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SHORTER NOTICES

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Mark C. Baker, *The atoms of language: the mind's hidden rules of grammar*. Oxford: Oxford University Press, 2001. Pp. xi + 276.

Reviewed by LINDSAY J. WHALEY, Dartmouth College

At a recent conference a colleague described a conversation that he had had with a high school student. The student proclaimed, with an obvious sense of satisfaction and excitement, that he had recently completed Mark Baker's *Atoms of language*; he then asked somewhat more sheepishly, as though he might be probing more deeply than should be done in polite company, 'Do YOU believe in parameters?' The student's reaction nicely captures three notable qualities of Baker's book. First, Baker has authored a monograph that is eminently readable, even for the novice in linguistics. Second, the content of the book is sufficiently intricate and well discussed that the book is a satisfying intellectual experience (and this even for the professional linguist). Finally, while Baker succeeds in raising some of the Big Questions that lie beneath structural similarities and variations in language, he falls short of providing an apologetic strong enough to sway skeptics to his linguistic worldview. Undoubtedly, he will also cause some offense to readers who already believe very differently about how linguists should begin to confront the Big Questions.

Baker identifies a core task of modern linguistics (perhaps the core task?) to be solving the 'Code Talker Paradox'. The paradox, simply stated, is: How is it possible that a language such as Navajo can be similar enough to English to translate and transmit complicated messages, yet be so dissimilar from Japanese (or English for that matter) that the use of Navajo by American forces in World War II baffled Japanese cryptographers? Baker is optimistic that a decipherment of the paradox is made possible by applying the concept of a parameter, i.e. a structural variable which is found in all languages and which can have one of two values in a particular language. For example, the NULL SUBJECT PARAMETER governs whether overt subjects are required in a finite clause. Some languages have one value for the parameter such that subjects are required (e.g. English). All other languages will carry the opposite value for this parameter such that subjects need not be expressed overtly (e.g. Italian). With a full complement of parameters, rather significant morpho-syntactic differences, even on the order of what distinguishes Navajo and Japanese, can arise between languages. On the other hand, since the parameters are constant across languages, and are presumably coupled together with other universal principles of language structure, there is also an account of the commensurability of languages. Paradox resolved.

Of course, this is not a new idea in linguistics; rather, it is a well-articulated version of Principles & Parameters Theory, which can be traced back two decades (Chomsky 1981). What is novel about *The atoms of language* is that the concept of parameters is given more thorough treatment here than in any other previous work that comes to mind. Not only does Baker gather together putative parameters that have been individually proposed in the literature (from both formalist and functionalist sources), he also explores the relationships which obtain among them.

Baker makes five crucial assumptions about parameters and how they interact to determine language structure: 1) the overall number of parameters is a small proportion of observable differences in languages because 2) a series of consequences for language structure can be traced to a single parameter; thus, 3) knowing the value for a particular parameter allows the linguist to make a set of predictions about what the morpho-syntax of a language will look like. 4) Parameters are not independent properties of language, but form a hierarchical system with some parameters being logically prior to others. Therefore, the settings for some parameters will determine whether other parameters are relevant or irrelevant. 5) Logically prior parameters will be learned first.

Again, none of these assumptions is unique to Baker, but he has done an admirable job of offering justification for them and, more significantly, making explicit claims about relationships among parameters. Specifically, he argues that the POLYSYNTHESIS PARAMETER ('Verbs must include some expression of each of the main participants in the event described by the verb') is logically prior to all other parameters. Other first-order parameters in descending order of priority are: the HEAD DIRECTIONALITY PARAMETER (which determines the placement of heads relative to complements); the SUBJECT SIDE PARAMETER (which determines whether subjects can be placed after other basic constituents in a clause); the VERB ATTRACTION PARAMETER (which determines whether a language has verb raising); and the SUBJECT PLACEMENT PARAMETER (which determines whether tensed auxiliaries occur to the left or right of subjects). For each of these first-order parameters, Baker identifies a second-order parameter that depends on it, and in one instance, he proposes a third-order parameter, the TOPIC PROMINENT PARAMETER (which determines whether a nominative-accusative language employs a topic rather than a subject).

Even this fragmentary summary of Baker's hierarchy of parameters should be sufficient to highlight the fact that *The atoms of language* is more than a distilling of Principles & Parameters Theory for popular consumption. It is a *bona fide* effort to synthesize a hodge-podge of claims made about parameters within the generative tradition into a coherent whole, and to argue that the framework which emerges is the breakthrough that linguists have long awaited in their quest to solve the Code Talker Paradox.

It is, of course, premature to declare victory, as Baker is keenly aware. Many fundamental facts about parameters elude us: Are they primitive cognitive rules of some sort, optimality theoretic constraints, or functional principles? How does one account for a language that is only partially consistent with respect to a parameter? Do parameters have to be binary choices? Does the system of parameters proposed in the book hold up under data from lesser studied languages? And so on. Baker is quick to admit that he can only speculate about the answers to these questions.

Therefore, he urges his reader to see linguistics as a field in its infancy, much like chemistry in the 19th century, just before Mendeleyev proposed the periodic table of elements. On this analogy, parameters are to be seen as atoms. Like atoms in chemistry, parameters have a long pedigree in linguistics, but thus far they are only vaguely understood, especially their core properties and how they relate to each other. Now we are on the brink of being able to posit a periodic table of parameters; once we do this we will revolutionize how we understand the composition of languages.

Baker acknowledges that there are linguists who are not convinced that the notion of parameters is all that useful, let alone see them as the basic principle of the discipline, but he points out that Mendeleyev's work was met with initial skepticism as well – the rhetorical point being that one risks considerable embarrassment if one fails to appreciate the impending scientific revolution in linguistics. After all, these days Mendeleyev's critics only garner footnotes bemoaning the rigidity of their outdated thinking. I suspect that Baker did not intend his analogy to be taken as described here. It is better seen as an attempt to get his readers excited about unraveling the mysteries of language. Indeed, this is an exciting prospect, and Baker does a fine job in helping his reader to see why.

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Guglielmo Cinque & Giampaolo Salvi (eds.), *Current studies in Italian syntax: essays offered to Lorenzo Renzi* (North-Holland Linguistic Series: Linguistic Variations **59**). Amsterdam: Elsevier Science, 2001. Pp. xii + 326.

Reviewed by Francisco Ordóñez, State University of New York at Stony Brook

This book contains sixteen essays in honor of Lorenzo Renzi, written by leading figures in Italian syntax. The papers cover a diverse range of topics in Italian, with the apparent and conspicuous exception of Richard Kayne's 'A note on clitic doubling in French'. However, this paper is still relevant to the theme, given that some of its conclusions have clear consequences for Italian and the other Romance languages.

The volume shows a remarkable consistency in its theoretical pursuits, surprisingly so in a project containing so many different contributions. Furthermore, the volume is clearly indicative of new tendencies and innovations in syntactic theory. Two approaches that stand out are the multilayer approach to CP and IP and the antisymmetry program proposed by Kayne (1994).

Under the first approach, Paola Benincà and Luigi Rizzi explore the different layers that constitute the CP projection (the so-called CP field). Benincà's and Rizzi's papers propose further refinements of Rizzi's (1997) original proposal concerning the order and nature of the projections that constitute the left periphery in Italian. Benincà adds a new projection for hanging topics, based on the observation that only hanging topics can appear to the left of the declarative complementizer *che* 'that'. She also observes that more than one focal element is permitted in the left periphery, although only one can admit focal stress. Rizzi discusses the distribution of the interrogative complementizer *se* 'whether' and concludes that it is in a projection lower than the declarative complementizer *che*, but higher than the projection that hosts focalized constituents. Rizzi claims that the *wh*-word *perché* 'why' is located in the same projection as *se*, since it can be followed by, and it is not incompatible with, focalized constituents.

The different layers of the IP are investigated by Guglielmo Cinque, Franco Benucci and Cecilia Poletto. Cinque refines and extends previous research on the distributions of adverbs and studies the ordering constraints with modal verbs in restructuring contexts. For instance, he accounts for why a predisposition modal such as *tendere* 'to tend' necessarily comes before a volition modal such as *volere* 'want', by having PredispositionP above VolitionP. Cinque accounts for the relative order of more than 20 modal verbs in Italian. In the same vein, Benucci explores the curious phenomenon of climbing with the repetitive prefix *re-* and the completive prefix *per-*, in restructuring contexts in Old French and Old Piedmontese. Benucci proposes that the existence of such climbing can be accounted for if one assumes with Cinque that there are different aspectual projections for repetitive and completive phrases where the prefixes can be located. The obligatory climbing effects of *per-* and *re-* in Old French and *re-* in Old Piedmontese are due to the fact that the relevant repetitive and completive aspect phrases are never projected in the infinitive that follows the modal, thus forcing the modal to appear with these prefixes. Poletto uses Cinque's multilayer proposal for adverbs as a diagnostic to test whether complementizerless embedded clauses involve movement of the verb to the CP layer. Within the CP layer, Poletto shows that subjects are located in the lowest projection of the CP field. Finally, Rita Manzini & Leonardo Savoia's paper also assumes a multilayer IP in order to account for the different orders of clitics with respect to impersonal and reflexive *se* in Standard Italian and various Italian dialects. The variability in their order is explained by assuming that different clitics lexicalize in the different projections that the authors propose.

The antisymmetry approach of Kayne (1994) guides the contributions by Anna Cardinaletti, and Teresa Guasti & Andrea Moro. Cardinaletti provides interesting evidence that subjects in VSO and VOS orders (with the possibility of having either object or subject stressed) are never right adjoined. This is a welcome result for antisymmetry since right adjunction/specifiers are not possible. Cardinaletti adduces very interesting empirical evidence drawing on the Central Italian of Ancona and Standard Italian. Guasti & Moro account for why in causative constructions the subject causees of embedded transitive infinitives are preceded by the preposition *a*. They propose that the preposition is inserted in the derivation, and provides the structure with a new head that breaks the otherwise symmetric structure of the small clauses formed by causee subject and

object. To summarize, it is interesting to note how antisymmetry is easily accommodated by the multilayered approach for CP and IP. By proposing more functional projections, more Spec positions are available for leftward movements instead of the right adjunction alternatives (Cardinaletti); furthermore, the authors avoid the restriction against multiple adjunction to the same maximal projection (Benincà and Rizzi for the CP), and also the restriction against multiple adjunction to the same head (see Manzini & Savoia for the adjunction of clitics to different inflectional projections).

The rest of the papers range over different points of syntactic interest. Adriana Belletti discusses the case of expletive negation in comparative clauses in Italian and proposes that comparative constructions involve movement of the degree particle *più* 'no more' to a Degree Phrase. Expletive negation is licensed by the subjunctive mood in the comparative clause. Paolo Acquaviva also discusses the licensing conditions of Negative Polarity Items and shows that the Immediate Scope Constraint also holds for Italian. Finally, Lidia Lonzi studies the interaction between negation and subject-oriented manner adverbs. The fact that subject-oriented adverbs and control structures behave similarly with respect to negation leads to an analysis of subject-oriented adverbs as control structures.

Language change is discussed in the papers by Giuliana Giusti, Pier Marco Bertinetto and Giampaolo Salvi. Giusti discusses the origins of determiners and strong pronouns in Romance and how they could have derived from Latin demonstratives. She pursues the idea that demonstratives reanalyze from a Spec position of D to a head D and become determiners in Old Romance. Bertinetto focuses on the change in the use of narrative tenses in comparative literature and observes how simple past is being replaced by other tenses such as Epic Present, Compound Past and Pluperfect. Salvi discusses the origin of SVO order in Old Romance and how this might have derived from the original SOV of Latin. He observes that Latin permitted focal movement of the verb into a left peripheral position. This focal movement of the verb in conjunction with constituent preposing opened up two possible word orders in Early Romance.

Word order is also the topic of Christina Tortora's contribution. She pursues the idea that there is an empty locative in some unaccusative verbs and gives syntactic and semantic/pragmatic evidence from Standard Italian and the Borgomanerese dialect.

Finally, Kayne studies clitic doubling in French and maintains the generalization that a pronominal argument that is structurally case marked in French must be doubled. This generalization embraces subjects, direct objects, indirect objects, complex pronouns and bare quantifiers. Kayne also observes that a clitic can be doubled with a third person *pro*, but no clitic doubling is allowed with a first or second person *pro*. This is based on the fact that bare quantifiers in argument position are limited to a third person interpretation in French and Italian. He extends this proposal and claims that *pro* should be limited to third person universally, with very interesting empirical predictions for the distribution of subject clitics in Northern Italian dialects and the syntax of past participle agreement in Romance.

In conclusion, this book is an excellent and refreshing collection of essays that will be of major interest for linguists working in the Romance languages and in syntactic theory. Researchers who are more interested in descriptive aspects of Italian will find that the range of data is quite varied and that all contributions are well-grounded empirically. For those interested in more theoretical aspects of syntax, this book is an excellent example of the innovative research being done in the sphere of Italian syntax.

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Seana Coulson, *Semantic leaps: frame-shifting and conceptual blending in meaning construction*. Cambridge: Cambridge University Press, 2001. Pp. xiii + 304.

Reviewed by KEN TURNER, University of Brighton

This book is essentially an advertisement for Mental Space Theory (henceforth MST, see Fauconnier 1994, 1997). MST is most usefully regarded as the cognitive equivalent of possible worlds semantics (Lewis 1986). The language used in this theory is almost isomorphic to that used by the intensional semanticists. A mental space (the actual space) is mapped onto, and receives mappings from, other possible spaces and the elements in these other spaces are referred to as 'counterparts' of the elements in the actual space. The idea is that

> words do not refer directly to entities in the world (nor to elements in a set theoretical model). Rather, linguistic cues prompt speakers to set up elements in a referential structure that may or may not refer to objects in the world … Created to represent discourse that concerns various factive (and non-factive) contexts, mental spaces can be thought of as temporary containers for relevant information. (21)

The ambitions of the theory can be outlined with a single example. Consider the following exchange between an interviewer and a Shakespearean actor:

> Interviewer: Were Romeo and Juliet sleeping together?
> Barrymore: They certainly were in the Chicago company. (31)

Here, quite obviously, the interviewer is assuming one mental space as a background frame and the actor is assuming another. This book examines the mechanics of such shifts and blends.

The book is divided into three parts. The first part discusses frame-shifting. The crucial observation here, which distinguishes Coulson's MST-inspired work from many other paradigms, is that 'utterance meaning is not *in* the speech signal, but actively constructed by speakers in response to linguistic and nonlinguistic cues' (xii). Frame-shifting is one such method of meaning construction. It is semantic reorganization that occurs when incoming information is inconsistent with an initial interpretation. The chapters in this part attempt to demonstrate that the frequently made criticism of frames – that they are rigid and inflexible – can be addressed by appealing to MST. The demonstration is suggestive, but frames, as a means of data structuring in natural language processing and elsewhere, are rather old hat and more pliable representations are readily and easily available – one thinks of the present fashion for semantic indeterminacy, for example. Coulson wants to argue that MST is relevant to the linguist, the psycholinguist, the cognitive modeler and the neuroscientist. She may be right. But she needs to provide a more formally rigorous exemplification than this advertisement affords.

The second part of the book discusses conceptual blending. Conceptual blending (also known as conceptual integration) is a term that refers to the result of the application of cognitive operations for combining frames from different domains. Like frame-shifting, it is employed to speak about the kind of language usage that relies on the ability both to appreciate and to create cross-domain mappings. The chapters in this part attempt to demonstrate that the second frequently expressed criticism of frames – that they preclude the representation of composite descriptions – can also be addressed by appealing to MST. Coulson drafts an outline of conceptual integration networks which makes reference to networks of mental spaces structured with frames and these are assumed to be constructed by speakers from contextual information and background knowledge. She applies these networks to the analysis of modified noun phrases, metaphor and analogy, and counterfactual conditionals and in each case she argues that meaning construction involves the projection of partial structure into a blended space and that it makes extensive use of cross-space mappings.

The third part of the book contains empirical applications of the notions discussed in the first two parts. This part does not work so well. Here the argument is highly reminiscent of that frequently found in Relevance Theory, where the rules of the game are never given sufficiently

explicitly and the analyses inevitably appear rather ad hoc to anybody not already addicted to the theory. One thing that would help to clarify the value of these applications, and perhaps the internal coherence of MST more generally, is a greater emphasis on the distinction between the semantic and the pragmatic aspects of meaning construction. 'Meaning construction' appears too much of a blunt expression to allow a proper appreciation of the processes that are said to occur, and an initial way of sharpening it is to entertain a semantic theory (which might, but does not necessarily, trade in truth conditions) and a pragmatic theory (which might, but will not exclusively, focus on felicity or cooperation), and then to calculate the division of labour between the two. MST, like other versions of cognitive semantics, seems to eschew this important distinction.

This book originated as a research degree thesis and, despite some rewriting, there is still much evidence in the text of these humble origins. A little too much of the book is a discussion of the work of others, and Coulson's own perspective on these matters, and indeed her own contribution to them, is not always clear or easily discernible. She says that one of the goals of her book is to 'supplement classic concepts from artificial intelligence with new ideas from cognitive semantics' (xii). In this context, the book does have one virtue that all good advertisements share: it has made this reader want to go and take a closer look at the product.

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Michiel Leezenberg, *Contexts of metaphor* (Current Research in the Semantics/Pragmatics Interface **7**). Amsterdam: Elsevier, 2001. Pp. viii + 321.

Reviewed by SEANA COULSON, University of California, San Diego

Wedding Vygotskian concept formation to formal semantics, Leezenberg's account might be described as the Frankenstein of metaphor theories. A metaphor theory, he contends, needs both a semantic component and a conceptual one. For semantics Leezenberg invokes various developments of Kaplan's ideas by Bartsch (Bartsch 1987a, Kaplan 1978). For the conceptual component, he appeals to a socially constituted system of structures rooted in practice and eternally evolving to meet the demands of situated action. Though much of the book covers well-trodden philosophical paths, *Contexts of metaphor* breaks new ground with Leezenberg's unique synthesis of semantics and cognitive science. His argument is not always entirely convincing, but it is certainly well constructed and provocative, and deserves a careful read.

The book begins with an unconventional historical overview focusing on such unlikely thinkers as 'Abd al-Qahir al-Jurjani and Biambattista Vico, along with an obligatory nod towards Aristotle. Leezenberg goes on to discuss and critique 20th-century theories of metaphor, parsed into those that treat metaphor as a matter of semantics, and those that treat it as a matter of pragmatics. Pragmatic accounts typically involve the hearer interpreting a metaphorical utterance literally, but deriving a pragmatic reinterpretation when she recognizes the literal oddity of the statement. Defining pragmatics as meanings guided by a speaker's intentions, Leezenberg argues against a pragmatic account of metaphor.

One problem is that pragmatic accounts assume that it is possible to adjudicate between literal and metaphorical meanings. However, in practice, this is extremely difficult, as there don't seem to be any linguistic features that unequivocally discriminate between the two. Another problem is that metaphoric inferences don't seem to behave like pragmatic implicatures. Unlike most implicatures, metaphoric meanings aren't easily cancelled. For example, in *John is a pig, although he is not dirty*, the *although*-clause rules out one particular metaphoric interpretation, but doesn't rule out metaphoric interpretation in general. Moreover, the classic pragmatic account doesn't solve the problems faced by semantic theories, as there is no explanation of how the correct metaphoric interpretation is derived.

In chapter 3, Leezenberg lays out his argument for a semantic treatment of metaphor, suggesting that metaphor involves interpretation along a contextually determined THEMATIC DIMENSION. A thematic dimension is a deictic contextual parameter that specifies what a given discourse is about (Bartsch 1987a). The thematic dimension helps specify the range and realm of word meaning and accompanies other contextual parameters such as the speaker, the location, and the time. Bartsch (1987b) has argued that thematic dimensions are applied to explain how the meaning of adjectives such as *good* and *strong* changes with context. For example, a strong drink differs from a strong man in virtue of the thematic dimension of *drinks* in the former and *men* in the latter. Other non-linguistic aspects of knowledge can also be used to specify the thematic dimension, including local contextual clues, and even erroneous but widely believed information, such as the idea that gorillas are mean.

Leezenberg argues eloquently that metaphors are not semantic objects, but rather involve a particular mode of interpretation along a contextually defined thematic dimension. Thematic dimensions of a metaphor suspend the default dimension and help determine the content of the metaphorically interpreted sentence. Literal meaning differs from metaphorical meaning only in recruiting the default thematic dimension associated with a particular word. Because both literal and non-literal language involve systematic appeal to contextual parameters, there is no requirement that metaphor interpretation be parasitic on literal interpretation, nor that the recognition of a literal incongruity precede the instantiation of a metaphoric reading. Further, because thematic dimension is a contextual parameter, it takes wide scope over operators such as negation and modals, consistent with the fact that metaphoric interpretation holds in modal and negated contexts (facts difficult to explain if metaphor comprehension requires the recognition of literal incongruity).

The virtue of Leezenberg's account is that he realizes that the contextual variability in metaphorical meaning is ultimately no different from the contextual variability of any sort of meaning. Accordingly, he shows how semantic mechanisms previously employed for literal meaning can be extended to account for metaphorical meaning. Perhaps what is most appealing about this approach is that it acknowledges the limits of compositional semantics, arguing that many of the interesting questions raised by metaphorical language use concern the cognitive aspects of metaphor interpretation.

In the book's final chapter, Leezenberg turns to the cognitive aspects of metaphor, arguing for a context-dependent view of concepts. Reviewing research in artificial intelligence and psychology, Leezenberg dismisses most accounts for not sufficiently incorporating socio-cultural influences on meaning and conceptualization. Perhaps more seriously, such work depends on the assumption that relatively stable systems of conceptual structure are recruited in metaphor interpretation. Leezenberg believes that the radical context-dependence of meaning (be it literal or metaphorical) defies any such account. Accordingly, Leezenberg sketches a practice-based theory of concepts that acknowledges contextual variability and indeed embraces it as a central feature. While he presents a compelling argument for the NEED for a context-dependent theory of concepts, Leezenberg's proposals don't constitute a theory as much as a series of insightful musings.

Moreover, it's not clear that Leezenberg's own theory of metaphor interpretation would withstand the criticisms he levels at other conceptualist accounts. For example, he argues that Lakoff & Johnson's influential theory that metaphor involves recurrent patterns of mappings between particular domains is untenable because it assumes a stable ontology of distinct conceptual domains. However, the thematic dimensions that power Leezenberg's account also require a certain degree of conceptual stability. Moreover, Leezenberg doesn't seem to appreciate the extent to which knowledge of conceptual metaphors might help people determine the thematic dimension needed for metaphor interpretation.

For example, Leezenberg's 'If art is the tip of the iceberg, I'm the part sinking below (Lou Reed)' (234) recruits for its interpretation a model of the iceberg in which the top part is visible, but the bulk of the mass is below the surface. However, it also recruits the metaphors VISIBLE IS KNOWN (with the corollary INVISIBLE IS UNKNOWN), DEEP IS PROFOUND (with the corollary SHALLOW/SUPERFICIAL IS SILLY), and (somewhat contradictorily) UP IS GOOD (with the corollary DOWN IS BAD). Leezenberg is quite right that context is important for interpreting this statement, but the recruitment of relevant conceptual metaphors clearly helps constrain the reader in her task of considering the correct thematic dimension on which to interpret the metaphor.

Indeed, Leezenberg's theory is somewhat like an iceberg, with a concise semantic theory above the surface, and a far more complex theory of dynamic conceptualization below. While Kaplan and Bourdieu might make strange bedfellows, this Frankenstein of metaphor theories is a fine beast to behold.

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Andrea Moro, *Dynamic antisymmetry*. Cambridge, MA: MIT Press, 2000. Pp. ix + 142.

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This book aims to provide an answer to one of the most basic questions underlying all generative work in syntax: why is syntactic movement a property of human language?

Recent proposals based on the minimalist hypothesis that movement is performed to check strong features often lead to an unsatisfactory postulate: strong features are often stipulated whenever they are needed to justify movement. Morphology is usually considered to be the 'overt' signal of the presence of strong syntactic features; nevertheless it is well known that in many languages, movement applies without any overt morphology. The mismatch between syntactic movement and lack of morphology is particularly evident in diachronic processes: for instance, Roberts (1993) reports that verb movement in English continued to apply for at least a century even when verbal morphology had been lost. The same is true for other instances of verb movement, like V2: in languages such as standard German, Dutch or mainland Scandinavian there is no morphological difference between a verb in C and a verb which remains lower in the structure. Several other examples of this type can be found, leading to the suspicion that the connection between strong morphology and syntactic movement seems much looser than we would like it to be. This, and other general considerations, have led some scholars to deny that head movement is an instance of syntactic movement (Chomsky 1999 proposes that it could be merely a PF phenomenon) or even to doubt that it exists at all: it would be replaced by remnant movement of the whole projection, from which all other lexical material has been removed except the verb itself. This proposal occurs in much recent work (see Cinque 2002 among others). Moro's book provides a completely novel answer to the question of movement, based on Kayne's (1994) antisymmetry theory.

In chapter 1, 'Movement and the linearization of phrases', the author analyses the minimalist approach to movement and highlights the possible problems.

In the second chapter, 'Movement as a symmetry-breaking phenomenon', Moro explores an entirely different approach from the one based on feature checking; this approach attributes movement to the interaction of syntactic structure with the properties of the PF component.

Moro adopts a weak version of Kayne's Linear Correspondence Axiom (LCA), under which 'a word x precedes a word y if and only if a node X dominating x asymmetrically c-commands a node Y dominating y'. Kayne's LCA applies to all levels of grammar, and this derives the algorithm of X′ theory as we know it. More precisely, Kayne is able to derive the fact that there is only one head per projection and that a head (at least) is obligatory. Moreover, this very restrictive condition also dictates that there is only one complement per projection, and at most one specifier, which is formally an adjunct.

This restrictive configuration of phrase structure is in principle a welcome result because (a) on the one hand it does away with multiple adjunction, a virtually unconstrained mechanism; (b) on the other hand it forces us to refine our analyses of many phenomena, most notably analyses of all head-final structures, which have to be translated in terms of movement of the complement.

Moro's dynamic antisymmetry interestingly connects the LCA approach with movement in the following way: Moro claims that the LCA only applies at the interface with the PF component, hence it applies only when the output conditions impose the need to linearize a syntactic object. According to this analysis, in the computational component it is possible to create symmetrical structures (i.e. structures in which neither of the two elements asymmetrically c-commands the other) but these structures have to be destroyed before the derivation enters the PF component, where a process of linearization applies for physiological reasons, as our vocal apparatus cannot produce more than one word at a time. In this way Moro is able to derive movement as a 'last resort' repair strategy, which applies in order to break symmetrical structures before PF filters them out.

Crucially, given that traces are not spelled out, hence not visible in the PF component, substitution of an element by a trace has the effect of breaking the POINT OF SYMMETRY in the structure. Movement is thus viewed as a mechanism matching the general principles of the computational component with the linearization imposed ultimately by our articulatory organs.

In chapter 3, 'Sources of symmetry', Moro provides a list of all possible cases in which a point of symmetry arises in the syntax. They are: (a) two XPs, (b) two specifiers, and (c) two heads. He examines these cases one by one in terms of his theory.

Concerning case (a), he identifies this with small clause structures and provides a detailed analysis of small clauses in copular sentences and with 'believe'-type verbs. He proposes an extension of a small clause structure (i.e. two XPs with no intervening head) to the so-called 'wat-voor' construction in Germanic languages, and suggests that the *wh*-item in structures of the type [*which* NP] is generated in a small clause configuration containing the *wh*-item 'which' and the NP it selects. The *wh*-item is then moved to SpecD° to break symmetry. Although the proposal sounds very interesting, the extension to Italian discussed in section 3.2.2 is possible only for those speakers who agree with Moro on the judgements presented in (35). Examples like (35b) (reproduced here as (1)) are perfectly well-formed for several speakers.

(1) Quanto alti sono?
how tall are
'How tall are they?'

As for case (b), he presents an analysis of the *do*-support phenomenon as a device for breaking symmetry: *do* is inserted as an additional head when there are two specifiers – the *wh*-item and the subject – of the same head (I°).

The last case, (c), is instantiated by object clitics in languages like Romance, where the clitic is bound to move in order to eliminate the point of symmetry created by the verbal and the clitic head.

In the last chapter, 'Consequences and speculations', some general problems are discussed. Obviously it is not possible to examine all known cases of movement in a single book; however, the reader is left with the impression that, if the basic device for breaking symmetry is movement plus merge of a new head (when needed), it is always possible to translate movement instances into the dynamic antisymmetric approach. Moreover, Moro notes that a comparative approach is indeed compatible with his proposal, and that it might exploit the fact that different languages can create different points of symmetry depending on the structure they use (for instance,

languages not having preverbal subjects will not need to move the *wh*-item higher than SpecIP and, as a consequence, will not need *do*-support).

The main proposal is interesting and well argued; however, what is not discussed in the book is how the derivational procedure of finding and eliminating points of symmetry comes about. For instance, one might wonder when the checking procedure applies, whether it applies to whole phases or to some (fixed?) intermediate projection, or whenever a new head (necessary to break points of symmetry as in the case of *do*-support) is introduced into the computation.

This issue is important, because the dynamic antisymmetry approach might make different predictions, and hence might run into problems, precisely depending on where exactly the checking procedure for detaching symmetric structural portions and the repair strategy apply. Judging from the examples discussed in the book, Moro seems to assume that the point of symmetry is detached immediately after it has been created (which implies that the checking procedure applies every time a new merge operation is performed), and probably has to be repaired creating an asymmetrical structure immediately afterwards (as is the case for the examples discussed in the book). However, if a sentence contains more than one point of symmetry, one would expect that each should be resolved according to its position in the structure, starting from the lowest one and moving through to the highest one. There are, however, points of symmetry which do not seem to be repaired in the projection immediately dominating the point of symmetry, but much higher.

Consider, for instance, the point of symmetry between a verbal head and a clitic: one might expect that it would be repaired by introducing a functional head immediately above the two elements. In Moro's book this is achieved by introducing IP, hence a functional projection immediately above VP. However, it is possible to show that clitic heads move much further then the first functional head dominating the VP (probably to some aspectual phrase). Moro does not use a split IP analysis, but his antisymmetric approach can only work if IP is split into several FPs. This becomes immediately clear if we consider examples in which in addition to the point of symmetry formed by the verbal head and the clitic, there is another point of symmetry, as in the case of a sentence containing a clitic and two low adverbs:

(2) L' ho già completamente letto.
it have already completely read
'I have already read it completely.'

The dynamic antisymmetry approach needs a functional head whose specifier hosts the adverb *già* 'already' (which cannot remain adjoined to VP because it would create a point of symmetry with a potential subject in SpecVP, or with the other adverb *completamente* 'completely'). Hence we have two points of symmetry here: the first created by the clitic and the verb, the second created by two adverbs.

Note that the clitic *lo* (*l'*) is moved higher than the two adverbs, hence not to the first FP immediately dominating the point of symmetry. If the procedure repairing points of symmetry applied cyclically – i.e. following their occurrence within the structural tree, hence from the lowest to the highest one – the order expected would be adverb-adverb-clitic V and NOT the order illustrated in (2).

In other words, why is the point of symmetry created by the two adverbs eliminated before the point of symmetry created by the verb and the clitic, although the former is created on a higher projection? What principle rules a sequence of several points of symmetry? Whether we assume that the checking and repairing strategy applies at the level of each XP, or at the end of a phase (in the Chomskian sense), or even within IP, the problem of ordering these two repair strategies remains.

In conclusion, although the precise mechanism of movement as a repair strategy still remains to be worked out, the dynamic antisymmetry approach is novel and potentially extremely interesting. It would be useful to increase the empirical base provided by the book in order to test the dynamic antisymmetry hypothesis on more complex cases and on a wider range of phenomena.

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Janet C. E. Watson, *The phonology and morphology of Arabic* (The Phonology of the World's Languages). Oxford: Oxford University Press, 2002. Pp. xiii + 307.

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This book is one of the series The Phonology of the World's Languages, edited by Jacques Durand, and described as offering in each volume 'an extensive treatment of the phonology of one language within a modern theoretical perspective'. The first task for an author of a volume on Arabic is to choose the object of study, 'Arabic' being used as a cover term for a diverse set of languages, including Classical Arabic, its descendant Modern Standard Arabic, which serves as the lingua franca of the Arabic-speaking world, and the numerous vernaculars, which differ enough to be in some cases mutually unintelligible. The obvious choice would be Modern Standard Arabic, but Watson sensibly does not take this path, pointing out that Modern Standard Arabic is nobody's native language. Nor does she attempt to provide an overview of the vernaculars (as T. F. Mitchell does, with typical clarity and insight, in his 1993 volume *Pronouncing Arabic 2*), and this is also a sensible choice, since it would be difficult if not impossible to combine this range of coverage with detailed formal analysis. Instead, Watson steers a middle course, focusing on two vernaculars, the dialect of Cairo and the dialect of San'a, the capital of the Republic of Yemen, while situating these at appropriate points within a wider typology of Arabic vernaculars. Cairene Arabic is a good choice as a representative of the colloquial varieties, since it is widely understood even outside Egypt. And the juxtaposition of Cairene and San'ani dialects is extremely useful, since as Watson points out, Cairene is an urban, innovative dialect and San'ani a more conservative variety with features considered typical of rural or bedouin dialects. The two display significant structural differences, sufficient to give an indication of the range of variation among different colloquial varieties of Arabic. Most of the San'ani data presented here comes from Watson's fieldwork, and one of the major contributions of this volume is to make these fascinating data available.

The volume consists of ten chapters. The first provides a lucid overview of the Semitic family and the place of Arabic within it, while subsequent chapters deal with phonemic contrast, metrical structure (syllables and stress), word structure, and word-level and phrase-level phonological processes. In the following paragraphs I outline some of the major features of interest that Watson discusses.

One aspect of Arabic that has attracted a great deal of attention is the large consonantal phoneme inventory that characterizes most dialects, and in particular the large number of contrasts realized in the guttural (uvular, pharyngeal and laryngeal) region of the vocal tract. A related issue, of great interest to both phonologists and phoneticians, concerns the spread of pharyngeal articulation from pharyngeal consonants to nearby segments (often termed EMPHASIS SPREAD). These topics are treated in chapters 2, 3 and 10. In chapter 2, Watson compares the phoneme system of 8th-century Classical Arabic with those of Cairene and San'ani, both of which have lost certain contrasts present in the earlier system. Chapter 3 presents what Watson terms an abstract reductionist system of phonological features, in which a particular phonological feature may have different phonetic interpretations depending on the other features with which it is combined. Features are organized hierarchically, so that phoneme contrasts may

be represented by means of different dependencies among features. Thus, for example, both the glottal stop and the vowel [a] are characterized by a primary [guttural] feature. Pharyngeal fricatives are represented as pharyngealized laryngeals, characterized by a primary [guttural] feature (like the laryngeals) dominating a secondary [guttural] feature (indicating pharyngealization). In this system, the pharyngeal fricatives form a class with the pharyngealized (or emphatic) coronals, which also have a secondary [guttural] articulation (dependent on primary [coronal]). Both pharyngeal fricatives and pharyngealized coronals tend to spread their pharyngeal articulation to nearby segments, and Watson argues in chapter 10 that this can be accounted for by the architecture of the segments: what is spread is the secondary [guttural] feature. However, while the representation defines the triggers of pharyngeal spreading, it does not define the domain of pharyngeal spreading. In both dialects, pharyngeal fricatives spread their articulation to neighboring segments, while pharyngealized coronals are associated with a much larger domain of emphasis spread, sometimes encompassing whole words. Watson ascribes the larger spreading domain associated with pharyngealized coronals to articulatory factors, claiming that the return of the muscles associated with the pharyngeal constriction to neutral position is delayed when a pharyngeal constriction is paired with movement of the tongue blade and palatine dorsum. At this point it is likely to occur to the reader to wonder whether, once phonetic factors are invoked to explain phonological patterns, some aspects of the representational machinery could be simplified.

A second area of Arabic that has been of great interest to phonologists involves syllable structure and stress. Many of the Arabic dialects have quite consistent patterns of word stress that appear to be sensitive to three degrees of syllable weight (light, heavy and 'superheavy'), and the dialects differ among themselves with respect to syllable inventory, stress patterns and syllable-sensitive processes such as vowel insertion and deletion. Chapter 4 describes the syllable structures of Cairene and San'ani, and chapter 5 the stress systems. San'ani exhibits complex stress patterns with some striking and novel features. Most notably, whereas in most vernaculars a word-final 'superheavy' CVVC or CVCC syllable is stressed, San'ani speakers preferentially stress the rightmost nonfinal syllable containing a long vowel or closed by (the first half of) a geminate, even in words ending in a superheavy syllable. Thus, stress falls on the penultimate syllable in *'saafart* 'I/you (m.sg.) travelled' (where two identical vowels indicate a long vowel) and in *'dawwart* 'I/you (m.sg.) looked for', in contrast to final-stressed *gam'bart* 'I/you (m.sg.) sat' (82). Data like these suggest that San'ani speakers distinguish syllables containing long vowels or closed by a geminate consonant from CVC syllables, a distinction that is problematic for most current theories of syllable weight. These facts are particularly intriguing given that the San'ani stress patterns also provide evidence for a distinction between CVC and CV syllables, as illustrated by contrasts like *mi'gambar* 'sitting', where the penultimate CVC syllable attracts stress, vs. *'kataba* 'scribes', in which stress falls on the leftmost syllable. The already complex San'ani word stress system is further complicated by the effects of discourse and phrase-level structure. For example, Watson reports that the dispreference for final stress is overridden in pre-pausal position; thus, *yi'darrisuu* 'they (m.) teach', normally stressed on the rightmost syllable closed by a geminate, is realized with final stress when it occurs pre-pausally (84). Watson is quite right in claiming that 'San'ani poses more challenges for a theory about word stress than most other modern dialects of Arabic' (121). Her analysis is couched in the derivational framework of Hayes' 1995 volume on stress. It would have been instructive to see some consideration of how more recent, constraint-based analyses of stress would fare when brought to bear on these facts.

A third aspect of Arabic that has received considerable attention in linguistic theory is its use of nonconcatenative (root-and-pattern, or templatic) morphology, in which particular consonantal roots, associated with lexical meaning, are paired with templates specifying arrangements of consonants and vowels specifying grammatical information. Watson discusses the word formation processes of these dialects in chapters 6 and 7. She assumes two levels of morphology: level one affects the stem of the word and is largely nonconcatenative, while level two generally adds affixes to the stem. She argues that Cairene is moving in the direction of greater use of concatenative morphology, while the more conservative San'ani dialect retains the major nonconcatenative processes. Chapter 7 catalogues the various affixes employed in the two dialects, including originally Turkish suffixes which have now become established in Cairene.

Chapters 8 and 9 detail word-level and phrase-level processes, respectively. Of particular interest are San'ani processes that restrict voicing contrasts to particular contexts. Watson

reports that geminate stops and affricates are realized as voiceless, even when derived by concatenation of identical voiced consonants across morpheme boundaries, and that word-initial and intervocalic single consonants tend to be realized as voiced. Both geminate devoicing and single consonant voicing appear to be gradient processes, dependent on features such as speech rate, position of stress and place of articulation of the target. These look like the sort of data that might be nicely accounted for by a model based on articulatory effort, such as that of Kirchner (2000).

It would be impossible to do justice in this space to the wealth of interesting data and analysis presented in this volume, but even this brief and incomplete summary should make clear that this work has a great deal to offer to a variety of readers.

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