as vision (Marr 1982), music (Lerdahl & Jackendoff 1983), or morality (Mikhail 2011)—is both severely constrained and extremely rich in its potential, in ways that can be understood only from a mentalist (psychoneurological) stance, as he attempts to show. Needless to say, this requires a readiness to posit principles of the mind that are up to the challenge of language 'acquisition' by the child (more precisely,

* I am indebted to Noam Chomsky for the reference to Lewontin's paper.

language mental growth and language use, a necessary early experience (cf. Strozer 1994): use it or lose it (as in the case of kittens placed in a deprived environment referred to on p. 49).

The fundamental questions of Chomsky's biolinguistic perspective serve as a framework for the book (12). The name Chomsky suggested for each one, not given in *LinC*, is attached to each below in 1.

(1) a. What is the best characterization of our knowledge of language? (Humboldt's problem)
b. How is that knowledge acquired? (Plato's problem)
c. How is that knowledge put to use? (Descartes's problem)
d. How is that knowledge implemented in the brain? (Broca's problem—or, I may add, reaching further back, Gall's problem)
e. How did that knowledge emerge in the species? (Darwin's problem; needless to say, not much is known about question 1e, which perhaps will always be the case, as Lewontin (1998) argues and Chomsky has emphasized.)

Thus, the book is divided into four parts of three chapters each, plus a prologue and an epilogue. The title of each part (given below), meant to suggest the corresponding question, does not always make the correlation with its topic immediately obvious, something that can be remedied to a point by reading the epilogue before reading the main text.

As B makes clear, those four questions go well beyond what is often understood as the traditional areas of language study. From the perspective B adopts, thorough inquiry into language involves a number of disciplines, among them psychology (more precisely, psychoneurology), including a developmental phase, thus inviting scientists of different specializations to join forces, trying to learn from each other in the process.

The topic of Part 1, 'Ever since Chomsky', an echo of Stephen Jay Gould's *Ever since Darwin* meant no doubt to be suggestive of a parallel significance (see Lewontin 2010), is knowledge of language in the context of the cognitive revolution of the mid-1950s. The question 'what do we know when we know a language?' is clearly logically prior to the other three. We can proceed to the investigation of the other three questions only to the extent that we have some understanding of the answer to question 1a. The way to pursue this task is to attempt to construct a grammar of the particular language under study, that is, a theory that describes how this language assigns specific mental representations to each linguistic expression by determining its form and its meaning. A possible (and arguably plausible) answer to question 1a is explored in Part 2, 'Unweaving the sentence', which attempts to show that 'all roads lead to universal grammar'.

Question 1b—the gap between knowledge of a language and individual experience, explored in Part 3, 'The mental foundations of behavior'—is generally considered much harder. Since language learning is not something that the child does, but rather something that happens to a child as a language grows in her or his brain, language growth appears to be a more appropriate term (the language organ grows like any other organ of the body; for Plato, knowledge was akin to 'reminiscence'). In technical terms, it involves the appropriate setting of a small number of relevant parameters.

Question 1c, explored in Part 4, 'Missing links', is the problem posed by the creative side of language use in its two aspects: the perception problem and the production problem. Inquiry into questions 1d and 1e is largely a task for the future, and there is a strong possibility that we will never know much about it, as Lewontin has pointed out (see Lewontin 1998, Larson et al. 2010). Part of the difficulty in undertaking such inquiry is that potentially invasive experiments with human subjects, who alone are endowed with language, are excluded for ethical reasons (in contrast with the study of, for example, the human visual system, for which there are analogs in nonhuman animals, which, rightly or wrongly, are taken to be open to invasive experimentation).

By now it should be obvious to anyone familiar with the results attained in the study of human language since the mid-1950s, clearly outlined in *LinC*, that the answers we are inclined to give today to the first three fundamental questions are quite different from those that were widely accepted a generation ago, a measure of the progress that biolinguistics has made since then.

Although written with a general audience in mind, most readers will benefit from working through the presentation of the topic with some care. Surprisingly, the crucial hypothesis that language essentially reduces to two interfaces plus recursion (Chomsky 2007) is nowhere mentioned. The term 'interface(s)', barely mentioned, is not listed in the index.

An outstanding feature of the book is that it includes a good number of well-designed illustrations that make some of the main points transparently clear (see pp. 20–21, 58–63, 66, 69–70, 76, 151–56).

It is easy to agree with Noam Chomsky when he writes in his endorsement that B is 'a lucid and engaging expositor', and that his book 'brings together the right topics, some right at the edge or even at the horizons of research', which he does with extraordinary lucidity.

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Where do phonological features come from? Cognitive, physical and developmental bases of distinctive speech categories. Ed. by G. Nick Clements and Rachid Ridouane. (Language faculty and beyond: Internal and external variation in linguistics 6.) Amsterdam: John Benjamins, 2011. Pp. xv, 347. ISBN 9789027208231. $158 (Hb.)

Reviewed by B. Elan Dresher, *University of Toronto*

Rachid Ridouane writes in a brief preface that this volume is dedicated to the memory of his coeditor, G. Nick Clements, who died just as it was nearing completion. It is based on papers presented at the conference Where do Features Come From?, held in Paris in 2007, and supplemented with some additional papers. The volume is intended to give a state of the art of current research on feature theory, and in this it largely succeeds. What it reveals is a field advancing in different directions and employing diverse methodologies, but whose basic questions remain very much unresolved.

In their overview, Rachid Ridouane and G. Nick Clements list a series of questions about distinctive features that the papers in the volume address: How do they originate? How are they cognitively organized? How do they pattern in phonological systems? How are they extracted from the signal? How are they enhanced? What role do they play in language acquisition? Following this introduction, the volume is organized into the following parts: general and cognitive issues; acoustic and articulatory bases of features; extracting features from the signal; and features in phonological development.

The paper by Abigail C. Cohn is an interesting review of the role of distinctive features in generative phonology, and touches on most of the major themes of the volume. One of the questions she takes up is whether segments or features are phonological primitives. She considers four possible answers to this question: the primitives are (i) segments, (ii) features, (iii) neither, or (iv) both. After discussing the pros and cons of each of these answers, she concludes, somewhat surprisingly, that the correct answer is none of the above. This suggests that something may be amiss in the formulation of the question. A place to look may be the term 'primitive', which may be understood in different ways. One sense of 'primitive' is of a unit that cannot be decomposed further; in this sense, segments could not be primitives if they are analyzed into features. There is another notion in play, however: the question of whether the phonology can refer to segments as wholes, in which case segments could be primitives even if they can be decomposed into features. A third sense of 'primitive' refers to epistemological priority: do learners have features from the beginning (in which case they would be primitive in this third sense), or are they acquired from 'finer-grained phonetic primes' (36) (in which case features are not primitive in sense three, though they may come to be primitives of the acquired phonology in sense one)? Tied up with these issues are the notions of innateness and universality. Cohn's conclusion that 'the characterization of segments in generative phonology as combinations of universally-defined distinctive features is approximately, but not literally, correct' (16) is thus a bit enigmatic, but perhaps accurately reflects current thinking.

Clements has argued that sound systems do not simply maximize the differences between segments, but are characterized by an economical use of features. Scott Mackie and Jeff Mielke present the results of the first large-scale study of feature economy, applying several different ways of measuring it in natural and synthetic inventories. They find that natural inventories are more economical than would be expected by chance; however, they also find that artificial vowel systems created without features are at least as economical as real ones, indicating that economy does not necessarily depend on features.

Björn Lindblom, Randy Diehl, Sang-Hoon Park, and Giampiero Salvi ask where feature economy, what they call 'the re-use principle', comes from. In a wide-ranging and inventive paper, they develop measures of perceptual contrast and articulatory effort, and demonstrate, through simulations, that these factors, either individually or in combination, are not sufficient to account for economy. They propose that '*the key to the re-use phenomenon is a mastery of motor equivalence and the use of context-free target representations*' (88). That is, learners do not acquire specific gestures, but rather auditory (sensorimotor) targets that can be reused in novel contexts. They propose that these targets are the source of phonological features. More generally, they argue that general articulatory, perceptual, and developmental factors can go a long way in accounting for sound structure as long as one recognizes the interplay between these causes.

Hyunsoon Kim considers what features underlie the /s/ ~ /s'/ contrast in Korean, a question bound up with the vexing puzzle of how to align this two-way fricative contrast with the three-way contrast of lenis (/t/), fortis (/t'/), and aspirated (/t^h/) stops. Integrating phonetic (stroboscopic cine-MR, acoustic, and aerodynamic) studies and phonological evidence, Kim argues that both fricatives are [–spread glottis] (hence, not aspirated) and are distinguished by the feature [tense], thus aligning /s/ with lenis stops and /s'/ with fortis stops.

Philip Hoole and Kiyoshi Honda investigate whether the higher F0 that is typically found in vowels following voiceless consonants is the automatic mechanical consequence of the articulatory system, or is used by speakers to actively enhance voicing distinctions. From a study of

cricothyroid (CT) activity in German using electromyography (EMG), they suggest a hybrid model: 'the basic F0 effects are indeed a mechanical consequence of more fundamental articulatory manoeuvres for voicing and vowel height. But some speakers (some of the time) may latch onto these effects and reinforce them with active muscular adjustments' (132).

Part 4, 'Extracting features from the signal', contains three papers that present diverse approaches to the topic. Diana Archangeli, Adam Baker, and Jeff Mielke look at what happens in the case of a feature that is NOT extracted from the signal. American English /ɹ/ can be produced with distinct articulations that may not be distinguishable to infants and adult speakers; even if they are, learners would be faced with conflicting patterns from different speakers. The authors find that speakers adopt individual systematic patterns for which they have no evidence. They conclude: 'The spontaneous creation of systematic mental patterns involving the sounds of a language coupled with the hypothesis that sounds are mentally represented in terms of features in turn raises the question of whether at least some of those features might also be spontaneously created', rather than being mapped to 'an innately defined set of specific features' (193).

For Bob McMurray, Jennifer Cole, and Cheyenne Munson, discreteness is a 'defining property' of features, despite the gradient nature of the phonetic material from which they are extracted. Therefore, 'in order to determine where features come from, we must determine where discreteness comes from' (198). They propose a parsing mechanism called 'computing cues relative to expectations' (C-CuRE). Rather than look for acoustic invariants, C-CuRE attempts to account for variance as due to the effects of context: 'In this account, phonological features are *revealed* as listeners encode acoustic cues relative to expectations, as specific acoustic properties are attributed to the target sound or to elements of the context' (199). They illustrate how the model works in the case of English vowel-to-vowel coarticulation. The authors write that features are an 'emergent property of real-time perceptual processes that cope with the redundant variability in the speech signal' (230).

Willy Serniclaes approaches the problem of feature (in)variance from a Jakobsonian perspective that views features as differential units that may be expected to be fairly abstract. His solution to the contextual flexibility of the boundaries between features is to posit a geometric representation of the vocal tract derived from language-specific natural (psychoacoustic) boundaries. 'In this representation, features are language-specific (i.e. phonological) compounds of natural boundaries and remain invariant across contexts by rotation' (238). For example, the acoustic difference between a labial (say, /b/) and coronal (/d/) consonant is signaled by differences in their F2 formants. When preceding a vowel with an F2 that is close to the neutral position, the boundary between them corresponds to a natural acoustic difference in the direction of the formant transitions; but before vowels with more peripheral F2 settings (/u/ or /i/), the boundaries 'radiate' toward different directions. These contextual differences, as well as class differences between consonants and vowels, are incorporated into the proposed radial model, in which discrepancies between articulatory and acoustic representations are resolved by a radial transform (rotation) of the acoustic space to bring them into alignment. Serniclaes reports that a close match of rotated vowel and consonant boundaries has been found in studies of French, Swedish, and Spanish. He concludes that this alignment suggests that cognitive representations are based on articulation, but are abstract, in that only certain aspects of articulation are mapped.

The final section contains three papers on features in child phonology. Lise Menn and Marilyn Vihman inquire whether such features are inherent, emergent, or artefacts of analysis. Their answer is all of the above: features are inherent in the sense that they are biologically grounded, as opposed to arbitrary (284), but they are not 'pre-experiential cognitive givens'. They characterize their own stance as 'empiricist/emergentist': features 'become part of a mental grammar as they are discovered by the speaker, becoming more and more fully realized as they come to be more stably represented in production' (284). They devote much of their attention to criteria for deciding if a child has a feature, and it becomes clear that investigators will differ as to which of these criteria they consider to be decisive. Another aim of the paper is to come to grips with the 'challenging legacy' of Roman Jakobson. Thus, they find his account of the emergence of fea-

tures in child language to be 'so far removed from what children actually do that it is essentially useless as a serious basis for the study of acquisition' (261). Though his predictions are difficult to falsify, they suspect that he may have been misled by relying too heavily on data from French, German, and Russian. In contrast with Jakobson's attempts to make general statements about the order of phonological development, Menn and Vihman emphasize the great amount of variability in children's phonological development.

Alejandrina Cristià, Amanda Seidl, and Alexander L. Francis argue that it is necessary to separate the distinctive function of features (the basis of the ability to learn a pair of words differing in a single feature) from their classificatory function (required to learn sound patterns based on features): experiments with infants show that the two do not go together. These results suggest that what underlies toddlers' ability to discriminate two sounds may not be the same units that enable them to use this contrast in a phonologically relevant manner. On the innatist/emergentist debate over the origin of features, they side with the latter view that 'features emerge over the course of language acquisition' (307). More importantly, they distinguish between the acoustic and motor properties on which features may be based, and 'the abstract mental representations, the *phonological* features' that the child has to construct. They also present evidence that infants' ability to generalize sound patterns based on features appears to decline in the second year of life. This appears to be a consequence of learners' increasing immersion in the patterns of their native language, which limits their ability to learn new patterns in experimental conditions.

Stefanie Shattuck-Hufnagel, Katherine Demuth, Helen M. Hanson, and Kenneth N. Stevens observe that perception-based segmental transcription may not capture all of the contrasts that a child may be making, and may not adequately describe the cues that a child may be using to signal a contrast, particularly where these cues differ from those used in the adult language. They conclude, 'this work illustrates our belief that, in order to determine the nature of children's early lexical representations and processing capacities, it is necessary to analyze the *individual feature cues* in the signal, rather than the features and segments alone, and to take account of *variation in these cues* across tokens, contexts and speakers' (339).

In sum, this volume presents a diversity of views and methodologies that reflect the state of current thinking about phonological features. The majority of contributions lean toward the view that individual features are not innate but emerge in the course of acquisition; however, it also appears to be widely, if often tacitly, assumed that the notion of a feature is innate, and remains an important, perhaps necessary, aspect of an account of the phonological component of a grammar. This volume, in its range and high quality, thus serves as a fitting memorial to the work of Nick Clements, as well as a guide to future research. As Lindblom and colleagues remark, 'We will miss him as we continue to pursue the agenda that he defined for linguistics through his own work and this volume' (93).[1]

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[1] Other tributes to Nick Clements can be found in *Tones and features: Phonetic and phonological perspectives*, edited by John A. Goldsmith, Elizabeth Hume, and W. Leo Wetzels (Berlin: De Gruyter Mouton, 2010)—reviewed by D. Robert Ladd in *Language* 89.2.360–63; a special issue of the *Journal of Phonetics*, 'Phonetic bases of distinctive features', ed. by P. A. Hallé and G. Nick Clements (38.1, January 2010); and a web page of reminiscences at http://lpp.in2p3.fr/doc_html/remembering-nick-clements-new-ok.html.

The expression of information structure. Ed. by Manfred Krifka and Renate Musan. (The expression of cognitive categories 5.) Berlin: Mouton de Gruyter, 2012. Pp. xx, 468. ISBN 978311026008. $140 (Hb).

Reviewed by Emilie Destruel, *University of Iowa*, and David I. Beaver, *University of Texas at Austin**

The expression of information structure is a collection of articles on the current state of information structure (IS) and belongs to 'The expression of cognitive categories' series edited by Wolfgang Klein and Stephen Levinson. The volume is written to appeal to researchers and students of linguistics (both advanced undergraduates and graduates), targeting readers both with and without a background in IS who are interested in the theory and/or methodology of IS research. It consists of a thoughtfully selected combination of thirteen chapters that can each stand alone, with bibliographies appearing at the end of each chapter. It opens with an introductory article by the editors and continues with six language-specific articles on the grammatical realization of IS-categories in Chinese, English, French, Georgian, Hungarian, and Japanese, followed by six interdisciplinary and methodological articles discussing particular aspects of IS, namely empirical investigations, prosody, aspects of its psycholinguistics, acquisition, and computation.

The introductory article by the editors, Manfred Krifka and Renate Musan, entitled 'Information structure: Overview and linguistic issues' (1–43), orients the reader to the field of inquiry by describing how the notion of information structure and the categories traditionally associated with IS (i.e. FOCUS, TOPIC, and GIVENNESS) are conceived throughout the volume. While establishing the theoretical framework followed in the rest of the volume, the editors describe the various ways in which scholars have understood IS in the past literature, discuss the terminological issues stemming from these differences, and provide an argument for the approach they adopt. For illustration, the approach to focus adopted is one that follows Rooth's (1992) idea of the presence of relevant alternatives, which the editors argue encompasses all other definitions. Information structure is a universal notion: languages across the world provide their speakers with various strategies to encode information-structural categories, whether resorting to syntactic, morphological, and/or phonological means. Although the main part of the introduction incorporates examples from the English language, the editors devote a final section to outlining an inventory of crosslinguistic strategies, thus introducing the following language-specific chapters. These six chapters each describe how the three notions of focus, topic, and givenness are grammatically realized in a different language, respectively Chinese, English, French, Georgian, Hungarian, and Japanese. We summarize these descriptions in Table 1 later in this review.

Although the chapters have a uniform characterization, they also emphasize certain aspects that make the language under consideration special. For example, in the first chapter, 'The information structure of Chinese' (45–70), Daniel Hole discusses the complex system of focus-sensitive particles present in Mandarin Chinese in terms of two main subsystems, one for adverbial focus marking and one for ad-focus marking in a partition system. The latter involves a doubling of particles, which the author proposes to analyze as a focus-background agreement. In the second chapter, 'The information structure of English' (71–94), Susanne Winkler discusses one confounding aspect of the English language, namely the ambiguity of the default grammatical realization of focus by using prosody: a sentence with the main stress placed rightward allows for different interpretations, indicating a narrow focus on the object, a narrow focus on the predicate, or a broad focus on the entire sentence. Thus, no strict correlation exists between the realization of focus and the element focalized, and context plays an important role in the resolution of which interpretation is intended.

Wolfgang Klein, in 'The information structure of French' (95–126), discusses the divergence between the standard form and the colloquial form of the language. Following the idea present in Trévise 1986 and Lambrecht 1986, Klein shows how this divergence has implications for the marking of IS: the standard language displays rigid grammar rules that favor a fixed

* David Beaver would like to acknowledge support of NSF grant BCS 0952862 'Semantics and Pragmatics of Projective Meaning across Languages' at UT Austin.

LANGUAGE (FAMILY) & BASIC WORD ORDER	FOCUS			TOPIC		GIVENNESS
	INFORMATIONAL		CONTRASTIVE	ABOUTNESS	CONTRASTIVE	
	NARROW	BROAD & PREDICATE				
Mandarin Chinese (Sino-Tibetan) SVO: discourse-oriented, pro-drop language	in canonical position (prosodic marking debated)	SVO	copula *shi*; cleft *shi … de*	left periphery	morphological marker *ba*	definiteness effects linked to syntactic function/position (preverbal subject position is always interpreted as a definite; nonsubject position is indefinite)
English (Indo-European) SVO	in canonical position with pitch accent; heavy NP shift in right periphery with pitch accent	SVO	specific pitch accent; preposing in left periphery with fall-rise accent	unmarked intonation; preposing in left periphery	low rise accent	deaccentuation (prosodic reduction); pronominalization; deletion of redundant information
French (Indo-European) SVO	clefting (*c'est*-cleft); in canonical position with prosody (debated, especially whether pitch accent or phrasing)	clefting (*avoir*-cleft); SVO	clefting	dislocations (left and right periphery)	left dislocation	not discussed
Georgian (Kartvelian) SVO (colloquial), SOV(standard)	preverbal (with focus as its own prosodic phrase and LH pattern); postverbal (single prosodic unit with LL pattern); tonal boundary at left edge of focus element	SOV; SVO	more typically preverbal but no strict relation; clefting (with clitic copula *=a*)	preposing (precede focus) and contained in its own prosodic phrase	preverbal	not discussed

(TABLE 1. *Continues*)

LANGUAGE (FAMILY) & BASIC WORD ORDER	FOCUS			TOPIC		GIVENNESS
	INFORMATIONAL		CONTRASTIVE	ABOUTNESS	CONTRASTIVE	
	NARROW	BROAD & PREDICATE				
Hungarian (Uralic) SVO: pro-drop language	preverbal position with major stress and with obligatory destressing of following verb	canonical sentence (no movement to preverbal position); verb and postverb are accented	preverbal	in *topic field*: TopP position (left periphery) with rising contour	in TopP position (left periphery) with a rising contour more often found than a falling one	deaccentuation; deletion
Japanese (Japonic) SOV	in canonical position with slight F0 rise	SOV	in canonical position with sharp F0 rise; clefting; fronting	morphological marker *wa*	morphological marker *wa* and a sharp F0 rise	deletion; case-marker drop; compression of F0; movement for postfocal or post-WH material; left dislocation

TABLE 1. Summary of IS categories marking in six languages (Chs. 2–7).

canonical word order, while the colloquial language allows for major rearrangements and constructions. Register, however, is not the only decisive factor with regard to the structure of information, since some constructions are required even in the standard form. In 'The information structure of Georgian' (127–58), Rusudan Asatiani and Stavros Skopeteas argue that, despite the flexibility of the language's word order, the various realizations of focus are not categorically associated with different focus types. For example, preverbal foci are not systematically exhaustive. In 'The information structure of Hungarian' (159–86), Beáta Gyuris discusses the well-known exhaustive interpretation associated with the preverbal position, reviewing the different accounts given in past studies and arguing that the position is not entirely equivalent to an exclusive particle like *only*, contra É. Kiss 1998. The sixth chapter, 'The information structure of Japanese' (187–216) by Reiko Vermeulen, discusses two characteristics of the language, the morphological marker *wa*, which can be used to mark both contrastive and noncontrastive topics, and the different means by which givenness is signaled since the language lacks articles.

The final six chapters provide methodological and interdisciplinary insights on IS. In 'The empirical investigation of information structure' (217–48), Stavros Skopeteas examines how empirical methods have informed the relationship between form and function, that is, whether a given function is sufficient to trigger the occurrence of a linguistic form. Abstracting away from any theoretical framework, he offers a thorough description of three major paradigms used in empirical studies on IS to collect evidence: naturalistic data, semi-naturalistic data, and speakers' intuitions. The author discusses the advantages and limitations of each paradigm and the generalizations that can be drawn from results gathered by each, and argues that the three paradigms must be seen as complementary. The chapter by Aoju Chen, 'The prosodic investigation of information structure' (249–86), describes the phonetic and phonological cues involved in marking IS categories across languages such as pitch movement, duration, and intensity. She further discusses some of the methodological issues that arise when analyzing these cues, and ends by providing a step-by-step description of how to use the software Praat (Boersma & Weenink 2003) to run prosodic analyses.

In 'The psychology of information structure' (287–317), Heidi Wind Cowles describes how IS influences sentence processing, from both a production and a comprehension perspective, emphasizing that IS is a reflection of the speaker's intentions about the message she wants to convey. In production, the author discusses the general tendency for languages to realize given information before new, which is explained by the incremental nature of the way speakers process language. In comprehension, the category focus has direct effects on the accessibility of referents in memory, on guiding the interlocutor's attention to a certain piece of information, and on syntactic phenomena like ellipsis. In 'The acquisition of information structure' (319–61), Christine Dimroth and Bhuvana Narasimhan take up the discussion of the 'given-new' ordering preference in first language acquisition, noting that children may in fact prefer the opposite ordering 'new-given'. The authors also discuss the challenges that children encounter in acquiring IS because of the social, cognitive, and communicative abilities necessary to develop a full-fledged system. The chapter is rounded off with a discussion of research on second language acquisition, research implying that native-like achievement in IS is particularly challenging due to the complex nature of the phenomenon, that is, the fact that it involves multiple linguistic factors and is at the interface of multiple domains.

'Computation and modeling of information structure' (363–408) by Manfred Stede includes a discussion of the models that scholars have developed to account for sentence and discourse both in texts and in speech. One excellent example is the well-known centering theory (Grosz et al. 1995), a theory developed to account for local discourse coherence and salience in naturally occurring discourse. The author also describes the major issues encountered in speech recognition: detecting and interpreting prominence. The final chapter, 'Information structure and theoretical models of grammar' (409–47) by Ingo Reich, demonstrates that the primitive notions of IS are a fundamental component of grammar by showing how they interact with other domains such as syntax, semantics, and phonology. The author also provides a more detailed analysis of theories of focus in terms of the Roothian weak/strong distinction introduced in the editors' chapter.

The introduction to this volume, written by the editors, is unusual in two, related, ways. First, the bulk of the chapter, rather than being written to match the volume, is composed out of a well-known and highly cited paper that already appeared twice previously (Krifka 2007, 2008) and has only been lightly repurposed by the addition of further background. Second, this introductory chapter, while doing an excellent job of providing theoretical background, does little in setting the reader's expectations of the remainder of the volume: it does not state how the volume's contents were selected, how the chapters relate to each other and what general conclusions we might reach by reading them, or what goals the volume is intended to achieve. The additions made in repurposing Krifka's earlier paper do not include citations to any of the following chapters: the chapter introduces the reader to the field, but not to the book.

While the strengths of the chapter in providing a theoretical backbone for the book certainly outweigh its shortcomings, the failure to set expectations, to indicate how the volume is intended to be used, and to provide motivation for the following chapters leaves the metrics of evaluation for the volume open. From our own perspective, which does not align perfectly with the publisher's sleeve notes, the volume seeks to showcase the breadth of crosslinguistic and interdisciplinary research in the domain of IS and make it accessible to nonspecialists. These goals are quite successfully achieved despite some limitations that we discuss hereafter.

As opposed to other recent volumes, such as Zimmerman & Féry 2009, the present volume does not focus on original research but gives an extensive survey of important issues in the field. It documents a debated field and in many instances openly discusses controversial matters such as the role of prosody to mark IS in languages that primarily use syntax.

As we mentioned, one of the strongest aspects of the volume is the breadth of research reported. Indeed, each chapter covers a variety of past studies, showing how they are related and how they offer complementary or contradictory findings to a specific research question. This great variety helps to cast light on the important work that has been done in the field and the issues that have been at the heart of scholars' interests. One good example is the chapter by Skopeteas on empirical investigations (Ch. 8), which includes a comparison of different data-collection techniques used in various empirical studies. Variety is also found in the languages selected: while at first glance the choice of the languages discussed may seem arbitrary, the six that are represented cover five different language families and illustrate the variety of strategies that are used crosslinguistically to signal IS categories. The uniform characterization of these six chapters makes for an easy comparison between the languages, although the volume could have benefited from a summative table allowing a visually clear parallel (such as the one we provide here). The last six chapters of the volume succeed at including crosslinguistic references, providing insights for many languages other than English. The chapter on acquisition (Ch. 11) by Dimroth and Narasimhan is a good example as it includes data from Italian, French, Spanish, and German. The richness exhibited throughout the volume inevitably has some drawbacks: some chapters provide little detail on the motivation behind the research questions discussed and the importance of the findings, while others do not provide an in-depth description of the way in which the studies were conducted.

By and large, the chapters within the volume overlap nicely, and some important patterns are discussed from different perspectives such as (i) the tendency for positioning given elements before new ones, (ii) the tendency for not realizing all parts of a sentence equally, and (iii) the tendency to mark pragmatically stronger foci such as contrastive, exhaustive, and verum differently from informational foci. Even though some chapters refer back to the introduction, there is some amount of repetition concerning the definitions of focus, topics, and givenness. However, this has the fortunate effect of making each chapter independently readable and able to be assigned in a course without necessarily having to refer to other chapters. The introduction is a useful read in addition to individual chapters as it provides an overview of the theoretical framework, definitions, and linguistic expressions relevant in the volume. In that respect, it has the merit of imposing coherence in a field that has often suffered from terminological confusion. Coherence also appears in the phenomena discussed in the different chapters, in particular that of association with focus, which is analyzed in almost every single chapter.

Overall, the author of each chapter assumes a fair amount of familiarity with notions of information structure, especially the ones discussed in the introduction, but no familiarity with the subfield analyzed. Yet, the relevance of the issues discussed in some chapters will be more accessible to scholars with a background in information structure or the subfield itself. The language-specific chapters provide a comprehensive examination of both default and marked strategies used in the languages to signal IS, without assuming prior knowledge about the language. Therefore, these chapters will be very accessible to scholars and students who are interested in crosslinguistic research.

From a pedagogical perspective, the volume would not be appropriate for students lacking significant prior training in linguistics, as familiarity with linguistic research is expected in each chapter. Two partial exceptions are the chapter by Skopeteas (Ch. 8), which will be valuable for students or researchers who are interested in carrying out empirical research and wonder about which type of data to collect, and the chapter by Chen (Ch. 9), which can serve as a hands-on guide to students interested in analyzing prosody but who have no prior exposure to it. Further, and contra what is indicated in the publisher's sleeve notes, we would refrain from describing the volume as a textbook, as we believe it lacks some of the main features textbooks generally possess. Because the volume is thematically organized and the chapters run in parallel with no interdependence, the volume as a whole does not implement a pedagogical sequence by which each chapter would logically build on what has been previously discussed. Yet, within chapters, an incremental structure is often achieved. Therefore, the individual chapters from the book would be excellent reading material to supplement both graduate and advanced undergraduate seminars in order to examine the breadth of research in the field of information structure and the main issues that scholars have been exploring. For example, the language-specific chapters would be extremely useful in a class on syntax, semantics, or typology. Another factor that speaks against the volume's use as a textbook is that, while chapters provide a concise overview of the past literature, they do not always seek to direct further thoughts or reflection about the future direction of the subfield to the reader.

Altogether, the volume offers an excellent depiction of past and current work in a lively field of study. The volume will be an essential reference for those working on information structure, an interesting and informative read for students and researchers with an interest in theory of grammar, typology, language acquisition, and psycholinguistics, and a good reference for linguistics departments and general academic libraries.

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Sluicing: Cross-linguistic perspectives. Ed. by Jason Merchant and Andrew Simpson. Oxford: Oxford University Press, 2012. Pp. xiii, 289. ISBN 9780199645770. $55.

Reviewed by Luis Vicente, *Universität Potsdam*

The back cover blurb of *Sluicing: Cross-linguistic perspectives* presents the book primarily as a collection of articles about the properties of sluicing in a variety of languages (specifically, English, Dutch, Frisian, Serbo-Croatian, Romanian, Turkish, Malagasy, Chinese, Japanese, Hindi, and Bangla). I do not provide a chapter-by-chapter summary of the book, given that the editors' introduction (Ch. 1) already contains an excellent one and Oxford University Press has graciously decided to offer this one chapter as a free download from the book's website (http://ukcatalogue.oup.com/product/9780199645763.do). Suffice it to say that all of the chapters are very competent pieces of research, combining new or little-known data with detailed technical analyses. If they had not been compiled into this book, the chapters could have easily found their way into the pages of the top journals in the field.

What I want to do here instead is to take a step back from the individual chapters, so as to gain a better perspective on the broader line of research that this book represents. In this respect, it is fortunate that the editors have decided to reprint John R. Ross's seminal 1969 article 'Guess who?' as Ch. 2, so that it functions as a prologue of sorts to the rest of the chapters. Ross's central insight is that a sluiced clause has the same underlying syntax as a wh-question; it is just that a large part of it remains unpronounced. The rest of the chapters take Ross's insight seriously, to the extent that the following is an accurate one-sentence summary of the main theoretical theme of the book.

(1) The best analysis of sluicing is the one in which the syntax of sluicing deviates the least from the syntax of wh-questions.

Note that this is neither trivial nor obvious. Your local sluicing expert will be quick to point out that there are a number of analyses that, for a variety of reasons, choose not to adhere to 1. For example, Chung and colleagues (1995) argue that the sluicing site contains an impoverished syntactic structure, and Culicover and Jackendoff (2005) argue that it contains no structure at all, the correct reading of the sluiced clause arising from semantic and/or pragmatic mechanisms (e.g. LF-copying in Chung et al.). Similarly, there are analyses where sluiced clauses, while having the same syntactic structure as wh-questions, are subject to fewer restrictions: for example, Richards (2001) claims that English exceptionally allows multiple overt wh-fronting under sluicing, and Almeida and Yoshida (2007) claim that Brazilian Portuguese, a non-P-stranding language, exceptionally allows P-stranding under sluicing. There are consequences, however, to not adopting 1 as your working hypothesis. If 1 is true, we expect that, for any language we examine, the whole range of syntactic and semantic properties of wh-questions will be present in sluiced clauses, too. In contrast, there is no reason to expect such a consistent correlation if 1 is not the correct working hypothesis. Obviously, this is a question that has to be resolved empirically—in fact, as the chapters in this book collectively do, by examining both sluicing and wh-questions in a variety of languages and determining whether adopting 1 leads to interesting insights.

In practice, this task is more complicated than I have made it sound, partly because individual languages exhibit a range of idiosyncrasies in the way they construct wh-questions. This requires the authors to devote a sizeable portion of each chapter to mapping out the syntax of wh-ques-

tions (and different subtypes thereof) in the corresponding language in detail; otherwise, there would be no reliable baseline against which to compare sluiced clauses. Consequently, readers can expect to end up learning as much about WH-questions as they do about sluicing. In other words, one can add the slogan in 2 as a corollary to the thesis in 1.

(2) If you want to understand the syntax of sluicing in any given language, you also need to understand the syntax of WH-questions in that language.

The result, at least as far as the languages examined here go, is that 1 and 2 are indeed the correct working hypotheses. In fact, the book's notable skew toward WH-in-situ languages (which account for six out of the nine chapters that report new research) is arguably a powerful way of testing the validity of 1 and 2. To give a single example, consider Kizu's (2000) and Merchant's (1998) claim that what looks like sluicing in Japanese should be reclassified as pseudo-sluicing (i.e. an elliptical *it*-cleft with a WH-pivot), since it lacks various properties of English-type sluicing. Kizu's and Merchant's contention is that this difference between English and Japanese can be ascribed to the fact that the latter, but not the former, lacks overt WH-fronting. Now, the discussion in Ch. 6, 'Case morphology and island repair' by MASANORI NAKAMURA, and Ch. 7, 'Island-sensitivity in Japanese sluicing and some implications' by TERUHIKO FUKAYA, relies on the fact that Japanese WH-words do not necessarily stay overtly in situ. Specifically, they can undergo movement to SpecCP (giving rise to a structure largely analogous to that of English-type WH-questions), but crucially this movement is not WH-fronting, but rather focus fronting. Given this much, the question arises of whether this class of Japanese WH-questions supports TP deletion in the same way that English WH-questions do. Nakamura and Fukaya answer this question in the affirmative, showing that an analysis along these lines correctly predicts certain subtle locality effects, also found in English, that are contingent on overt movement of the WH-phrase. In short, Nakamura and Fukaya are able to gain new insights into Japanese sluicing precisely because they implicitly accept 1 and 2—that is, that the syntax and, by extension, the properties of sluicing very closely parallel the syntax and properties of nonelliptical WH-questions. Abstracting away from the variation in languages and specific properties under investigation, all of the chapters in this book follow a similar line of reasoning.

Overall, the contributors to this book are collectively pushing for a very spartan approach to sluicing—that is, in the best possible world, sluicing would be just a WH-question where TP remains unpronounced when a suitable antecedent exists, and no further principles or restrictions need to be formulated. It is doubtful that this ideal can be attained (see e.g. the morphosyntactic restrictions discussed in van Craenenbroeck 2010 or Merchant 2013), but the research reported in this book suggests that we can get surprisingly close to it. The value of these chapters (and of similar papers not included here, e.g. Lasnik 2013 or Gribanova 2013) lies in demonstrating that, by staying faithful to 1 and 2, we are led down a research path that provides valuable new insights along the way. As I already said, this result is neither trivial nor obvious, but it is certainly important. I, for one, welcome the fact that there now exists a book that makes this point in this particular way.

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Constraints on displacement: A phase-based approach. By GEREON MÜLLER. (Language faculty and beyond 7.) Amsterdam: John Benjamins, 2011. Pp. x, 339. ISBN 9789027208248. $158 (Hb).

Reviewed by HISATSUGU KITAHARA, *Keio University*

The central issue Gereon Müller addresses in this monograph is the existence of locality constraints on displacement in human language. Beginning with a careful evaluation of locality constraints based on notions such as simplicity, generality, efficiency, nonredundancy, and minimization of search space, M argues that every major locality constraint proposed in recent decades is incompatible with core minimalist assumptions. Such locality constraints include the (GENERALIZED) MINIMAL LINK CONDITION (where structure-building features are enclosed in bullets, as in [•F•]) and the CONDITION OF EXTRACTION DOMAIN (where proper-government is replaced by complement).

(1) (Generalized) minimal link condition ((G)MLC): In a structure $\alpha_{[\bullet F\bullet]} \dots [\dots \beta_{[F]} \dots \gamma_{[F]} \dots] \dots$, movement to [•F•] can only affect the category bearing the [F] feature that is closer to [•F•].

(2) Condition of extraction domain (CED)
   a. Movement must not cross a barrier.
   b. An XP is a barrier iff it is not a complement.

Thus, a new approach to the effects of the (G)MLC and CED is called for, and this monograph attempts to see to what extent such effects can be derived from more basic principles within a minimalist framework.

The monograph begins with a brief introduction (1–8), which outlines key assumptions and new proposals, and it consists of the following seven chapters. Ch. 1, 'Locality constraints' (9–66), and Ch. 2, '(G)MLC and CED in minimalist syntax' (67–118), provide an overview of the development of the (G)MLC and the CED, and argue that these two highly general, widely accepted constraints (as well as other existing minimalist accounts for CED effects) are not just empirically problematic but also conceptually questionable, as they are evaluated in terms of notions such as simplicity, generality, efficiency, nonredundancy, and minimization of search space. They are shown to be incompatible with such core minimalist assumptions in a strictly derivational model of syntax.

Ch. 3, 'On deriving (G)MLC effects from the PIC' (119–64), and Ch. 4, 'On deriving CED effects from the PIC' (165–238), argue that the effects of the (G)MLC and CED are derivable from the PHASE IMPENETRABILITY CONDITION (introduced in Chomsky 2000) and the EDGE FEATURE CONDITION (revised from Chomsky 2000, 2001).

(3) Phase impenetrability condition (PIC): The domain of a head X of a phase XP is not accessible to operations outside XP; only X and its edge are accessible to such operations.

(4) Edge feature condition (EFC; revised): The head X of phase XP may be assigned an edge feature before the phase XP is otherwise complete, but only if there is no other way to produce a balanced phase.

These two principles are supplemented by the following four assumptions: (i) all phrases are phases, (ii) all syntactic operations are driven by features of lexical items, (iii) operation-inducing features are hierarchically ordered on lexical items (where only features on the top are accessible), and (iv) edge features can be assigned only if the phase head is active (meaning that it bears at least one feature to discharge). Given these assumptions, the PIC demands that successive-cyclic movement takes place in a radically local manner (via every phrase edge); and under the EFC, the assignment of an edge feature (required for intermediate movement) is limited to an active head (bearing at least one feature to discharge), and such feature assignment takes place only when there is no other way to produce a balanced phase. Following Heck and Müller (2000, 2003), M takes a phase to be balanced if, for every structure-building feature in the numeration, there is a matching feature that is either part of the workspace of the derivation, or at the edge of the current phase.

Given this much, the effects of the (G)MLC and CED are shown to follow from the PIC. First consider the effects of the (G)MLC. Suppose that two items are competing for movement, and one is higher (meaning it is merged later) than the other. Then, the higher item can be used to produce a balanced phase (at some later point of the derivation); hence, the assignment of an edge feature to the phase head (whose search domain contains the lower item) is blocked, and subsequent movement of the lower item necessarily violates the PIC (compare *Who did you persuade to read what?* and **What did you persuade who to read?*). Next consider the effects of the CED. Suppose that the last application of Merge in a phase cycle creates a specifier of the phase head. Then, upon the creation of this last-merged specifier, the phase head is no longer active; hence, the assignment of an edge feature to the phase head is blocked, and subsequent movement of an item out of this last-merged specifier necessarily violates the PIC (compare *Who did the reporters expect that the principal would fire?* and **Who was that the principal would fire expected by the reporters?*).

The proposed analysis, based on the PIC and the EFC, is further shown to be empirically superior, making correct predictions that the (G)MLC and the CED have nothing to say about. There are three distinct cases. M first identifies an intervention effect of α such that α does not c-command (or dominate) β, yet α blocks movement of β (compare *Who saw the man that bought what?* and *?***Who did the man that bought what see?*; in the deviant case, *what* does not c-command *who*, yet *what* blocks movement of *who*). M then identifies a hitherto unnoticed effect that M refers to as 'melting', that is, local scrambling in front of what would otherwise count as a last-merged specifier renders this lower specifier transparent, allowing extraction out of it (compare **Was haben für Bücher den Fritz beeindruckt?* and *Was haben den Fritz für Bücher beeindruckt?*; in the nondeviant case, *den Fritz* is scrambled in front of *Was für Bücher*, and *Was* is extracted out of it). Finally, in an appendix to Ch. 4, M explores the possibility that morphological reflexes of successive-cyclic movement (exhibited in languages such as Modern Irish) are not reflexes at all; rather, the merger of such morphological materials makes successive-cyclic movement possible, an effect that M refers to as 'pseudo-melting'.

Ch. 5, 'Operator island effects' (239–66), extends the analysis, developed in the preceding chapters, to operator islands (WH-islands and TOPIC-islands), typical relativized minimality effects (e.g. **How*$_2$ *does she know* [[*which car*]$_1$ *Mary fixed* t_1 t_2]*?*). This analysis appeals to a property that M calls 'the intermediate step corollary'; that is, intermediate steps of successive-cyclic movement end up in nonoutermost specifiers if more than one specifier is available. Given this property, M argues that operator island effects follow if certain types of goal features on categories (such as WH-features) automatically trigger checking as soon as intermediate movement steps place such goal-feature-bearing categories in suitable checking configurations. This checking analysis is based on the concept of feature maraudage (introduced in Georgi et al. 2009).

Ch. 6, 'Movement from verb-second clauses' (267–95), and Ch. 7, 'Island repair by ellipsis' (297–313), capture the absence of CED effects in two distinct cases: (i) a peculiar asymmetry concerning movement from verb-second clauses in German: that is, verb-second clauses are islands for movement into verb-final clauses, but not for movement into verb-second clauses, and (ii) standard cases of island repair by ellipsis in sluicing constructions. What unites these two cases is the presence of an (additional) operation-inducing feature on the phase head after it has discharged its final structure-building feature. In asymmetry (i), it is the feature that triggers verb-second. In ellipsis (ii), it is the feature that triggers deletion. In each case, the phase head remains active: that is, the assignment of an edge feature to the phase head is permitted, and subsequent movement of an item satisfies the PIC.

The empirical coverage of this monograph is impressive. It provides a very insightful reanalysis of the standard effects of the (G)MLC and CED, while at the same time making correct predictions about further data that are not adequately accounted for by either condition. Under M's proposal, (G)MLC effects are not a matter of intervention; what matters is the presence (or absence) of matching features outside the phase complement. Similarly, CED effects are not a matter of position; what matters is the presence (or absence) of operation-inducing features on the phase head. Given this reductive feature-based analysis, there is only one locality constraint on displacement, namely the PIC, an arguably third-factor constraint that contributes to efficient computation and enhances the minimization of search space.

The theoretical implications of this monograph are intriguing. To the extent that M's analysis is tenable, it provides a strong argument for the feature-driven, strictly derivational approach. Interestingly, however, it is inconsistent with Chomsky's (2007, 2008) hypothesis that Merge applies freely as long as it conforms to third-factor principles. It also provides a strong argument for explicit hypotheses that determine the insertion of an edge feature. But such postulation itself is not exempt from possible explanatory scrutiny. Whether a reduction in one component leads to a corresponding proliferation elsewhere needs to be addressed.

Ultimately, much future research is necessary before all of these issues can be fully resolved, but for anyone concerned with the nature of locality constraints on displacement and their theoretical consequences in a minimalist framework, this monograph is a must-read.

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A lateral theory of phonology: What is CVCV, and why should it be? By Tobias Scheer. (Studies in generative grammar 68.1.) Berlin: Mouton de Gruyter, 2004. Pp. lix, 854. ISBN 9783110908336. $182 (Hb).

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Reviewed by Marc van Oostendorp, *Meertens Instituut*

One of the problems of phonological theory is that its contents have become very scattered over the past decades. A large number of subtheories have been developed in order to deal with (among other things) the internal organization of phonological segments, their phonotactic organization into higher-order structures, and the interfaces with morphosyntax and phonology, for example. These theories were developed more or less independently of each other, and can be freely combined.

A clear example of this is optimality theory (Prince & Smolensky 2004), which over the past two decades has been considered the standard model of phonology. Optimality theory is in many ways rather limited in its scope: it provides us with a theory of language variation (languages differ by the ranking of their constraints) and a theory of the mapping of underlying forms to the phonological output. However, the theory is neutral with respect to many other aspects; it could be, and has been, combined with many very different views of morphology, of syllable structure, or even of the source of the constraints that are so central to the theory—for instance, whether they are purely formal and universal, or whether they are constructed by the language learner on a functional and phonetic basis.

The 'standard theory' is a formal object with a lot of parameters; every individual theorist can choose his own parameter settings, even on an ad hoc basis: in order to make an analysis of, say, vowel harmony, one needs some assumptions about morphology (is it word based or morpheme based?) and chooses the one that fits the analysis best. This allows a lot of theoretical creativity, but it also makes it very difficult to put together a coherent picture of what phonology looks like.

In more or less the same period of time, the framework of government phonology has grown as an alternative with a very different kind of methodology: since its inception (Kaye et al. 1985, 1990), phonologists working in this framework have tried to build up a single coherent framework wherein theoretical assumptions are all mutually dependent: replacing, say, the assumption of a principles-and-parameters framework of variation with constraint ranking, while keeping representational assumptions in place, is usually deemed impossible.

This effort has culminated in the two volumes of Tobias Scheer's *A lateral theory of phonology*. The first volume, *What is CVCV, and why should it be?*, appeared in 2004, and the second volume, *Direct interface and one-channel translation: A non-diacritic theory of the morphosyntax-phonology interface*, in 2012. The 1,300 pages of these two volumes cover a lot of theoretical and empirical grounds—ranging from the representation of syllabic consonants in Czech to external sandhi in Corsican, and from German homorganic consonant clusters to *v/w/u* allophony in Belorussian. (S published a third book in 2011, *A guide to morphosyntax-phonology interface theories* (not discussed here), which also grew out of this project as an ambitious overview of the interface literature since structuralist times.) A short review such as this one can obviously not cover all of the issues. I restrict myself to one factum, in order to show the way in which very different theories interact within S's version of government phonology, called CVCV phonology. I also discuss some of the possible objections against this account.

Several Slavic languages have words that start with clusters that are impossible in a language like English; for example, Czech, Polish, and Russian have the word *rdezsno*/*rdest* 'knotgrass', whereas English has no word starting with an *rd* cluster. I take this phenomenon, which plays a role throughout *A lateral theory of phonology*, as an example of how S builds up an intricate argument.

Many theorists working in a standard framework would not spend a lot of time analyzing this. They would, for instance, posit with Rubach and Booij (1990) that Polish has a position for an extrasyllabic consonant at the beginning of the word that is not available in English. This extrasyllabic consonant could be attached directly to the left periphery of the phonological word, skipping the syllable level. This possibility would be absent in English because in that language a constraint disallowing such an adjunction would be higher ranked than a constraint for parsing all underlying consonants.

Within CVCV phonology, things are not that simple. The fact just mentioned plays a key role at the end of the second volume, and S basically needs all of the theoretical machinery in the preceding 1,000+ pages to explain it. I can only evaluate this as positive: it shows theoretical depth, and also meticulousness about the data. Volume 2 contains a fourteen-page appendix, which lists all possible onset clusters in all major Slavic languages.

The reason why the data are so problematic is because S tries to keep his theory extremely restrictive. In his view of phonotactics, there are no syllables as such, but only sequences of (single) consonants (C) followed by (single) vowels (V)—hence the name of the framework CVCV, and hence also the title of the book project, *A lateral theory of phonology*. There is no hierarchical structure in phonology; there are only lateral relations between consonants and vowels.

Now obviously, a language like English has words such as *brick*. Such words are necessarily represented in CVCV with empty (vocalic) positions, as shown in 1.

(1)


There is an empty position within the consonant cluster, and another one at the end. This reliance on empty positions is something that CVCV (or government phonology in general) is often criticized for: for one thing, these positions cannot be directly observed in the phonetic signal; they are also unrestricted. S devotes a large part of Volume 1 to refuting such criticism, first laying out his 'principles of argumentation' in four chapters, and then providing ten empirical and theoretical arguments in favor of a CVCV frame for phonology. These arguments are very serious and deserve serious discussion. (This is of course not the same as saying that one has to accept them without criticism; see my defense of the syllable as a hierarchical constituent against some of these arguments in van Oostendorp 2013.)

The main arguments against the skeptics of empty positions are theoretical in nature. One does not need empty positions in an anything-goes theory: if everything can be grouped together in any language, and consonants can be clustered together without restrictions, one need not postulate empty positions. It is only in restrictive theories that exceptional patterns start arising. One can obviously only do so when one can show convincingly that the empty positions are themselves restricted in their distribution. The phonotactic module of government phonology and CVCV theory is to a large extent just that: an account of where we can find empty positions, in terms of 'government' and 'licensing' of positions by other positions.

Space constraints do not allow me to develop all concepts in detail, but there are roughly two or three different types of empty positions, each of which is licensed in one of the following ways: (i) it is followed by another (nonempty) vowel, (ii) it is domain-final, or (iii) it is in between two consonants of rising sonority (referred to as TR, where T is a prototypical obstruent and R a prototypical sonorant). Each of these three licensing conditions is a parameter. Languages that lack (i) will typically not allow 'coda-onset' consonant clusters (as they would be called in other theories); languages without (ii) will not allow word-final consonants; and languages without (iii) have no complex onsets.

What makes this theory more restrictive than its alternatives is that these different types of licensing interact; for instance, domain-final empty vowels can be allowed in a language with the relevant parameter setting, but it will not then immediately license an empty position immediately preceding it. One criticism one could level against the empty vowels licensed by (iii) is exactly this: there is no evidence whatsoever for their existence, as far as I can determine. This can

be seen by considering words such as *compromise*. The first two syllables of this word have a structure similar to 2.

(2)
```
C V C V C V C V
| | |   |     | |
k ɔ m   p     r o
```

Here we have two empty vowels in a row, which is usually not allowed. In CVCV, it is assumed that the second empty vowel is not just licensed by occurring within a TR cluster, but also somehow made invisible, so that the vowel [o] can skip this vowel and license the empty position between [m] and [p].

This theory of government and licensing has changed in the eight years between the appearance of Vol. 1 and Vol. 2, so that this topic is discussed in both books. Otherwise, Vol. 2 presents a theory of the interface between phonology and morphosyntax, which, like the idea of CVCV, is heavily influenced by Jean Lowenstamm (e.g. 1996, 1999). A crucial component of this theory is that it does not accept prosodic categories like the phonological word or phrase, just like it does not accept syllables. S calls these elements 'diacritics', claiming that they are not real elements of phonological representation. They represent morphosyntactic information instead. He argues for a strictly modular theory of grammar in which the two cannot be mixed. Instead, syntax can influence phonology in two ways: either derivationally, through cycles, or phases, as they are currently called in minimalism, or through boundary symbols, which, however, should not be SPE-style diacritics such as # or + but have phonological content. With Lowenstamm, S proposes that the typical boundary symbol is an empty CV sequence, attached to the beginning of a word or phrase.

Whether or not such boundaries are inserted is a language-specific parameter. In a language like English, it is switched on at the word level, whereas in many Slavic languages it is switched off. This then explains, among other things, why word-initial RT is allowed in the latter languages but not in the former, as given in 3.

(3) a. Slavic
```
C V C V
|   | |
r   t e
```
b. English
```
C V C V C V
    |   | |
    r   t e
```
c.
```
C V C V
|   | |
t   r e
```
d.
```
C V C V C V
    |   | |
    t   r e
```

In Slavic, the empty positions within both RT and TR can be licensed (in the first case by the following vowel, in the second case by being within a 'complex onset'). In English, however, word-initial clusters are not allowed, since although the empty vowel in between can be licensed, it cannot in turn license the vowel preceding it. TR clusters are still possible since the vowel within that cluster is invisible, as we have just seen, so that the full vowel can still license the empty boundary position.

In my view, S's work is a monument, one of the very few attempts at arguing for a large, comprehensive, and coherent view of phonology. Its style is also very engaging; I have read very few phonological books that so often made me want to ARGUE with its author. That seems precisely the point. I do not think that anybody who is seriously interested in phonological theory can afford not to study these two volumes of *A lateral theory of phonology*.

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Word order. By JAE JUNG SONG. (Research surveys in linguistics.) Cambridge: Cambridge University Press, 2012. Pp. xvi, 348. ISBN 9780521693127. $54.50.

Reviewed by THOMAS WASOW, *Stanford University*

This book presents a very useful overview of a considerable body of literature. To survey a topic as big as word order in a book of manageable size, it was necessary to make choices about what to omit. Jae Jung Song's choices will not make all readers happy, but they are not unreasonable ones. First, the literature covered is largely confined to work of the last thirty years. Second, the only theories of grammar considered are the minimalist program (MP) and optimality theory (OT).[1] As a consequence, some extremely interesting ideas about how to handle word-order variation never get mentioned. In particular, there is no mention of the idea of decoupling linear precedence and immediate dominance in a phrase structure grammar, an idea that led to some productive research in generalized phrase structure grammar (Gazdar & Pullum 1981), lexical-functional grammar (Falk 1983), and head-driven phrase structure grammar (Reape 1993).

The book has seven chapters: brief introductory and concluding chapters sandwich one surveying what is known about word-order typology (which S abbreviates LT, for linguistic typology), two on MP, one on OT, and one on what S calls 'the performance-based approach'—that is, corpus and experimental research on word order.

Although S discusses these as though they were alternative theories of the same thing, they are in many ways not really comparable. LT seeks inductive generalizations over directly observable patterns, with relatively little attention devoted to explaining those generalizations. The performance-based approach tries to explain word-order patterns (both within and across languages) on the basis of processing efficiency[2]—that is, what makes utterances easy or hard to produce and comprehend. MP, by contrast, has little concern with what is directly observable or with the efficiency of linguistic processing. Rather, it seeks to deduce properties of language from three 'dimensions to the minimalist position: (1) virtual conceptual necessity; (2) economy; and (3) symmetry' (80). Facts about languages play a role in this enterprise only to the extent that they can be shown to follow from or contradict the analyses so deduced. The OT research S presents shares a largely top-down approach with MP, but, as S writes, 'OT needs to take into account what word order actually looks like on the surface' (183). Later on the same page, S characterizes LT as 'data-driven', and MP (and its transformational predecessors) as 'theory-driven', and says 'OT seems to strike a balance' between the two.

[1] Throughout this work, S refers to minimalism and its immediate predecessor, the theory of government and binding, as 'generative grammar', following a widespread and annoying practice of pretending that alternative generative theories (in the broader sense of the term stemming from the 1950s) do not exist.

[2] S takes the term 'processing' to mean parsing, but I am using it more generally to encompass the mental computations involved both in speaking and in understanding.

As a practitioner of the 'performance-based approach' who has not kept up with the other literature S surveys, I learned a great deal from reading Chs. 2–5. Ch. 6 covers material I was already familiar with, allowing me to assess the accuracy and completeness of S's coverage. In what follows, I comment on these chapters individually.

Ch. 2 examines the linguistic-typological approach. The method of LT, though inductive, presupposes prior theoretical choices. Going back to Greenberg's (1963) work in this area, typological generalizations about word order have been expressed in terms of subject, object, verb, preposition, postposition, and so on. These categories and their application to particular utterances involve implicit theorizing. Moreover, typologists' claims about the word order of a particular language are claims about basic or predominant orders—claims that require examination and analysis of a great deal of primary data. Given these complexities, it is striking how much progress has been made in LT over the half century since the publication of Greenberg's seminal paper. The number of languages surveyed has vastly increased; the set of elements whose relative orderings have been tested and correlated has expanded; general formulations unifying various ordering correlations have been proposed and tested; family and areal tendencies have been explored; and some proposals have emerged for explaining why certain typological generalizations hold.

This progress in LT has not been without internal disagreements—for example, over whether high-level generalizations about constituent ordering should be stated in terms of heads and dependents or in terms of tree configurations (branching direction). But it is striking how much common ground there seems to be among typologists, permitting this subfield to continue to move forward with relatively little backtracking.

In contrast, generative theories receive thorough overhauls with some regularity. This is undoubtedly part of the reason why S limited his discussion of work within the generative tradition to MP and OT in Chs. 3 and 4: covering more would have made the book unwieldy. Interestingly, however, most work within MP has little concern with word order. As S puts it, 'in Chomsky's orthodox theory of grammar, … linear order is "shunted off" to phonology' (118). Since generative phonologists have not taken over the task of accounting for constituent ordering, this amounts to abandoning the study of this class of phenomena.

The most influential work on word order within MP is Kayne's (1994) *The antisymmetry of syntax*, and S devotes much of Ch. 4 to it. Given the standard assumption that phrase structure can be represented by tree diagrams (and that such diagrams do not allow branches to cross or nodes to have more than one mother), the hierarchical structure of a tree partially determines the linear ordering of the leaves of the trees (that is, the words). Kayne adds assumptions about tree structure that tighten this relationship in such a way as to make c-command equivalent to linear precedence. Kayne's assumptions, based almost entirely on judgments of theoretical elegance, lead him to conclude that all languages have the underlying order specifier-head-complement (a generalization of SVO). Since most languages exhibit other orders most of the time, this theory entails complex transformational derivations, which in turn need to be justified within the assumptions of MP. S has a lengthy discussion of Kayne's ideas, as well as some criticisms and alternative proposals within MP. It gives the reader a sense of the style of MP research, though understanding the details would require consulting the primary sources. I confess that I was not tempted to do so. I found myself in strong agreement with the following assertion near the end of Ch. 4: '[D]eduction comes at a cost; stipulation removed by deduction from one area may result in something to be stipulated in another area' (156).

After introducing the basic concepts of OT via phonological examples in Ch. 5, S notes that 'OT has so far produced a relatively small amount of (cross-linguistic) research on word order' (184). Most of the chapter focuses on two lines of research, Costa 1997, 1998, 2001 and Zepter 2003. S's presentation does not make these works seem worthy of the space devoted to them. Costa seeks to account for only three basic word orders: SVO, VSO, and VOS (thereby excluding the majority of the world's languages from consideration). S explains how he derives these three orders through alternate rankings of five constraints. Curiously, he does not comment on the lack

of parsimony: the single constraint V < O is a far more economical way of licensing just these three orderings of S, O, and V. S's presentation of Zepter's work makes it appear almost as profligate, involving as many constraints as word orders.

Moreover, both Costa's and Zepter's OT accounts of word order are built on top of MP-style transformational analyses. This is a lot of theoretical firepower. A more straightforward approach would be to use violable ranked constraints to evaluate alternative word orders directly, without assuming that they are transformationally derived. Analyses of word-order phenomena along these lines have been proposed by Anttila (2008) and Anttila and colleagues (2010).

Anttila's work also falsifies S's claim that 'OT does not have any (meta)theoretical means of converting factorial typologies into numerical frequencies' (232). Indeed, deriving (and verifying) quantitative predictions from the combinatorics of OT constraint systems has been at the center of Anttila's research program. It is true that his work has been about frequencies of variants within a language (or across a set of dialects), whereas S was addressing the question of predicting the frequencies of languages exhibiting different word-order patterns. There is, however, no theoretical obstacle to employing Anttila's methodology for the prediction of typological frequencies.

S's discussion of performance-based approaches in Ch. 6 focuses largely on the idea that constraints on memory can affect what structures are easy to process, and that this in turn can affect what word orders are used. Variants of this idea have been developed by Hawkins (1994, 2004) and Gibson (1998, 2000). The basic idea of all of this work is that linguistic dependencies between nonadjacent elements impose a processing cost proportional to the size of the separation between the elements; hence, language users prefer orderings that minimize such separation, and this is reflected both in frequencies of forms within a language and in word-order patterns across languages. Different ways of measuring the separation lead to subtly different predictions, and S devotes some space to discussing these. S also cites work by me (especially Wasow 2002) and others arguing that a multiplicity of factors contributes to word-order choices. These include Hawkins/Gibson-style locality constraints, but also consideration of information structure (that is, given vs. new), inter alia. Not mentioned in this connection is some excellent work by Rosenbach (2002), Bresnan and colleagues (2007), and various other authors, showing a variety of other factors that influence the choice between alternative orderings within a language.

S's concluding chapter, 'Envoi: Whither word-order research?', though a mere five pages, is worth a comment. He sees encouraging points of convergence emerging among various approaches to the study of word order. In particular, he perceives the following general points of agreement (308):

- 'word order does not seem to be something to be explained in its entirety by means of single principles';
- linguists 'need to take cross-linguistic variation (more) seriously (than hitherto)'; and
- 'the oft-cited "schism" between the two research traditions in linguistics, the formal and functional, seems to be showing signs of being narrowed'.

I wish I shared S's optimism. Agreement, if it exists, at this level of generality is not especially impressive. And with respect to the third point, agreement as to the value of functional explanations means little in the absence of agreement regarding what the function of language is. The lines of research S calls performance-based are all based on a fundamental assumption that language is primarily a vehicle of communication, and that structural properties of language can be explained in terms of how they facilitate efficient communication. Chomsky (2002) explicitly rejects this idea, saying, 'The use of language for communication might turn out to be a kind of epiphenomenon' (107). Hence, even when practitioners of MP show some interest in functional explanations, they have little in common with the functional explanations offered in other subfields.

This review has emphasized points on which I take issue with S, resulting in a more negative tone than I had intended. So I close on a more positive note: S has done the field a real service in providing a balanced and thoughtful survey of such a large and varied body of research.

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Phrasal verbs: The English verb-particle construction and its history. By STEFAN THIM. (Topics in English linguistics 78.) Berlin: De Gruyter Mouton, 2012. Pp. xiv, 302. ISBN 9783110257021. $140 (Hb).

Reviewed by LAUREL J. BRINTON, *University of British Columbia*

Is the phrasal verb a distinctly English feature that arose at a certain stage in the history of the language and belongs to the colloquial register? In this insightful work, Stefan Thim debunks these 'myths'. The book is a critical examination of the literature, both synchronic and diachronic, on the topic of the phrasal verb (PV) in English (e.g. *carry out*, *use up*, *get by*). It is not an empirical study of the phenomenon (though T summarizes several short studies of PVs that he has undertaken). The book's major contribution to an understanding of the history of the PV is T's contention that a Germanic system of preverbs led to both prefixed verbs and verb-particle com-

binations (phrasal or particle verbs) and that it was large-scale changes in word order, not movement of the particle, that led 'towards almost exceptionless postposition of the particles' (5).

After a brief introductory chapter, Ch. 2 (10–73) sets the groundwork for the diachronic study that follows. It discusses the PV in present-day English and other Germanic languages. T begins by proposing an elegant—although perhaps ultimately somewhat simplified—three-way semantic distinction (or cline) between 'compositional' PVs, where the particle may be either directional or aspectual in meaning, and 'noncompositional' PVs. T argues that although aspectual particles do not express spatial meaning, the resulting PVs are semantically transparent. He insists on the importance of including compositional forms in any discussion of PVs because they provide 'the diachronic input to the development of aspectual and idiomatic meanings' (21) and are the only forms that exhibit all of the syntactic behaviors characteristic of PVs. In a comparative section, T argues that PVs of the three semantic types occur in the present-day Germanic languages, though differing positions of the particles are connected to the basic word order of each language; the 'striking' similarities 'point to their shared historical origins' (46). T places PVs within the realm of word formation, not phraseology, considering them cases of 'periphrastic word formation' belonging to the class of complex predicates. That is, PVs are not free syntactic combinations of verbs and particles but are compounds (of verb plus spatial particle) or derivations (of verb plus aspectual particle); noncompositional PVs are 'lexicalized complex construction[s]' (65). Further justification for the concept of 'periphrastic word formation' and greater consideration of the literature on collocations might have been useful here.

Ch. 3 (74–116) provides the core diachronic argument of the book. T begins with arguments for the existence of preverbs in non-Indo-European and Indo-European languages. Preverbs result from the decategorialization of adverbs in preverb position. In an object-verb language such as Germanic, univerbation of some preverb plus verb syntagms yields prefixed verbs, resulting in a synchronic layering of older prefixed verbs and newer preverb-verb combinations. (In other cases, adverbs may be decategorialized as adpositions, a topic not pursued here.) A densely argued discussion of the complexities of Old English word order—one of the 'most hotly contested area[s] of English historical syntax' (90)—ensues; it makes for a rather difficult reading for the uninitiated. T argues that preverbs become postpositions because of the general change from OV to VO order, consisting of movement of the verb in the following sequence (see figure 3-2).

(1) original order: O prt V v (prt = particle, v = finite verb, V = nonfinite verb)
clause brace: v O prt V
exbraciation: v V O prt / extraposition of object: v V prt O

The patterns of particle verb placement identified by Risto Hiltunen (1983) in his groundbreaking work thus find explanation. In conclusion, 'what appears to be a positional change of the particle (from "pre" to "postposition", etc.) on closer inspection turns out to be a set of positional changes of the elements of the verb phrase and of the postpositional trends observable in objects' (103).

Ch. 4 (117–44) reviews the treatment of PVs in early studies, textbooks, and historical dictionaries; this chapter seems more suitable for an introductory chapter than in its current position in the book. Particular attention is paid to Arthur Garfield Kennedy's 'classic' study (1920) because T sees it as the source of much of the 'rather dubious' (118) received opinion about PVs: that they 'arose' in the history of English and are uniquely English, that they are colloquial, that their development was slowed by the influx of Romance vocabulary, that they are replaceable with synonymous prefixed Latinate verbs, and so on. These preconceptions are repeated in textbooks. The treatment of PVs in historical dictionaries ranges from 'quite unsatisfactory' (140; *Dictionary of Old English*) to 'comparatively satisfactory' (138; *Oxford English Dictionary*); the dictionaries are faulted for their failure to cross-reference prefixed forms to the verb and to recognize verb-particle combinations.

Ch. 5 (145–96) returns to diachronic matters, considering the historical relation of prefixed verbs to PVs. Although prefixes and particles are 'functionally equivalent' and follow similar paths of semantic development, 'the loss of the native prefixes was in principle independent of the development of the particles (and also of the establishment of borrowed prefixes)' (195). T provides compelling reasons for rejecting that oft-repeated view that the borrowing of prefixed

Romance verbs ousts the native prefixes. Rather, he argues that internal reasons, viz. phonological attrition and the change to strict SVO order, lead to their loss. Their desemanticization, already underway in Old English, is a 'complementary factor' (164). What T does not explore is why or how certain of the Germanic preverbs became prefixes, other than to point to the process of grammaticalization (87), nor does he address the process of renewal that must have introduced new adverbial preverbs.

Discussing the aspectual functions of verbal prefixes and particles (found in all of the Germanic languages), T notes that neither constitutes a coherent aspectual system. Prefixes are more advanced in their development as aspectualizers, with particles in Old English being typically spatial in meaning (this is asserted on the basis of a few examples). He rightly criticizes Brinton 1988 for arguing that aspectual meaning is only possible in postposition. He may partially misrepresent what a number of scholars have meant by particles 'reinforcing' the postverbal particles in double constructions of prefix and particle (forms that T calls rare but does not substantiate). The situation might better be seen as the particles 'supplying' the aspectual meaning that the desemanticized prefixes no longer express. T postulates a clear development from directional to aspectual meaning and from compositional to noncompositional meaning (see figure 5-1), but critically, one needs to consider both the meaning of the particle by itself and the meaning of the verb-particle combination.

In the remainder of the chapter, after rejecting both French and Scandinavian influence on the development of the PV, T considers the received view that PVs occur exclusively with Germanic verbs. A number of empirical studies (including two of T's own) show that Romance verbs do indeed combine with postverbal particles (nearly one-third of the time). The reason for their relatively low occurrence is, in part, because Latin verbs express abstract and ideational meanings, not the concrete actional meanings that are most compatible with the particles.

Ch. 6 (197–246) falls into two parts. The first half is a summary of quantitative studies of the PV in the history of English. The results here are so divergent that T concludes that 'meaningful interpretation … is extremely difficult' (211) and that the results are 'hopelessly divergent' (245). T's critiques of early (pre-electronic) corpora studies are perhaps a bit unfair, given the conditions under which the scholars were working. Nonetheless, T is able to conclude on the basis of these studies that there is no point at which we can talk about the 'rise' of the PV. The second half of the chapter considers questions of style and attitude. Citing a number of studies that have looked at the distribution of PVs across genres, T finds no evidence that they are associated with colloquial English. This leads him to an interesting but perhaps ancillary exploration of the origin of beliefs about the colloquialness of the PV. References to PVs in grammars and dictionaries throughout the eighteenth century are neutral about their acceptability. T explores two cases that have been cited as evidence of early negative attitudes toward PVs. The first is John Hawkesworth's 1776 published version of James Cook's diary. The changes effected there do not show an aversion to the PV, but rather conscious Latinization of the prose in order to produce a formal written text. The second is John Dryden's 1684 revisions of his *Essay of dramatick poesie*. Here again revisions are for the sake of 'heightened' style; in fact, only four phrasal verbs are replaced, many are kept, and a few introduced. T hypothesizes that what is at the source of the 'colloquialization conspiracy' is a well-known objection to stranded prepositions, with a hypercorrection banning all particles (and monosyllables) from sentence-final position, as well as the view of pleonastic particles as superfluous and not perspicuous. Moreover, the association of PVs with idiomaticity, which evokes negative opinions, may also underlie the colloquialization conspiracy.

The book is unified by the overarching purpose noted in the first paragraph, namely that of explaining the PV as a construction of common Germanic origin that has been misunderstood as peculiarly English and distinctly colloquial. Yet the book also at times has the feeling of being separate studies (of Old English word order, of eighteenth-century views of the PV, and so on) that do not cohere entirely organically, with certain topics expanded and others given somewhat short shrift. Moreover, because the book is a protracted critique of the literature, earlier studies come in, at times, for undue criticism—especially since much of the hard empirical work had been undertaken by these scholars (e.g. Hiltunen (1983), to whom T is clearly indebted)—though in general the approach is fair and balanced.

This is a very clearly written, meticulously researched, intelligent, and in some ways daring discussion, as it undercuts much received opinion on the PV. It makes a significant contribution to the scholarship on the topic. But as it is primarily a critical review, many of the generalizations, as T himself admits, 'would benefit from more detailed analyses of a large number of verbs and particles' (183). This text should serve as an admirable springboard for such work.

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