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Zhiming Bao, *The structure of tone*. New York & Oxford: Oxford University Press, 1999. Pp. xi + 252.

Reviewed by DAVID ODDEN, University of Tromsø & Ohio State University

Despite the title of the volume, this book, a revision of the author's 1990 MIT dissertation, presents a theory of tone motivated almost exclusively by Chinese. It remains a topic for future research how this model will apply to other languages. The book's central contribution is the third chapter, which presents the author's theory of tonal representation. A core component of that theory is a version of the Halle and Stevens laryngeal features, where [stiff] is equated with register ([upper]), and [slack] is equated with sub-register ([raised]). The second major theoretical assumption is that tones are composed of two nodes, the register node and the contour node, where the contour node has at most two branches. The prediction of the contour node, which is a proposal made earlier in autosegmental terms by Shih, Yip and others, is that 'contour' – the fact of being a contoured tone and the direction of the contour – is a property which can be referred to independent of other tonal properties, so for example there can be contour spreading wherein a rising tone spreads to surrounding vowels making them be rising toned. This contrasts with the classical autosegmental treatment where contours are epiphenomenal and it is impossible to spread a sequence of tones.

A considerable portion of chapter 3 is dedicated to arguments for the contour constituent in Chinese. The most compelling argument is the infamous case of Danyang, where the 'base melody' 42-24 has the realisation 42-42-42-24 in quadrisyllabic structures, which is handled by spreading a branching contour node leftward from the final syllable. Other arguments are based on phenomena involving the Obligatory Contour Principle, such as found in Tianjin, where certain identical contours dissimilate so 'identity' is calculated on the basis of the contour node. Another interesting case is found in Lingxi reduplication, where tone sequences dissimilate with respect to the property of being contoured: the first of two level tones becomes contoured and the first of two contour tones becomes level.

A disappointing aspect of the book is how little attention is given to motivating the analyses which play such a major role in the book, and especially lacking is explicit support for decisions about underlying representations. For example, for Zhenjiang (section 3.3.3.1) the mapping 42-5 → 33-5 is illustrated with (inter alia) the example *tshoŋ*³³ *tso*²⁵ 'sufficient'. It is said that these tone changes take place 'in phrases', implying that *tshoŋ*³³ *tso*²⁵ is a 'phrase', composed of the unglossed words *tshoŋ* presumably with tone 42 and *tso*²⁵ with tone 5. An alternative account of *tshoŋ*³³ *tso*²⁵ is that it is a lexical entry where the underlying and surface tones are identical, and no tone sandhi takes place. A deeper knowledge of Chinese is needed to critically evaluate many such cases, in terms of the question whether all of these tone changes are viable parts of the synchronic phonology.

The book inconsistently represents tones with letters such as H and L, or numbers (31, 55, etc.), and both representations may be mixed in a rule or representation, for example the Yantai rule (on page 59), which assigns H register before a 31 tone. Chinese tones are usually represented with greater phonetic detail than found in other tonal traditions, so the low register tone of Mandarin which is treated as L or LM in some works is widely transcribed with the tone sequence 213. Some analysts have assumed that the initial 2-tone of this contour is a low-level phonetic phenomenon which does necessitate a tri-tonal representation for this tone. Bao similarly disposes of a couple of cases of putative complex tones such as the 213 and 535 tones of Changzhi by rephonemicizing them as respectively falling and rising tones, which is possible once one rephonemicizes the surface rising and falling tones as upper register H and lower register L. Unfortunately, this program of rephonemicizing tones is not generally pursued, and readers are left to invent their own reanalyses and interpretations of the tone numbers. Along those lines, it would be worth considering the possibility that other putative contours are not really phonological contours (and thus supposed contour-spreading really spreads level tones which have a contoured phonetic representation), so that a phonetic 21 pitch contour might simply be phonologically a L tone.

One of the major theoretical quandries of Chinese tonology is that the tone changes often look arbitrary. Typically, when faced with apparently capricious rules, researchers seek ways to express the changes as natural looking processes, given some theoretical model. The thrust of much work in nonlinear phonology has been to reduce or eliminate arbitrary feature changing and Greek-letter notation, e.g. to explain why vowels front before coronal consonants by equating frontness with [coronal] and treating vowel fronting as spread of [coronal] to the vowel. One would have hoped for an analogous treatment of various arbitrary-looking processes in Chinese. The rules presented in this book nevertheless remain largely arbitrary, even from the perspective of nonlinear derivational rule theory. Lingxi is claimed to have a rule where [ɹstiff] → [-ɹstiff] before a non-branching contour node; Danyang has a formally arbitrary rule switching [lh] to [hl] before [lh]; Pingyao has a rule lowering the register of an upper rising tone before another rising tone. Even when the phonological process is natural and well attested outside Chinese, the formal system assumed here fails to give special status to certain natural processes. In chapter 5, which provides more details of how tonal structures integrate with the rest of phonological representations, the relation between tones and segments is discussed. Because lower-register tones appear predictably after voiced consonants in Songjiang and other Wu dialects, the book assumes that register is represented with the feature [stiff], which also represents voicing. Lexical entries are given from Songjiang, where the tones are given on the prosodic plane with the letters 'H,h' and 'L,l'. These letters are supposed to represent specifications for [stiff] and [slack], which are features under the laryngeal node on the segmental plane. Thus the formal identity of segmental laryngeal features and tone is not expressed in the representation, and register lowering after voiced consonants is expressed only by three formally arbitrary rules that e.g. change register [H] to [L] after a complex chain of associations terminating in [-stiff]. It may turn out that Chinese is simply rife with formally arbitrary processes; this could be an important conclusion for contemporary discussions of the naturalness of phonology.

Despite these problems, the book makes a valuable contribution by assembling a range of materials from unknown languages which would otherwise not be available to the general linguist, and presents a range of challenging data which must be handled in any theory of tone.

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Sue Brown, *The syntax of negation in Russian: a Minimalist approach* (Stanford Monographs in Linguistics). Stanford: Center for the Study of Language and Information, 1999. Pp. xii + 154.

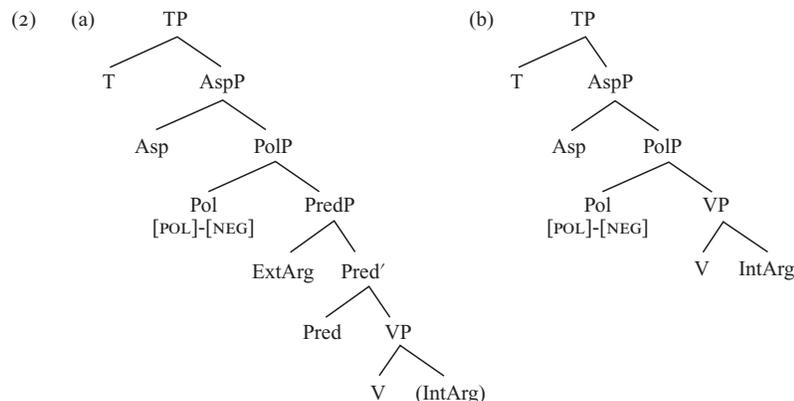
Reviewed by PAUL ROWLETT, University of Salford

This revised 1996 Indiana dissertation focuses on the distribution/interpretation of negative XPs (NI-words), optional genitive case-marking in negative sentences and expletive negation.

For Brown, the negative clitic *ne* in (1) is merged as Pol(arity) and raises, with the verb, to T within the structures in (2a, b), whereby (2a) relates to transitives (or unergatives), and (2b) to unaccusatives; (1) is negative because *ne* bears an interpretable feature, [POL], whose value is [NEG].

- (1) Ja **ne** zvonila moej sestre.
I NEG called my sister-DAT
'I didn't call my sister.'

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Negative sentences can also contain NI-words, which obligatorily co-occur with *ne*, as in (3), and can concatenate – with a negative concord reading – anywhere with respect to the *ne*+ verb complex, as in (4).

- (3) Ja *(ne) videl **nikogo**.
 I NEG saw nobody
 ‘I saw nobody.’
- (4) **Nikto** ne videl **nikogo**.
 nobody NEG saw nobody
 ‘Nobody saw anybody.’

Assuming that NI-words merge within PredP/VP, and bear an uninterpretable [NEG] feature, *ne* is necessary in (3), since its [POL]-[NEG] sublabel allows the NI-word’s uninterpretable [NEG] feature to be checked/erased, as required by the Principle of Full Interpretation, either by overt raising of the NI-word to SpecPolP, or covert raising of [NEG] to Pol. Further, irrespective of the number of NI-words in the clause (cf. (4)), checking/erasure of each NI-word’s [NEG] feature leaves the unerased [POL]-[NEG] sublabel of *ne* the sole expressor of negation, hence the negative concord.

While the position of PolP above PredP/VP accounts for the free distribution of NI-words, it is, as Brown acknowledges, less clear how it can deal with the Genitive of Negation (henceforth, GN), an optional, syntactico-pragmatically determined phenomenon, which, in a negative clause (marked by *ne*), marks a verb’s non-oblique INTERNAL argument – IntArg in (2) – with genitive case (instead of accusative for the direct object of transitives, as in (2a)/(5); instead of nominative for the derived subject of unaccusatives, as in (2b)/(6a, b)).

- (5) Ja ne čitaju **žurnaly**/ **žurnalov**.
 I NEG read magazines-ACC/magazines-GEN
 ‘I don’t read (any) magazines.’
- (6) (a) **Otvét** ne prišel.
 answer-NOM:MASC NEG came-MASC
 ‘The answer didn’t come.’
- (b) **Otveta** ne prišlo.
 answer-GEN:MASC NEG came-NEUT
 ‘No answer came.’

Significantly, GN does not affect EXTERNAL arguments (the subject of transitives/unergatives) – ExtArg in (2a) – nor indeed oblique internal arguments (e.g. the dative marked complement in (1)).

Bailyn (1997) captures this IntArg/ExtArg asymmetry by positioning PolP (his NegP) between PredP and VP and attributing GN to negative scope, an approach unavailable in Brown’s structures in (2). For Brown, case-checking domains are a by-product of verb

movement, viz. the bringing together on functional heads of 'independently motivated' features. Two such features relevant here are, first, [\pm PRED], distinguishing verbs which have an external argument from those which do not (transitive/unergative versus unaccusative), and, second, [\pm V^{MAX}], distinguishing verbs with an internal argument from those without (transitive/unaccusative versus unergative). GN is checked at SpecPolP by the feature complex [NEG, +V^{MAX}] on Pol, formed when a transitive/unaccusative verb raises in a negative sentence; the feature complex [T, Φ] – formed when a finite verb raises to T – allows nominative to be checked in SpecTP; finally, accusative case checking in SpecAspP depends on the feature complex [ASPECT, +PRED, +V^{MAX}], that is, a transitive verb raising to Asp. GN is thus excluded from the subject of an unergative because of the absence of the feature [+V^{MAX}]. It is excluded from the subject of a transitive because, as the closest argument with Φ -features, the subject will still be attracted to SpecTP, leaving the direct object's case unchecked.

As for the optionality of GN, illustrated in (5) and (6a, b), Brown relies on the ideas: (a) that case features are randomly assigned in the numeration, rather than being structurally determined; and (b) that the individual features in her feature complexes are independently motivated, and do not therefore NEED to be erased by case checking. Thus, the direct object in (5) can be randomly assigned genitive or accusative; in the former case, it is checked at SpecPolP; in the latter, it is checked at SpecAspP; in neither case do uninterpretable features remain unchecked. As for the surface subject in (6a, b), it is randomly assigned genitive or nominative, and its case feature is checked at SpecPolP or SpecTP. Thus, Brown's feature complexes allow – rather than require – case checking to take place.

One final feature of GN which Brown relates to the position of PolP is the tendency for GN arguments to receive an existential interpretation, while equivalent accusative/nominative arguments are either existential or presuppositional/generic. (Contrast the translations of (6a, b).) Here, Brown exploits the notion of the 'negative closure of events', which she deems to take place immediately above PolP. The interpretative distinction is determined by the position of a given argument chain with respect to closure. Arguments whose chains are exclusively below closure (e.g. GN arguments, which raise to SpecPolP) are existential; nominative/accusative arguments, which raise above closure, can either be existential (the foot of the chain is below closure) or presuppositional/generic (the head of the chain is above closure).

The final topic addressed is expletive negation, that is, lexically and grammatically triggered, yet semantically non-negative, cases of *ne*, which, strangely, license GN, but not NI-words. Here, Brown revisits the characterisation of *ne*, suggesting that, while it always bears the feature [POL], the VALUE of [POL] is not necessarily [NEG]. Licensing NI-words is then deemed to depend on [POL]-[NEG] (negative *ne*), while licensing GN only requires [POL] (negative or expletive *ne*).

This book has the quality of being focused (to the point of repetition). I have reservations as to its theoretical claims (the status of [\pm PRED] and [\pm V^{MAX}] as 'independently motivated features'; the cavalier disposal of Relativised Minimality; cross-linguistic comparison vague to the point of vacuousness) and its argumentation (poor exemplification, misrepresentation of Liliane Haegeman's work on West Flemish, a bizarre discussion of the grammaticalisation of negative markers which seems to predict that, in French, for example, *ne* is less likely to be overt with negative subjects). My abiding impression, however, relates not to content but to form: the book has been poorly typeset and proof-read; the text is confusing; it has unreliable glosses/translations and an incomplete bibliography.

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Stephen Crain & Rosalind Thornton, *Investigations in Universal Grammar: a guide to experiments on the acquisition of syntax and semantics*. Cambridge, MA: MIT Press, 1998. Pp. ix + 342.

Reviewed by DANA MCDANIEL, University of Southern Maine

Stephen Crain and Rosalind Thornton are among the best and most influential researchers in the field of first language acquisition. Crain is known for his insightful comments on methodology and his development of innovative methods. Crain, Thornton and their colleagues, using these methods, have demonstrated children's knowledge of various aspects of grammar that had been underestimated by earlier methods. Few researchers in our field are as ingenious as Thornton when it comes to designing experimental paradigms to investigate particular issues. A book by this team therefore holds great promise. Nevertheless, *Investigations in Universal Grammar* (henceforth, IUG) falls short. It seems to be aimed at convincing readers that most research in the field is invalid. This point is made through the comparison of three unconvincing methodological models. Crain & Thornton's work allegedly distinguishes itself by adhering to one of the models. However, as will be argued below, none of the models correctly characterizes the work of any actual researchers. IUG's focus on these models results in a lengthy, largely un insightful work whose audience is poorly defined.

IUG is divided into three parts. Part I, 'The Modularity Matching Model', discusses the three models, focusing mostly on arguments for the Modularity Matching Model (henceforth, MMM) and against the Competing Factors Model. Part II, 'The Elicited Production Task', and Part III, 'Truth Value Judgments', consist of detailed descriptions of these two methods, presenting 'how-to' instructions for researchers intending to employ them, as well as arguments for their adherence to the MMM. The elicited production task involves presenting subjects with prompts that encourage subjects (without modeling) to produce certain structures. The truth value judgment task has subjects determining the truth of a sentence that a puppet has uttered to describe an enacted story. Parts II and III include discussion of studies that illustrate how Crain & Thornton (henceforth C & T) have used the methods to assess children's grammars.

This review will focus on the three models. These models are apparently meant to be models of the linguistic system and its acquisition. The choice among them also determines the methodology and analysis of results. C & T claim that the MMM is the only model that is consistent with the theory of Universal Grammar (UG). But the MMM is not supportable and C & T themselves don't adhere to it. The present review documents this and ends with a brief discussion of other general problems with IUG.

The MMM assumes UG and an adult-like processing mechanism from the beginning. C & T argue that if children's processors started out different from those of adults, children could not make constructive use of the input. A further tenet of this model is that principles of grammar and pragmatics always win out over processing effects in determining children's and adults' behavior on tests of unambiguous sentences. The parser will only have an effect on the interpretations assigned to ambiguous sentences. According to this model, the only way an experiment supports UG is if it yields an accuracy rate of at least 90% for every subject. (C & T allow a 10% error rate resulting from experimental noise.) A less than 90% accuracy rate indicates that children don't have the knowledge under investigation or that the experiment violated 'felicity conditions' (pragmatic requirements), forcing children to choose between grammar and pragmatics. This is where the methodological consequences of the model come in. C & T argue that it is crucial to ensure that experimental items obey felicity conditions. Carefully designed experiments using elicited production or truth value judgments are argued to meet this requirement. Statistics become unnecessary under the MMM, due to the simple prediction of a 90% or higher correct response rate for each child.

The Competing Factors Model allows for the possibility that grammatical principles are sometimes overridden by the processor. That is, a less than perfect response rate might be attributed to some kind of processing problem. Further, the Competing Factors Model does not take as its null hypothesis that children have an adult-like processor. Non-adult performance on grammatical principles could therefore be attributed to an immature processor.

The Input Matching Model includes any type of learning model, and as IUG develops, this model simply becomes synonymous with anti-innateness. C & T largely ignore aspects of language that clearly are learned; e.g. the lexicon and language-specific rules or parametric options. Some learning mechanism that is partially input-driven must be responsible for the

acquisition of these aspects of language, making some version of the Input Matching Model a necessary component of any theory of acquisition.

How do these models compare to actual research in the field? In actuality no researchers, including C & T, adhere to the MMM. This is because the MMM is untenable. Its assumptions are unfounded and in some cases clearly false. The assumptions are discussed below in turn.

Assumption #1: Children's processors are adult-like. It is true that learnability problems would arise if children's processors were fundamentally different from those of adults. However, it is natural to assume that children's processors are not as practiced as those of adults. A processing effect that is minor for adults may therefore have a larger impact on children. (These are, of course, empirical questions; little research has addressed children's processing.)

Assumption #2: Processing effects never override grammatical principles. This assumption has been falsified by a variety of findings in the psycholinguistic literature. The 'horse raced past the barn fell' sentences constitute a standard example of processing effects overriding the grammar. C & T do discuss these examples, but they erroneously classify them as ambiguous, claiming that the processor chooses among alternative analyses (104–113). These sentences are UNambiguous and therefore pose a problem for the MMM. The acquisition literature also contains examples of processing effects overriding grammar. C & T critique these, but do not offer alternative accounts for the findings. An example is Goodluck & Tavakolian's (1982) finding that children's enactments of relative clauses are more accurate when the number of animate NPs in the sentence is reduced. Goodluck & Tavakolian interpreted the findings to mean that children's grammars generate relative clauses, but the processor is taxed by sentences with too many animate NPs. C & T argue that such an account is untenable given the MMM (155). Further on in the chapter, C & T argue that such act-out tasks violated an important felicity condition on relative clauses (that relative clauses are used to select one member from a set) and that children's poor performance is attributable to this problem. But in adherence to the felicity condition could not possibly account for the animate NP effect. That finding still appears to be a parsing effect, unaccounted for by C & T and problematic for the MMM.

Assumption #3: Pragmatic principles can override grammatical principles. This assumption is undoubtedly correct, at least in some situations. However, C & T don't provide any evidence for it. This is a crucial omission, given the role felicity conditions play in their arguments for experimental design. C & T discuss no studies that compared performance on items that met felicity conditions to performance on items that didn't. As evidence for the role of the relative clause felicity condition, for example, they cite Hamburger & Crain (1982). C & T claim this work showed that adherence to the felicity condition 'resulted in a much higher percentage of correct responses by children even younger than the ones tested in earlier research' (158). However, they did not test the two types of items within a single experiment (the way Goodluck & Tavakolian did for their two types); the difference in performance across experiments could be due to any number of factors.

Assumption #4: Experimental noise creates an error rate of 10% or less. C & T refer to this assumption as a 'rule of thumb' (45) but don't justify it.

Assumption #5: Statistical analysis isn't necessary. Even if experiments are designed in accordance with the MMM and all subjects meet the 90% criterion, statistical analysis is necessary to establish what proportion of the sampled population has the trait in question. For example, even if all 10 children in a randomly selected sample of size 10 have a given trait, this is consistent with 25% of the population NOT having the tested trait. (See, for example, Blalock (1972: Chapter 11) for discussion of appropriate tests for proportions.) The claim weakens further if some children in the overall sample are excluded due to uninterpretable responses. Finally, with small numbers of subjects, estimates are only reliable if the sampling procedure is highly effective. C & T routinely use small numbers of subjects (usually under 20). They emphasize the importance of individual children's responses (a good point, though not restricted to the MMM), but they also make generalizations about the target population. The merits of such generalizations can only be established statistically.

When C & T's own work is examined, even within the context of this book, it becomes clear that it regularly violates the MMM. Their case for the model also becomes weaker as IUG progresses. Throughout IUG, there are many indications of C & T allowing for processing effects. Examples include the following admissions: the system can overload in the process of lexical retrieval (72); sentence length can affect comprehension (124); the parser can cause errors (324–5, note 4); children have limited verbal memory (327, chapter 26, note 2). In several sections of IUG, C & T resort to Lebeaux's (1988) account of non-adult-like behavior, namely

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that processing difficulty causes children to return to an earlier grammar (126, 174, 197). C & T do not clarify how this differs from the parser overriding the grammar. In several cases, C & T also gloss over results that didn't make their 90% criterion. An example is the 84% correct responses on the two-clause Principle C sentences of the Crain & McKee (1985) study (219). The MMM falls apart on page 270, where C & T say that the model may need to be amended to admit Grodzinsky & Reinhart's (1993) account of children's non-adult performance on Principle B. This account suggests that children lack the processing capacity to execute a particular pragmatic principle. Such an amendment could not be limited to one pragmatic principle, and would therefore undermine the fundamental assumptions of the MMM.

The upshot is that just about all researchers in the field (regardless of theoretical framework) subscribe to a model that most resembles the Competing Factors Model. However, several aspects of IUG's Competing Factors Model are unrepresentative of most research. Most researchers do not assume that children's processors are fundamentally different from those of adults; rather they consider the possibility that parsing difficulties could affect children's performance more than that of adults. Furthermore, most researchers do not design experiments without regard for potential confounds. It is simply that when children (or adults) do not perform in accordance with a principle, processing difficulty is one of several possible explanations. Crain & Fodor (1984), for example, argued that Otsu's (1981) subjects' mediocre performance on subadjacency was due to the parsing principle of low attachment competing with the grammar.

Another fundamental problem with IUG pertains to its audience. The intended audience wavers back and forth between students and colleagues. Part I is more directed at colleagues, and parts II and III at students; but the inconsistency occurs within each part as well. The student-directed parts lay out linguistic and experimental concepts in simple terms, and consist largely of instructions for conducting an experiment. The colleague-directed parts assume knowledge of linguistic concepts and consist largely of attacks on studies that were supposedly construed within the Competing Factors Model. A more general audience problem is IUG's lack of a coherent theme. Although many of C & T's experimental findings are of interest, a reader curious about general findings on any one topic (such as Binding Theory) would not gain much from IUG. A reader interested in designing an experiment would benefit from the descriptions of the two tasks, but would miss out on many other useful methods, which are either dismissed (e.g. act-out tasks) or absent (e.g. grammaticality judgment tasks).

Finally, IUG contains an abundance of errors of various types. There are errors of logic, such as the implication on page 147 that learning theories (Input Matching Model) can't account for the Wug Test results; errors of terminology, such as 'Romanian' instead of 'Romani' on page 325; and editorial errors, such as the amusing choice of words on page 63, where a comment by Crain & Wexler (1999) is said to be 'prophetic' concerning the results of a study that was published in 1993.

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Patrick Saint-Dizier (ed.), *Predicative forms in natural language and in lexical knowledge bases* (Text, Speech and Language Technology, 6). Dordrecht: Kluwer Academic Publishers, 1999. Pp. viii+377.

Reviewed by PIKLU GUPTA, University of Hull

The appearance of this volume, based on a selection of papers from a workshop which took place in Toulouse in 1996, reflects not only the prominence of the lexicon, but also the increasing interest in lexical semantics in natural language processing (NLP). The major focus of the volume is on predicate argument structure; chapters report on both theoretical work and implementation in a variety of contexts, including machine translation systems and large scale lexical databases.

Following a foreword which outlines the content of the volume, the introductory chapter by Saint-Dizier provides an overview of predicative forms and lexical semantics from a computational perspective which is an invaluable entry point for readers unfamiliar with the theoretical and practical background. Appended to this chapter are useful bibliographic references to the standard works cited throughout the volume. There is succinct treatment of Pustejovsky's Generative Lexicon framework (henceforth GL) (Pustejovsky 1995) which goes beyond merely providing a summary; Saint-Dizier adopts a critical stance and warns of potential problems of overgeneration related to the GL mechanism of type coercion, in which an expected argument type is replaced by another (e.g. *He began the book*, where the expected argument for the verb is an event which is shifted or 'coerced' to a concrete nominal). He suggests the introduction of additional constraints which consider the most relevant qualia roles to be assigned to a verb dependent on its membership of a semantic class. This early exposition of GL is invaluable, since reference to research within the framework recurs in a number of contributions.

Busa et al. comment in their chapter on *buy-sell* verbs on the suitability of GL for computational implementation. As one of Pustejovsky's colleagues at Brandeis, Busa is able to provide an informed critique. In separate sections by each author, the chapter provides an overview of different approaches to word meaning including a psycholinguistic perspective, application of Lexical Conceptual Structure (Jackendoff 1983), and the Mikrokosmos knowledge-based machine translation system. It is interesting to note in this last context that Viegas, the author of the section on Mikrokosmos, claims better results through use of knowledge-based methods for word sense disambiguation in contrast to the current preference for statistical methods. Such methods are not, however, unrepresented in the volume; Kokinnakis's chapter on extraction of subcategorization frames from tagged and shallow-parsed corpora reports on his use of the standard mutual information metric for measurement of collocational strength, used here to rank strong and weak degrees of valency binding or 'cues'. The ubiquity of GL in the volume has already been mentioned and the framework is indeed attractive for researchers endeavouring to keep their lexicon entries small since the GL model of the lexicon is composed of a number of generative devices which allow an underspecified representation of word meaning. Nonetheless, some contributors do not hesitate to justify their use of what Pustejovsky terms sense enumeration lexicons, in which multiple polysemous word senses are listed separately. Fellbaum comments in her chapter on the salient differences between the WordNet electronic lexical database and GL views of the lexicon and concludes that although WordNet is a traditional sense enumeration lexicon it in fact meets many of the informational requirements of a generative lexicon, since WordNet lexical information is organised hierarchically. Viegas et al. also report in their chapter on generating

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meaning representations of events for Mikrokosmos that they found sense enumeration lexicons to be suitable for their purposes and sufficiently flexible to deal with sense disambiguation.

It is to be welcomed that polysemy is now no longer treated as being equivalent to homonymy in NLP circles and there is certainly plentiful evidence of this development throughout the book – Stein's chapter places particular emphasis on the representation of polysemy in a semantic hierarchy of Italian verbs. He addresses the problem of the nature of linguistic knowledge and how it should be represented ontologically; that is, whether an ontology should formally represent world knowledge or linguistic knowledge. Stein argues in favour of structuring knowledge according to linguistic principles rather than those of general knowledge representation. Saint-Dizier then presents his work investigating semantic classification of French verbs based on diathesis alternations (he terms them 'contexts') and on classes influenced by WordNet categories and proposes a methodology which combines the two approaches. Viegas et al. give a more detailed account of the building of lexical entries for machine translation, as mentioned above, and focus on event nominals and manual acquisition of the lexicon (i.e. by humans). Palmer et al. investigate motion verbs within the Lexical Conceptual Semantics and Tree Adjoining Grammars framework and deal with the problem of the argument/adjunct status of prepositional phrases in path-denoting expressions. Although the balance of chapters is tipped towards issues of computational implementation, there are some which are nearer to the theoretical end of the spectrum; Jones himself points this out in relation to his contribution on the relationship between morphology and syntax, which comes down on the lexicalist rather than the word syntactic side of the debate. Jaye & Rossari's piece is similarly of a more theoretical nature, dealing as it does with pragmatic discourse markers which are discussed in the context of generalized quantification over proofs. Angeles Zarco looks at how complex predicates are represented in machine translation and therefore deals with cross-linguistic issues pertaining to English, Italian and Spanish. Finally, Busa's single-authored chapter discusses the GL representation of event nominals, in particular the distinction between so-called *STAGE-LEVEL* and *INDIVIDUAL-LEVEL* predicates, the former referring to episodic or temporary properties of a nominal and the latter to permanent or inherent properties.

The multilingual perspective of the collection is to be welcomed, as is the detailed discussion of theoretical and implementation issues. It has to be noted, unfortunately, that the quality of proof-reading of the volume leaves much to be desired – sometimes the English is of questionable quality and there are many irritating typos. Despite these shortcomings it does, nonetheless, present a useful and eclectic review of European and US work in computational lexical semantics and is particularly informative for those working at the lexical semantics-syntax interface.

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Anna Siewierska & Jae Jung Song (eds.), *Case, typology and grammar: in honor of Barry J. Blake* (Typological Studies in Language, **38**). Amsterdam & Philadelphia: John Benjamins, 1998. Pp. xx + 379.

Reviewed by LINDSAY J. WHALEY, Dartmouth College

This volume, a collection of fifteen papers, was produced to honor Barry Blake on the occasion of his 60th birthday. It seems fitting, then, before commenting on the content of these papers, to identify just a few of the contributions that Professor Blake has made to the field of linguistics in the course of his career. The focus of his research over the past three decades has been on

native languages of Australia. This work involved Kalkatungu and Pitta-Pitta especially, but it was carried out with an eye towards many pan-Australian issues; consequently, it comes as little surprise that Blake has made significant contributions to the classification of Australian languages, both from a genetic and a typological perspective. Blake's typological sensitivities expand beyond the borders of Australia, and he authored, together with Graham Mallinson, one of the classic introductions to the field of typology, *Language typology: cross-linguistic studies in syntax* (1981). Throughout his career, Blake has written on many topics surrounding the phenomenon of case marking, such as ergativity and the case hierarchy; this component of his research has resulted in two significant books on case systems, *Case marking in Australian languages* (1977) and *Case* (1994).

The articles gathered together by Siewierska & Song for this volume appropriately reflect the varied interests of Barry Blake. Some of the authors make an effort to connect their own papers to Blake's work, either by citing his publications at relevant points or by explicitly indicating how Blake has influenced their own thinking on a particular topic. Unfortunately, other authors make no such attempt, and on the face of it, one wonders why these papers are included. The editors furnish the reason in their introduction, where they explain that all the contributors are former students or colleagues of Blake's, current colleagues at La Trobe University or scholars who have 'exchanged their ideas about, and admiration for, language with Barry' (xiii).

In the volume itself, the papers are ordered alphabetically. For the purposes of this review, I group them thematically. Three of the contributions deal with problems confronting specific theoretical frameworks. Keith Allen, 'On the semantic frames of *be* and "possessive" *have*' (1–18), analyzes the logical structures of *be* and *have* in the framework of Role and Reference Grammar. His central conclusion is that the two verbs have identical thematic roles in their possessive use, but *be* is utilized to highlight the theme role, whereas *have* highlights the locative role. Richard Hudson, in 'Functional control with and without structure-sharing' (151–169), employs Icelandic and ancient Greek data to argue that syntactic theory must recognize two categories of control verbs, those that involve anaphoric control and those that involve structure sharing. In making this argument, he extends the formalism of Word Grammar to handle both options.

Finally, Stanley Starosta, 'Ergativity, transitivity, and clitic coreference in four Western Austronesian languages' (277–307), examines a tenet of Lexicase, that there exist only two types of case marking systems, ergative and accusative. In particular, he works to demonstrate that Acehnese, which has previously been claimed to have a third type of case system, can be analyzed as an ergative language.

A number of the articles in this volume deal with historical-typological issues. Edith L. Bavin, 'Factors of typology in language acquisition: some examples from Warlpiri' (37–55), reviews acquisition patterns of some typologically salient features of Walpiri including case marking and ellipsis of arguments. Byron W. Bender, 'Markedness and iconicity: some questions' (57–70), poses the intriguing question of what functional benefit markedness has in language. Ultimately, he finds its purpose in bringing economy and efficiency to linguistic structure, though he admits that his conclusion is tentative. Anna Siewierska, 'Passive-to-ergative versus inverse-to-ergative' (229–246), revisits a claim made by Talmy Givón that inverse constructions represent one of the sources of ergative marking on nominals. She effectively demonstrates that many languages that might appear to support a view that ergativity developed from inverse constructions are in fact better analyzed as having a passive construction as the source of their ergativity. Sandra A. Thompson's 'A discourse explanation for the cross-linguistic differences in the grammar of interrogation and negation' (309–341; N.B.: the table of contents contains an error in the title and page numbers for Thompson's article) accounts for ubiquitous differences between the structure of negative and interrogative clauses by appealing to their conversational functions.

Within the set of historical-typological papers is one of the many highlights of the volume: 'The great Daghestanian case hoax' (95–114) by Bernard Comrie & Maria Polinsky. They investigate the validity of the claim that Tabasaran has the most noun cases in the world, a system said to have between 48 and 52 different inflections. As it turns out, Tabasaran dialects actually only have 14 or 15 distinct case suffixes, but the suffixes can be stacked to produce meaningful combinations. The sum total of combinatorial possibilities is around fifty, which accounts for the estimations of Tabasaran case that appear in the literature. Once this fact comes to light, Tabasaran ceases to be quite so extraordinary since other Caucasian languages, such as Tsez, actually permit a far greater number of combinations, and other non-Caucasian languages, such as Finnish, have a larger set of distinct case inflections.

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Many of the contributions to the volume deal with issues in Australian languages. In the chapter ““Crow is sitting chasing them””: grammaticisation and the verb “to sit” in the Mantharta languages, Western Australia” (19–36), Peter Austin describes the auxiliation of the verb *kumpa-* ‘sit’. Nicholas Evans, ‘Iwaidja mutation and its origins’ (115–149), discusses initial consonants of certain roots in Iwaidja that have an unexpected form, both in terms of failing to correspond regularly with cognate roots in related languages and in terms of alternating with the expected form in singular-plural pairs, e.g. *banga* ‘throat’ (with an unexpected initial *b*) vs. *a-manga* ‘throats’ (with the expected *m*). Evans is able to account for these ‘mutations’ by analyzing them as remnants of an archaic gender system. Finally, two of the papers describe the syntax and semantics of applied affixes: ‘Applicative constructions in Warra’ (170–199) by William McGregor, and ‘Applicative constructions in Warrungu of Australia’ (343–373) by Tasaku Tsunoda.

The remaining three contributions to the volume do not fit easily into any of the above categories. Andrew Pawley & Jonathan Lane, ‘From event sequence to grammar: serial verb constructions in Kalam’ (201–227), describe a remarkable serialization process in a Papuan language which allows as many as ten verb stems to be used together in what seems to be a single clause. However, they point out that Kalam serial verbs actually call the traditional distinction between single clause and multiple clause constructions into question and propose that a continuum of clause types is revealed by their data. In ‘Benefactive marking in Oceanic languages: from possessive classifiers to benefactive markers’ (247–275), Jae Jung Song finds that possessive classifiers provide the most common source of benefactive markers in the Oceanic language family. Kate Burridge, ‘Throw the baby from the window a cookie: English and Pennsylvania German in contact’ (71–93), furnishes an insightful study of language contact and attrition.

As this brief survey of the volume indicates, the subject matter of the articles is extremely diverse, and lacking any specific theoretical niche, the book, taken as a whole, may fail to attract much attention. This would be a regrettably ironic fact since its honoree, Barry Blake, embodies an approach to linguistic research that eschews parochialism and promotes the integration of disparate strands of research.

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