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REVIEWS

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Alexandra Y. Aikhenvald, *Language contact in Amazonia*. Oxford & New York: Oxford University Press, 2002. Pp. xxv + 363.

Reviewed by Willem F. H. Adelaar, Leiden University

This fascinating book contains a detailed account of how languages belonging to two unrelated language families came to resemble each other structurally while avoiding any significant amount of lexical borrowing. The East Tucanoan peoples of the Vaupés region (in the Amazonian area of Brazil, bordering on Colombia) practice a strict exogamy, which does not allow them to marry anyone speaking a native language identical to their own. As a result, there is extensive multilingualism within families, such that parents do not normally belong to the same language group (see also Sorenson 1967). In addition to the East Tucanoan languages, which are all closely related, there is at least one non-Tucanoan group of Amazonian Indians that has adopted language-based rules of exogamy after it moved into the area. They are the Arawak-speaking Tariana. It should be observed that the marriage restrictions between language groups in the Vaupés do not only affect speakers of the same language. The Tariana, for instance, are not allowed to marry the Tucanoan Desano, considered to be their 'younger brothers'. A third group represented in the area are speakers of the Makú languages. They cannot intermarry with the Tucanoans, nor with the Tariana, because they are thought to be socially and culturally inferior. Therefore, language contact between speakers of Makú languages and the other language groups of the Vaupés is limited.

Aikhenvald shows with many first-hand examples how sensitive the inhabitants of the Vaupés region are about language purity. Language proficiency is highly valued, and speakers are eager to avoid any kind of mixture. Natives who use words, morphemes, or even sounds associated with languages other than the one they are supposed to speak are subject to scorn and ridicule. In the case of Tariana, now reduced to a very small number of speakers, this situation constitutes a real danger for the survival of the language. Of a total of 1,500 Tariana only about 100 are actual speakers of the language. As a result of the policy of missionaries, which did not respect the marriage taboos of the natives, Tucano, one of the East Tucanoan languages, has become dominant in the area. For young Tariana people it is often easier to express themselves in Tucano or in Portuguese, rather than to

run the risk of being criticised for speaking poor Tariana. The insertion of East Tucanoan terms within Tariana speech – for instance, because one does not have the correct Tariana word at hand – is considered particularly inappropriate. Aikhenvald provides ample evidence of the process of language attrition affecting the Tariana, but also shows their enthusiasm in supporting efforts to stimulate a continued use of the language.

The author explains that the Tariana were originally organised as a hierarchically structured society with different dialects corresponding to representatives of 'higher' and 'lower' social layers. Together these dialects must have constituted an internally differentiated continuum, comparable to East Tucanoan or, say, the Romance languages (207). Today, only two closely related dialects, both associated with the lower strata of Tariana society, remain viable, Periquitos and Santa Rosa. The attitudes of their speakers towards innovation and borrowing are slightly different, the Periquitos group being somewhat more liberal in this respect but also more successful in transmitting the language to the younger generation.

Language contact in Amazonia consists of 12 chapters and 5 appendices. The appendices 1–3 contain a very useful overview of information on the Arawak languages, including statistical data, lexical data, phonological and grammatical features. It allows the reader to appreciate the degree of change that has affected the Tariana language in its interaction with East Tucanoan. The Arawak language most closely related to Tariana is Baniwa, a language with which some Tariana are also familiar. Many of the differences separating Tariana and Baniwa are indicative of the transformation undergone by the former during the generations of contact by intermarriage with East Tucanoan speakers.

The author discusses several other instances of contact between Arawak and Tucanoan languages. The contact situation that links Tariana to the East Tucanoan languages has its parallels in the Colombian section of the Vaupés region, where the language pairs Yucuna (Arawak)/Retuarã (Tucanoan), and Baniwa-Kurripako (Arawak)/Cubeo (Tucanoan) provide further cases of interaction (see also Aikhenvald 2001). The latter two cases of diffusion are certainly not identical in details, but the social factors that have generated the interaction may very well be comparable. While Tariana underwent an extensive asymmetrical influence from East Tucanoan (especially from Tucano), the similarities between Yucuna and Retuarã feature a more balanced type of convergence.

The introductory chapter of the book, 'Language contact and language change in Amazonia', contains an overview of different types of contact phenomena and a discussion of general concepts, such as the notion of INDIRECT DIFFUSION, referring to cases where a language develops new categories copied from a contact language by using its own formal resources. Structural changes are classified as COMPLETED, ONGOING or DISCONTINUOUS (Tsitsipis 1998), a set of distinctions that appears to be particularly useful in

the case of Tariana. Aikhenvald notes (13) that most changes achieved through indirect diffusion are completed, whereas direct diffusion (borrowing) usually involves ongoing changes. As far as Tariana is concerned, the contact situation seems to have developed from an original state of multilateral diffusion, involving several varieties of East Tucanoan and Tariana, towards a more recent state of unilateral diffusion in which (East Tucanoan) Tucano is the dominant language. In addition to the language groups that are native to the area, several introduced languages also play a role, in particular, the Língua Geral or Nheengatu (derived from 16th century Tupí), Portuguese and Spanish (or any mixture of both).

Chapter 2 deals with diffusional phenomena in phonology and illustrates the sparse cases in which the Tariana sound system may have been influenced by East Tucanoan (e.g. the presence of a voiced bilabial stop [b], a central vowel [ɨ], nasal vowels, and the alternation of the consonants [d] and [ɾ]). The use of these elements is viewed as an undesirable innovation by traditional speakers of the language, even though their borrowed status is not always clearly established and ready alternatives may not be available. For instance, the Tariana nominal emphatic augmentative *-pɨ* (as in *hema-pɨ* 'a really big tapir') has a history in the Arawak languages. Nevertheless, it is often rejected as a borrowed form because it contains the sound [ɨ]. The East Tucanoan languages Desano and Tucano have suffixes of the same form, but with different meanings.

Indirect diffusion is most clearly visible in the morphology and morpho-syntax of the languages at issue. Aikhenvald notes that in the case of Tariana, changes resulting from indirect diffusion do not necessarily mean simplification, because the language tends to accumulate native and foreign categories (shaped from native material) rather than to substitute the latter for the former.

The pronominal systems of East Tucanoan and Arawak languages (chapter 3) differ in several ways. The inclusive-exclusive distinction in the 1st person plural of Tucanoan languages is absent from Arawak languages, such as Tariana. However, Tariana has an impersonal pronoun *p(a)ha* with a corresponding cross-reference prefix *pa-*. These elements can be used in contexts characteristic of a Tucanoan inclusive, e.g. in *pha nawiki* 'us (INCL.) people'. This stands in contrast with *wha nawiki* 'us (EXCL.) people', featuring a regular Arawak 1st person plural. Likewise, the Tariana prefix *i-* indicating an unknown or unspecified possessor is becoming obsolete, possibly because it lacks a counterpart in East Tucanoan. A regular 3rd person prefix (e.g. non-feminine *di-*) is taking its place.

Possessive marking is expressed by juxtaposition (East Tucanoan; alienable possession in Tariana) or by prefixation (inalienable possession in Tariana). Chapter 4, which deals with nominal morpho-syntax, provides examples of the expansion of juxtaposition at the cost of prefixation among younger speakers of Tariana, e.g. when *nuha ha-do* (I parent-FEMININE

'my mother') is used as a substitute for *nu-ha-do* (my-parent-FEMININE). The differences in distribution of the class, gender and number markers in Arawak and East Tucanoan can generate cases of redundancy in Tariana. For instance, in *nu-dake-ɾu-ni-ma-pe* 'my granddaughters' (*nu-dake-* 'my grandchild') the categories feminine and plural are marked twice. Feminine is indicated by a genuine gender marker *-ɾu* (as usual in Arawak) and a feminine class marker *-ma* (following an East Tucanoan model), and both markers are accompanied by their respective pluralisers *-ni* and *-pe*. The case system of Tariana resembles that of East Tucanoan, rather than that of the related Baniwa language, although the shape of the Tariana case markers is derivable from Arawak.

In chapter 5, Aikhenvald discusses contact phenomena involving the Tariana verb. A rather spectacular example is the development of an elaborate system in which tense and evidentiality categories are fused. Such systems occur in East Tucanoan languages, but not in the neighbouring Arawak languages. In Tariana, the evidentiality categories VISUAL, NONVISUAL, INFERRED and REPORTED combine with the tenses PRESENT, RECENT PAST and REMOTE PAST. In comparison to Tucano, the Tariana system has been extended further by the introduction of a formal distinction between PRESENT and RECENT PAST in the REPORTED category. All reported tenses in Tariana contain the suffix *-pida*, which is found as a reported evidential in Baniwa. However, the use of *-pida* in Baniwa does not allow the expression of further tense distinctions. In East Tucanoan languages, the suffixes expressing tense and evidentiality are fused with personal reference markers. This is not the case in Tariana, which holds on to its system of person prefixes inherited from Arawak. This shows that, in spite of heavy East Tucanoan influence, Tariana retains some of its most basic Arawak features.

Some East Tucanoan clause types are in the process of being copied into Tariana, as illustrated by the fact that the originally existential verb *alia* 'to be' can now be used as a copula (chapter 6). Such a use seems to be more characteristic of younger speakers. Copula verbs are common in East Tucanoan, but not in Arawak. This may be a case of ongoing change. Aikhenvald notes a general tendency towards isomorphism in the organisation of discourse between East Tucanoan and Tariana (173).

The influence of Portuguese, a relatively recent newcomer to the Vaupés area, is treated in chapter 7. Clearly, the appearance of Portuguese loans is received in a less negative way than East Tucanoan elements. One reason to avoid borrowings from Portuguese is the fact that they may have already been incorporated in Tucano, as is the case of *mutuɾu* from Portuguese *motor* 'engine' (178f.).

The final chapters 8, 9 and 10 contain a discussion of code-switching involving the different languages known in the area (Tariana, Tucano, Portuguese) and prevalent local attitudes towards code-mixing; language awareness – what sort of speech is considered 'correct' or 'incorrect' in the

Tariana community; and direct diffusion from East Tucanoan to Tariana, viz., cases of borrowing that have been accepted and are no longer considered intrusive in spite of the extreme sensitivity exhibited by Tariana speakers in this respect. The situation of obsolescence of Tariana, which now has only very few child speakers, is treated in chapter 11.

Language contact in Amazonia has the indisputable merit of conveying and analysing the phenomena surrounding language contact in a concrete and straightforward way. It does not deal with superficial resemblances as is often the case in studies of language contact. Many existing preconceptions will be challenged by the highly unusual and compelling character of these Tariana data, which may be unique of their kind. There can be no doubt that Aikhenvald's book will have a lasting influence on future theoretical developments related to language contact.

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Alexandra Y. Aikhenvald, R. M. W. Dixon & Masayuki Onishi (eds.), *Non-canonical marking of subjects and objects* (Typological Studies in Language **362**). Amsterdam & Philadelphia: John Benjamins Publishing Company, 2001. Pp. xi + 461.

Reviewed by Donna B. Gerdts, Simon Fraser University

In terms of case, non-canonical marking occurs when a subject or object is marked in a manner unlike the majority of subjects or objects in the language, usually appearing with an oblique case such as dative, genitive, or locative. In terms of agreement, non-canonically case-marked arguments often do not determine agreement, and agreement reverts to a default, such as third singular. In languages with rich head-marking, agreement is non-canonical if, for example, a subject determines object or indirect object agreement rather than subject, ergative or absolutive agreement. Defined thus, many, if not most, of the languages of the world exhibit non-canonical marking to some degree.

Of course, an issue arises (one that has preoccupied many scholars in the last half-century): if an NP is marked by an oblique case or determines non-standard agreement, how can we know that it actually is a subject or object? Onishi addresses this issue in the introduction. He provides a list of diagnostics – constituent order, imperatives, control, switch reference, deletion under corefence, anteceding reflexives, relativizability, and ability to be a target in a valency-changing construction. Furthermore, he addresses the issue of the semantic factors that drive non-canonical marking. For example, he delineates four predicate types – physiological states and psychological experiences, transitive verbs with low transitivity, modal predicates, and predicates of 'happenings'.

A preliminary draft of the introduction was circulated to the eight authors, who wrote detailed studies of particular languages or language areas. For the most part, these papers do not give significant new information (for example, see the papers by Avery D. Andrews on Icelandic and Masayoshi Shibatani on Japanese), but rather, organize the facts according to Onishi's outline, thus making comparison easy. The introduction was then revised to incorporate the results of the authors. For example, a chart of verb classes and non-canonical case marking is given on page 41. This method yields a very coherent volume despite the number of authors and languages from diverse parts of the world.

Not surprisingly, the tests for subjecthood and objecthood yield something resembling a patchwork quilt in most languages. John Roberts' paper on an impersonal construction in the Papuan language Amele shows that experiencers determining object agreement exhibit seven out of the ten subject properties exhibited by agent NPs. Alexandra Aikhenvald's paper, 'Verb types, non-canonically marked arguments and grammatical relations: a Tariana perspective', on the Amazonian language Tariana, discusses a closed class of intransitive verbs with subjects determining indirect object agreement, which she groups into three classes. Subjects in these three classes share some but not all properties with other subjects, objects, and with each other. Similarly, Gabriella Hermon in her paper 'Non-canonically marked A/S in Imbabura Quechua' discusses accusative-marked subjects arising in two types of constructions, lexical and desiderative. They share many properties with subjects – the desiderative type much more so than the lexical type. Onishi, in his paper 'Non-canonically marked A/S in Bengali', explores subjects marked nominative, locative, genitive, or objective in that language. Only three properties hold of all subjects – control, antecedence of reflexives, and same-subject reference across clauses. In the case of Finnish, Kristina Sands & Lyle Campbell conclude in their paper 'Non-canonically marked subjects and objects in Finnish' that the criteria utilized for other languages are generally not diagnostic, turning instead to a set of criteria developed in Sands (2000). Considerations such as these leave Onishi to conclude: 'Every language has its own syntactic profile, and accordingly, must employ

a different set of criteria to determine the syntactic status of non-canonically marked arguments' (21). In this sense, this volume does little to reconcile the on-going discussion about the utility of the notions SUBJECT and OBJECT.

Martin Haspelmath's paper, 'Non-canonical marking of core arguments in European languages', is on non-canonical marking in Standard Average European (SAE) – the European Sprachbund that includes most languages of continental Europe from both the Indo-European and the Finno-Ugric families. Haspelmath divides factors conditioning non-canonical marking into three main classes. Reference-related conditions include the status of the object in animacy/definiteness/individuation hierarchies leading to differential case marking (Bossong 1998, Lazard 2001, Aissen 2003). Clause-related conditions include aspect and negation. Predicate-related conditions take verbal semantics into consideration. Haspelmath concludes that SAE exhibits much more non-canonical marking under the first two conditions than the third. Moreover, Haspelmath, like Onishi (page 5), relates the conditions to the transitivity parameters of Hopper & Thompson (1980): 'Deviations from canonical argument marking occur if transitivity is particularly high or particularly low' (56). This sums up the issue nicely under one umbrella.

To conclude, there is something for everyone in this volume. Differential case marking, split intransitivity, degrees of transitivity, control, impersonal constructions, dative subjects, and psychological verbs are just some of the many topics addressed. This book is another fine contribution to the study of language typology from John Benjamins and it is also another example of exciting collaborative work spear-headed by the Research Centre for Linguistic Typology, La Trobe University.

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Norbert Boretzky, *Die Vlach-Dialekte des Romani. Strukturen – Sprachgeschichte – Verwandtschaftsverhältnisse – Dialektkarten*. Wiesbaden: Harrassowitz Verlag, 2003. Pp. xvi + 256.

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The term Vlax (or Vlach) is used in Romani linguistics to refer to a group of Romani dialects that share a set of diagnostic structural features. They are sometimes associated historically with Romani population settlement in Wallachian, Romanian-speaking territory, since they tend to share, albeit to varying degrees, a stratum of Romanianisms. Speakers of Vlax dialects are now dispersed not just across the Balkans, but in most European regions, as well as overseas. It is generally assumed that these migrations were connected at least in part to the abolition of Romani serfdom and slavery in the Romanian principalities around 1863, and the resulting refugee movement.

Vlax was the first genuinely linguistic-genetic classification proposed for any dialect family within Romani. Earlier attempts at a classification, by Miklosich (1872–1880), were based on location, but not on isoglosses. Paspati (1870) had classified Romani dialects based on the lifestyle of the speaker populations ('settled' versus 'nomadic' dialects). By contrast, the notion 'Vlax' was introduced by Gilliat-Smith (1915) on the basis of structural features shared among scattered, non-contiguous dialects of Romani in northeastern Bulgaria. The impact of Gilliat-Smith's work had a long-lasting effect on the classification discourse in Romani linguistics, with authors frequently characterising any dialect of the language as either 'Vlax' or 'non-Vlax', rendering the impression that this was the principal dichotomy in Romani dialect divisions. However, during the recent decade of intense activity in Romani-related research, Vlax has come to occupy an 'equal' place alongside other dialect branches.

The Vlax dialects are characterised by a set of internal innovations. To these belong the umlaut in the words *daj* > *dej* 'mother', *čhaj* > *čhej* 'daughter'; palatalisation of dentals preceding *i* and *j*; short genitive endings in *-ko* (cf. *-kero*); plural of borrowed nouns in *-uri*; comparative marker *maj*; prothetic *v-* in the pronouns *vov* 'he', *voj* 'she', *von* 'they'; negative indefinites *khonik* 'nobody' and *khanči* 'nothing'; ISG preterite ending *-em* (from *-jom*); loan verb adaptation marker *-isar*; suffix *-tar* with verbs of motion; and others (pages 87–90). Vlax is separated into two sub-groups: Northern Vlax dialects are spoken in the northern parts of Romania, in the Vojvodina region of Serbia and in Hungary (as well as in migrant communities). They typically show de-affrication of *čh* > *ś* (*š*) and *dž* > *ź* (*ž*); abstract nominalisers in *-imos*; clitic pronouns *li*, *lo*; demonstrative *kakava*; forms of the definite

article in *l-*; negation with *či*; synthetic future in *-a*; and more. Southern Vlax dialects are found in the southernmost regions of Romania, Bosnia, Serbia, Montenegro, and the southern Balkans, where they are co-territorial with Romani dialects belonging to the Balkan family. Their typical features are palatalisation of velars preceding *e*; vocative plural *-alen*; short form of the possessive reflexive *po* and of the ISG possessive *mo*; demonstrative *gava*; negation with *ni* or *in*; and more (pages 90–96).

From the inventory of characteristic features, Boretzky concludes that the Vlax group is more uniform than any other dialect group within Romani (pages 112–117). The internal innovations are considered more diagnostic of the group than the Romanian influences which the dialects have absorbed; consequently Boretzky proposes that Vlax dialects were formed not after immigration of Romani-speaking groups into Romanian territory (from the beginning of the 14th century), but prior to this migration (and so, by implication, somewhere in the southern Balkans). Romanian influence merely contributed to the distinct character of the group. Boretzky also concludes that the separation of the sub-groups Northern Vlax and Southern Vlax occurred long before the abolition of slavery in the Romanian territories. It would otherwise be difficult to imagine how Southern Vlax varieties, which are typically 'insular' dialects spoken amidst Romani dialects of the Balkan type, could have adopted the same innovations simply through a process of geographical diffusion lasting barely a century. The innovations of the Northern Vlax dialects are attested already in late 19th century sources, and must have similarly had more time to evolve than just a couple of decades.

The book under review can be seen as a sequel to the author's works on other dialect groups of Romani: 'Southern Balkan I' (Boretzky 1999a) and 'Southern Balkan II' (Boretzky 2000), as well as the 'Central' dialects (Boretzky 1999b). By and large, the methodology is similar: as in the other works, the dialect group is taken for granted as a pre-defined 'family', represented by a number of sources (in this case, dialect descriptions, text collections, collections of folk songs, the author's own fieldnotes, and fieldnotes contributed by colleagues – representing altogether 33 different varieties/locations). Selected data features are plotted on maps, attention being given to morphology (including function words) and phonology, and partly also to lexicon. The evaluation concentrates then on enumerating shared features, as well as on an inventory of features shared with other dialects.

The map section is the longest in the book (pages 136–256). Maps identify the groups, dialects and location of the sources, and the distribution of individual features. A final cluster of no less than sixty maps examines Romani as a whole. Unlike the maps that represent Vlax, the main topic of the book, the figures that relate to Romani as a whole are not conventional maps but graphic abstractions, quite reminiscent of the graphic representation of principal isoglosses of Romani in chapter 9 of Matras (2002: 225–235). The

purpose of general maps on Romani in a book devoted specifically to Vlax is apparently to help put Vlax in a general Romani perspective. But only occasional reference is made to these maps, almost always in brackets. Within the dialect classification adopted in the general maps on Romani, Boretzky divides what has hitherto been referred to as the 'Northern' branch – both by the author himself, and in other mainstream classifications – into a group called 'Northeastern' and individual dialects, including Sinti, Welsh, Scandinavian and Finnish Romani, as well as isolates. This matches the classification grid already proposed by Elšík (2000) and Matras (2000).

Following an introduction to the sources (pages 3–11), Boretzky devotes a lengthy chapter to a 'comparative analysis of the data' (pages 13–85). The structure follows that of a descriptive grammar, and relevant forms are introduced by category for each of the linguistic environments within Vlax (with the maps as points of reference). This chapter provides both a descriptive overview of the dialect family and a dialect-geographical discussion of individual variants. Familiarity with principal features of Romani and patterns of variation among its dialects is usually assumed, though unlike some of the author's previous works, the text is made more easily accessible to non-specialists through consistent insertion of translations of sample words and phrases.

The second main chapter of the text part is called 'evaluation' (pages 87–117). It opens with lists of the diagnostic ('idiosyncratic') features of Vlax, divided into structural categories (phonology, morphology and morphophonology, function words and adverbs, lexicon and lexical phonology). The author limits himself here to taking an inventory, and individual features are merely tagged for the type of process that is involved (innovation vs. archaism), suggesting that the historical evaluation of the process is rather an afterthought. The author mentions a third process, which he calls 'selection', in connection with the marker of loan verbs *-isar-* (88). This reminds me of my 'option selection' – one of the four classes of diagnostic isoglosses described in Matras (2002: 225–235), alongside 'innovations', 'archaisms' and 'simplification'. But since no reference is made, and no explanation is given, it is not quite clear what Boretzky's 'selection' stands for. The lists of Vlax features are followed by lists of the differences between Northern and Southern Vlax, then by more lists outlining the differences within each of the sub-groups, followed by a discussion of features shared with neighbouring dialects. The concluding remarks present the author's view, cited above, on the emergence of Vlax and the split between its two sub-groups.

The main weakness of Boretzky's lists of 'idiosyncratic' features is that we are not told just how typical a feature is of Vlax, and where precisely Vlax is distinct from other dialects. For example, in the domain of 'function words', *trubul* 'must' is listed as typically Vlax (88), though it is also found in various non-Vlax dialects of Bulgaria and Macedonia (usually with a central stem vowel, but in some cases, as in Velingrad Yerli, also as *trub-*). Similarly,

the demonstrative *kada* (89) appears not just in Vlax, but also in the neighbouring East Slovak and Macedonian/Bulgarian Bugurdži-Drindari dialects. Are each of these diagnostic of Vlax, or is it the combination of a particular set of features – and if so, which features – that distinguish any Vlax from any non-Vlax variety? In my view, the key to answering these questions is a differentiated analysis of the isoglosses that surround Vlax (cf. discussion in Matras 2002: 225–235, and with particular reference to Vlax, page 227–228). Some features of Vlax are archaisms, and although these are noteworthy, they do not contribute to our understanding of the specific processes that formed the group, and merely strengthen the impression of some kind of socio-cultural boundary that must have existed between speakers of Vlax and those of neighbouring dialects, and prevented the spread of certain innovations into Vlax (on page 117 Boretzky notes the socio-cultural conservativism of Vlax groups, which is undoubtedly connected to the blocking of external linguistic innovations). Other features of Vlax fit in nicely with a general spread of some innovations from the southern Balkans. Significantly, most of these innovations come to a halt at the Northern-Southern Vlax split line, and do not cross over to the North (e.g. the use of *ka* as a future particle, or the reduction of possessives to *mo*, *po*; Boretzky's maps number 127 and 72/73, respectively). By contrast, some Northern Vlax features originate from the northwestern regions of Europe, and do not reach the Southern Vlax dialects (e.g. the assimilation of past-tense intransitives like *gelo* 'he went' into the transitive conjugation, giving *gelas*; Northern Vlax is part of a transitional zone, where both forms appear; cf. Boretzky's map number 112, and see also discussion in Matras 2002: 155f., 225f.). Finally, there are those features that originate in Vlax, and sometimes spread into neighbouring dialects. These latter innovations might be considered 'genuinely' diagnostic features of Vlax. They include umlaut in the preterite 1SG *-em* (from *-jom*) and in *dej* 'mother' (from *daj*), affrication in *cikno* 'small' and *džive*(*h*) or *džes* 'day' (from *tikno* and *dives* respectively), and prothetic *a-* in words like *ašun-* 'to hear' or *abijav* 'wedding'. Of course, the overall character of Vlax derives from its full inventory of structures. Nonetheless, one might have expected the analysis to have proposed a hierarchy of relevance among those features that are diagnostic of the group.

This also pertains to the evaluation of the position of Vlax within Romani. The appendix with sixty maps of dialectal variation in Romani (pages 226–256) might have been taken as an opportunity to discuss Vlax from the point of view of general differentiation processes within Romani. But this is not the case, and the 'pan-Romani viewpoint' is largely missing from the discussion of the data. Where comparisons are made with other dialects, they are not systematic. This is a pity since, as a result of the fixation on Vlax as a pre-defined group, the origins and diffusion patterns of principal innovations are not taken into consideration. To cite just one example, Boretzky notes

that the cluster *-ndr-* in words such as *andro* 'egg', *mandro* 'bread' is a typical feature of Vlax, but that it also appears in neighbouring Northern Central dialects of eastern Slovakia, albeit only in selected lexical items (*jandro* 'egg', but *maro* 'bread'). He regards this as casual Vlax influence on neighbouring dialects (110). In fact, the cluster is clearly an archaism. The simplification of the cluster to *-r-* originates in the west, where it occurs consistently (though Iberian dialects are too far south and do not participate in this development). As it advances eastwards, the cluster simplification loses momentum, and in a transition zone comprising the said Northern Central dialects it is found only in selected lexemes. Vlax, and some dialects to the south of it, remain entirely unaffected by the simplification isogloss. East Slovak Romani *-ndr-* is therefore not due to Vlax influence, but to partial and incomplete participation in the *ndr* > *r* isogloss stretching from the west. This phenomenon is discussed in detail in Matras (2002: 215–217), and is confirmed nicely by Boretzky's map number 179, which shows the distribution of the historical cluster within Romani as a whole.

The historical evaluation might also have been supported by an attempt to reconstruct Proto-Vlax forms. The discussion of forms of the possessive pronoun (44), for instance, merely paraphrases the data on the map. It does not offer any original explanation of the dichotomy between the Vlax forms *munro/mərno* or *muro* 'my' and *čiro* 'your' (cf. other dialects *miro* vs. *tiro*), nor does it cite the reconstruction scenario presented in Elšík (2000) (according to which Proto-Vlax was conservative in retaining a Proto-Romani nasal in the ISG, accompanied by labialisation to *munřo*, while in other dialects analogous levelling took place). In his discussion of demonstratives (45f.), Boretzky suggests that the diversity of forms in Romani impedes any reconstruction of the original inventory, but he does not refer to the reconstruction presented in Matras (2000) (according to which Early Romani had a four-term system, *akava/adava/okova/odova*; the Vlax forms *kava/kova* are reduced forms, while *kakava/kadava* are reduplicated forms from **aka-akava* and **aka-adava*). In discussing the Vlax loan verb adaptation marker *-is-ar-* (70), Boretzky assumes – correctly, in my view – that the form is an amalgamation of Greek *-is-* and the inherited transitive marker *-ar-*. But no explanation is offered as to why such components should be conjoined in the first place, and how this might be related to other patterns of loan verb adaptation in Romani. The reconstruction scenario offered in Matras (2002: 128–135) (according to which Greek inflection was adopted wholesale, and verbs were integrated based on valency marking) is not cited either.

Also missing is at least some reference to syntax or syntactic typology. This is in line with traditional dialect descriptions, but it also appears to represent an assumption that Romani has no syntax 'of its own', relying instead on replication of the structures of contiguous languages. Such an assumption must, however, first pass the test of empirical validation, and the

plotting of structures on maps might have offered an excellent opportunity. Features such as the productivity of valency-increasing morphology ('second causatives'), the structure of possession and external possession, the use of cases with or without prepositions, the structure of complementation, and word order variation are arguably all part of the differentiating features that form boundaries among dialects. They are, on the whole, attested in the text materials and modern descriptions that Boretzky used as sources, and relevant structures could also have been elicited as part of the fieldwork effort from which some of the data derived. The absence of syntax and morphosyntax may therefore be said to be down to tradition, rather than lack of opportunity. This tradition is currently changing in Romani linguistics, which is now closely linked to discussion contexts in typology and dialect syntax. The book under review will find an audience – in part, thanks to the recognition that Romani has received in these contexts. I expect there to be general agreement that the book provides a useful summary of the sources on Vlax, in both texts and maps, and that the author proposes a perfectly reasonable scenario of the emergence of Vlax and its split into two sub-groups. On the negative side, however, one cannot avoid the impression that an opportunity to integrate the discussion of Vlax into ongoing historical reconstruction and dialect classification efforts in Romani as a whole has been missed.

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Ted Briscoe (ed.), *Linguistic evolution through language acquisition: formal and computational models*. Cambridge: Cambridge University Press, 2002. Pp. vii + 349.

Reviewed by SHIMON EDELMAN & BO PEDERSEN, Cornell University

In 1990, when Steven Pinker & Paul Bloom proposed that 'there is every reason to believe that a specialization for grammar evolved by a conventional neo-Darwinian process' (Pinker & Bloom 1990: 707), the consensus in linguistics had been, for a long time, quite the opposite: 'It is perfectly safe to attribute this development to "natural selection", so long as we realize that there is no substance to this assertion' (Chomsky 1972: 97). A decade later, inquiry into the evolutionary emergence of language is no longer shunned by most scholars (see Christiansen & Kirby 2003), due both to the seminal work of Pinker, Bloom and others in the psychology of language and in linguistics, and, crucially, to the steady stream of insights offered by formal analysis and computational simulations of language evolution. The present volume is an excellent collection of work in the latter tradition.

Despite what the jacket says, this book is not about how children acquire language. Rather, the authors examine (sometimes analytically, but mostly through computer simulation) the developments that occur in populations of simple agents endowed with certain proto-linguistic capabilities. The dependence of the outcome of such studies on working assumptions (such as the agents' access to exemplars of structure–meaning pairings), and the justification for calling the resulting communication system 'language' – the two central concerns of the present review – are discussed in depth in chapter 1 ('Introduction', by Ted Briscoe, the collection's editor), and in the concluding chapter 10 (by James Hurford; see below). The eight remaining chapters offer multi-faceted insights into how various aspects of language may have emerged: chapters 2 and 3 deal with words and word meanings, while chapters 5–9 focus on structural ('syntactic') issues. Chapter 4 ('Linguistic structure and the evolution of words', by Robert Worden) very appropriately bridges the two themes.

In chapter 2, 'Learned systems of arbitrary reference: the foundation of human linguistic uniqueness', Michael Oliphant's neural networks use standard learning algorithms such as the Hebb rule to acquire consistent form–meaning pairings. The difficult aspects of this problem, as Oliphant remarks (47), have less to do with learning than with observing meanings: when these are supplied as a matter of routine during acquisition, learning as such (construed here as the establishment of associations between signals and their meanings) is reduced to the choice of a suitable algorithm from among the many available.

Interestingly, the process of spoon-feeding meanings to agents is automated (if not obviated) in the following chapter, 'Bootstrapping grounded word semantics', in which Luc Steels & Frédéric Kaplan describe agents that learn word meanings by playing a Wittgensteinian language game (71) in which they try to communicate to each other descriptions of shared visual scenes. This approach works fine for well-grounded content ('RED at [0.25, 0.75]'), but is bound to be much more challenging for more complex or abstract stuff, such as 'the circle that is above the square is large while the one to the left of it is not' or 'Jack is happy', let alone 'meaning is elusive'.

The work of Robert Worden, described in chapter 4, 'Linguistic structure and the evolution of words', should be of special interest to linguists, in part because Worden's contribution is the most elaborate in specifying the actual details of the language evolving or being acquired (at the other extreme lies the work of Partha Niyogi, chapter 7, and William J. Turkel, chapter 8, discussed later). Worden adopts a unification-based framework, which parallels familiar formalisms such as Head-driven Phrase Structure Grammar. In his work, populations of words rather than of language users are the entities that evolve (this interesting and potentially very fruitful approach to language evolution is championed also by Simon Kirby (chapter 6), and by Morten H. Christiansen). Words are represented by feature structures, which are learned from sets of related exemplars by 'generalization' (a kind of structured intersection) and are used through unification. Among the many exciting issues raised and addressed in this chapter are (1) the role of unification and generalization in ambiguity resolution, (2) Bayesian inference, a statistical theory of unsupervised learning that is universally important in cognition (Barlow 1990) and is related to the Minimum Description Length principle (Clark 2001), and (3) evolutionary aspects of language universals proposed by Greenberg and by Hawkins.

In chapter 5, 'The negotiation and acquisition of recursive grammars as a result of competition among exemplars', John Batali introduces a computational model in which agents optimize their grammars by observing the phrase/meaning pairs of other agents. His item-based approach to representation and learning has parallels to important psycholinguistic findings on language acquisition (Tomasello 2000). It could, however, have been better integrated with other work in the field (for example, instead of invoking structure unification, the concept that is at the core of Worden's work, Batali swamps the reader with his own terminology, newly introduced at every turn). Moreover, his approach to learning is supervised in that agents have access both to exemplar structures and to their meanings, greatly diminishing the potential relevance of his findings to real language acquisition and evolution.

The book's quest for the understanding of language evolution is revitalized by Simon Kirby in chapter 6, entitled 'Learning, bottlenecks and the evolution of recursive syntax'. Kirby shows how E-language, acting as

a bottleneck for the transmission of I-language, constrains the set of meanings to which learners are exposed, allowing only the most general grammar rules to survive (like Worden, Kirby treats language itself as a system of replicators). He shows that compositionality and recursion, two central traits commonly attributed to natural languages, can emerge through cultural transmission, and thus need not be innate. While this finding constitutes a great success for the computational approach to the understanding of language evolution, it is also conceptually problematic, if only because compositionality posits links between structure and meaning that are essentially stipulative (cf. Hurford, this volume, page 319). The well-known way to introduce and manage principled, data-driven links of that kind – Construction Grammars (Goldberg 2003) – is not mentioned in the present volume.

The following two contributions, Partha Niyogi's 'Theories of cultural evolution and their application to language change' (chapter 7) and William J. Turkel's 'The learning guided evolution of natural language' (chapter 8), both focus on the mathematical analysis of the evolution of small sets of parameters that control grammars (rather than on grammars or on syntactic structures as such). Niyogi formalizes the dynamics of a simplified situation involving language change (namely, the case of two languages in contact), and proceeds to apply the resulting framework to the analysis of the historical transition from Old to Middle to Modern English. Turkel, who also relies on the Principles and Parameters theory, shows, using simulations with plastic vs. fixed parameters, that learning can accelerate the evolutionary process. The upshot of this finding is that language could have evolved even if even one accepts the claim that it cannot exist in intermediate forms. When evaluating these results, one should keep in mind that the simulations in question did not involve actual language (even of a highly simplified nature, such as the languages acquired by Worden's or Kirby's models), an observation that is especially relevant in the light of the known difficulties with the so-called triggered learning of actual language from real corpus data (cf. Briscoe, this volume, page 256).

In chapter 9, 'Grammatical acquisition and linguistic selection', Ted Briscoe employs an intriguing combination of techniques from linguistics (the Generalized Categorial Grammar formalism), computer science (a GCG parser) and computational learning theory (Bayesian inference) to make several points that should be of interest to all students of language. In particular, Briscoe demonstrates that an innate language acquisition device could have co-evolved with human (proto)language(s); he also offers interesting insights into the computational underpinnings of such central phenomena in linguistics as language families based on subject, verb and object order, and creolization.

An excellent synthesis of the plethora of models and findings contained in the present collection is presented in the concluding chapter 10, 'Expression/induction models of language evolution: dimensions and issues', by

James R. Hurford. The most important of Hurford's many useful observations is that a convincing demonstration of language evolution would have to show that syntax can be a truly emergent phenomenon and not just a reflection of the system's design. For that, Hurford concludes (302), evolutionary linguistics needs a theory-free definition of syntax – a notion that is likely to ruffle quite a few feathers among scholars of language.

The most important contribution of this book lies in the many detailed examples of the emergence of structured representations that it offers. The advances reported here, which occur on the many fronts surrounding the issue of language evolution, would be impossible were it not for the rigorous methodology adopted by the contributors. Thus, Briscoe is entirely justified in claiming that the use of mathematical modelling and/or computational simulation is vital ('Introduction', page 15): without it, even very plausible accounts of language evolution remain just-so stories. Computational modelling in itself, however, is not a panacea against irrelevance, because the current theories of grammar on which any such model is based are all, at present, merely descriptive. That is, we have, as yet, no comprehensive, psychologically real and neurobiologically grounded process model for language, and with a descriptive model there is a distinct possibility that the features we believe to be important are in fact immaterial (the description's mathematical appeal notwithstanding). We observe that the simulation approach is much safer (and more productive) in engineering, where the problems at hand tend to be well-formulated: consider, for example, the airflow around a wing, where all the relevant physical variables are known, even if the equations are analytically intractable and computationally complex. Getting closer to evolutionary simulation, one may observe that the better known successes of game theory, such as the evolution of cooperation in iterated Prisoner's Dilemma, involve situations where all and only relevant variables are known and are easily represented numerically. In contrast, in language there is no universally agreed-upon formalization of the data (theory of grammar), nor even a list of core phenomena to be formalized ('theory-free syntax').

In the absence of consensus (let alone of deep physical reasons) regarding the relevance of a given formalization of the problem, it is imperative to address the widespread concern that simulations are 'doomed to succeed' ('Introduction', page 18) in that they always produce SOME result. To our mind, this means that when applying the simulation approach to the study of language evolution, one must make sure that the evolving structures are capable of reflecting at least some key properties of natural language, lest they become irrelevant (cf. Hurford (301): 'The models of the evolution of syntax that have been constructed so far fall short of the kind of syntactic complexity found in real languages'). In particular, in linking language evolution to language acquisition (as the book's title suggests), it would be useful to consider a psychologically relevant and computationally viable

approach to the latter as a basis for the former. One possibility that seems to us particularly attractive is to use for that purpose some variety of Construction Grammar, because construction-like representations can be learned from examples in an unsupervised fashion (Solan et al. 2003), because they naturally integrate structure and meaning (Goldberg 2003), and because they are supported by a growing body of data in developmental psycholinguistics (Cameron-Faulkner et al. 2003).

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Computational modelling adds an extra dimension to the evidence that can be brought to bear on the question of how children acquire language. A field that until recently had largely relied either on corpora of spontaneous speech or experimental data to test its hypotheses now has available a powerful alternative tool. The volume under review is a convenient source of information on the application of computational models to a range of topics in language acquisition (though not all the chapters involve simulations).

In a concise introduction to the volume, the editors list areas in which computational modelling can contribute to the field of language acquisition. In the continuing debate over the relative contributions of nature and nurture to the unfolding of language in the child, the emergentist perspective – the view that in acquiring her language the child relies on general purpose cognitive mechanisms making the most of information available in the ambient language – has been buttressed by successful implementations of connectionist approaches to language learning. 'Subsymbolic-inductive paradigms', as Broeder & Murre (henceforth B&M) refer to them in their introduction, now represent a viable alternative to 'symbolic-deductive paradigms' (1). Connectionist approaches, simulating Hebbian neural networks, represent knowledge in a distributed fashion, and do not directly encode symbolic information. This approach contrasts sharply with the category symbols and rules with which linguists are familiar, and which it is assumed form the basis of children's linguistic representations from the outset, under the symbolic-deductive approach of a Chomskyan perspective on language acquisition.

B&M see computational modelling as contributing to the advancement of the field in further ways. The implementation process itself involves considerable sharpening of the assumptions that are made in a 'largely verbal' theory, and once implemented, a model can be tested, and the results of simulations evaluated, against existing acquisition data. Another significant application of the models represented in the volume is the discovery of existence proofs. If it can be demonstrated in a simulation that an aspect of language can be learned without the involvement of a parameter or parameters previously considered necessary, the new approach can stand as a potential alternative account. As an illustration of an existence proof, B&M cite the modelling of word stress learning by Steven Gillis, Walter Daelemans & Gert Durieux in the current volume. This can be contrasted with the approach taken by Dresher & Kaye (1990). The issue which both models face is the familiar one of the projection problem. Children need to be able to generalize stress patterns across the words they hear, in order to be able to apply the relevant pattern to a novel word in an experimental task and, at particular points in their development, to produce overgeneralization errors. A model which relies entirely on experience, for example a table-look-up procedure which assumes that children memorize the individual stress pattern of every word heard, will not suffice to explain the data available.

Dresher & Kaye's response to this instance of the projection problem was to implement a computational model for learning metrical phonology that involves a rule-based system. However, Gillis, Daelemans & Durieux show that Instance-based Learning – an approach which, like table-look-up, is exemplar-based, but supplemented by 'a learning mechanism working by analogical reasoning on the basis of stored examples' (78) – performs at least as well as the rule-based approach. While this in itself does not invalidate

the account which represents generalizations in the form of rules, it does demonstrate that an alternative model is possible and available for empirical verification.

Part One of the book, entitled 'Words', consists of four chapters. The first, by Brian MacWhinney, 'Lexical connectionism', serves as a very useful overview of the strengths and weaknesses of connectionist models generally. While it does deal with lexical learning it also addresses more general issues. MacWhinney claims that the potentially unbridled descriptive power of connectionist models can be sufficiently constrained if they fulfil a requirement against 'symbol-passing', and also have a capacity for self-organization. Unfortunately these criteria together are stringent enough to make successful model building difficult, even for selected sub-domains of the language acquisition task. Expanding a model to more nearly approximate the full dimensionality of the child's task in learning her native language is something which MacWhinney considers a nigh impossible job. He does, however, in the remainder of the chapter retreat from this counsel of despair to consider work in some important sub-domains of language learning. He reviews the problems involved in modelling the learning of lexical items, provides a solution, and then, building on successful lexical learning, shows how it is possible to deal with the development of inflectional morphology and argument frames. The remaining three chapters in Part One deal, respectively, with the viability of simple recurrent nets (SRNs) for modelling language acquisition (Noel Sharkey, Amanda Sharkey & Stuart Jackson), with a model for text-to-speech processing (Antal Van den Bosch & Walter Daelemans) and with the learning of word stress (Gillis, Daelemans & Durieux).

The heading of Part Two is 'Word formation'. Topics here, across five chapters, cover speech segmentation, word-meaning mappings and inflectional learning. The reliable identification of recurring partials in the stream of speech is a necessary condition for the construction of an early lexicon by the infant, and is the topic of chapter 6, 'Statistical and connectionist modelling of the development of speech segmentation', by Richard Shillcock, Paul Cairns, Nick Chater & Joe Levy. Assuming that all the infant brings to the problem of speech segmentation is 'a general-purpose capacity to induce the very local statistical structure of sensory input' (103), they use a connectionist network to address the statistical regularities displayed in a large body of data, a phonologically transcribed version of the London-Lund corpus. The analysis relies on the fact that sequences of segments within words will be more constrained than sequences between words. Their results indicate that the speech stream does contain information that could enable the infant to begin the process of segmenting it into word-like units.

The next chapter in this section, 'Learning word-to-meaning mappings', by Jeffrey Siskind, uses computational tools to address the problem of how

children associate linguistic and non-linguistic experience, in linking sound to meaning. Siskind develops algorithms which model a number of the difficulties children face in lexical acquisition, for example, multi-word utterances in input, referential uncertainty and homonymy. Utterances to children do not consist of isolated words, and in relating these utterances to the events they relate to, children have to avoid incorrect word-meaning mappings. Referential uncertainty is Quine's (1960) *Gavagai* problem: how does the child determine which aspect of non-linguistic experience is being referred to by a particular lexical item? Iterations of the algorithms on synthetic corpora indicate a reasonable degree of success for the procedure.

The remaining three chapters in this part of the book are concerned with models of inflection. Inflection, especially past tense in English, has been the major battleground on which contending theoretical positions have clashed. The dispute pits dual-route against single-route mechanisms. The dual-route approach (represented in chapter 9 by Gary Marcus, 'Children's over-regularization and its implications for cognition') argues that a cognitive architecture for inflectional morphology requires a mechanism which is sensitive to statistical regularities, to deal with the memorizing of irregular forms, together with a rule mechanism operating on a category, e.g. [VERB], to deal with regular forms. In the memory-and-rule model, the rule operates as a default, producing regular forms when memory access to an irregular one fails. The single-route mechanism advocated by Ramin Nakisa, Kim Plunkett & Ulrike Hahn in chapter 10, 'Single- and dual-route models of inflectional morphology', is claimed to handle both irregular and regular forms in the same fashion. The connectionist implementation of this mechanism, unlike the dual-route model, makes no distinction between regular and irregular words, and contains no explicit rules.

Marcus in his chapter does not model the dual-route approach, but produces a series of arguments designed to demonstrate that there is empirical data from acquisition, on children's overregularization of past tense in English, which cannot be handled by single-route models. Both models predict overregularizations, but from different sources. To use one of Marcus's examples, the dual-route model would produce 'growed' instead of 'grew' by rule when memory fails. The single-route model may produce 'growed' because pairs like 'glow–glowed' increase the strength of the connections between the sequences 'ow' and 'owed'. There is thus a relationship in the single-route model between type frequency and regular inflection: 'regular inflection depends on high regular type frequency' (160). It is this relationship which Marcus exploits in his critique by testing predictions of the models against empirical data. The single-route model, as we have seen, will, via pattern association, predict that overregularizations can result when an irregular verb is attracted to a regular pattern. If, on the other hand, such forms arise via a default rule based on the category [VERB], there will be no necessary relationship with regular forms. Marcus reports that in testing

the 'regular attraction effect' against data from children, no relationship between similar-sounding regular verbs and overregularizations was found (though the actual data is not presented).

Nakisa, Plunkett & Hahn (henceforth NP&H) do not address Marcus's critique explicitly, but they do directly compare implementations of dual-route and single-route mechanisms on three different inflection paradigms – English past tense, Arabic plurals and German plurals. The last of these is also dealt with in the remaining chapter in this section, by Rainer Goebel & Peter Indefrey, 'A recurrent network with short-term memory capacity learning the German *-s* plural'. Both German and Arabic pose a greater test than English for connectionist accounts of inflection, because they have a minority default process, coexisting with a number of alternative plural processes. The single-route mechanism can deal with novel English past forms because of the preponderance of regular forms in the language, as NP&H point out: '[t]he connectionist account exploits the skewed distribution in favour of regular forms in the language' (203). Because the dual-route approach can use any inflectional class as its rule-governed default, even if the class is a minority one, it can cope readily with Arabic and German plurals. NP&H proceed to test the performance of the two approaches on the three inflectional systems. They find that overall their single-route models generalize better than, or as well as, dual-route models. They also find that in languages in which, unlike English, no one inflection type predominates, 'the distribution of the stem forms in phonological space' (220) is of more significance than frequency.

The final part of the volume, 'Word order', contains just two chapters, which accurately reflects the relatively limited amount of attention paid in computational modelling to the acquisition of syntax, as compared to lexis and morphology. One of these chapters, 'An output-as-input hypothesis in language acquisition', by Loekie Elbers – while it may have relevance for computational modelling – does not itself involve any simulation. It presents arguments for the relevance of the child's own production for the building of linguistic representations. This chapter, which views language acquisition from a constructivist perspective, sits somewhat uneasily with its partner in the section, by Partha Nyogi & Robert Berwick, 'Formal models for learning in the principles and parameters framework'. This chapter takes the Triggering Learning Algorithm (developed by Gibson & Wexler (1994) to account for the acquisition of a grammar conceived within a UG framework), demonstrates that it is modelled by a Markov chain, and explores the implications of this result.

This is a volume which fairly depicts the field that it represents. Some of the major limitations of connectionist models in particular are pointed out by MacWhinney in his chapter at the beginning of the book. The fragmented approach to a task which the child addresses holistically is apparent in the varied range of topics which the book includes. But on the credit side,

it is clear that computational modelling forces the sometimes inexplicit assumptions of purely verbal models out into the open. The best examples allow the falsification of predictions and the testing of hypotheses against empirical data. And the modellers who have demonstrated that devices with relatively simple internal architecture can 'learn' at least some features of natural language will encourage language acquisition researchers of an emergentist persuasion.

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Bart de Boer, *The origins of vowel systems* (Studies in the Evolution of Language). Oxford: Oxford University Press, 2001. Pp. xii + 168.

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The author's goals are to investigate (i) the mechanisms for explaining universals in human vowel systems and (ii) the role of populations of speakers and listeners in explaining linguistic universals. The book is based on the author's Ph.D. dissertation (1999) and contains seven chapters. Chapter 1, the introduction, sets out the aims, and gives a brief survey, of the research to be reported within the framework of computer simulation. Chapter 2, 'Universal tendencies of human sound structures', deals with properties of vowel systems in the world's languages and with explanations provided by computer modelling in previous publications. Chapter 3 explains 'Self-organization' as it is found in many complex systems in nature, and, with reference to Steels (1997), argues that this core principle also plays a role in the origins and the history of human language as an open, complex, adaptive system. Chapter 4, 'The simulation', describes the principles of and the author's basic assumptions concerning computer simulations of human vowel systems. Chapter 5, 'Results', presents the results of the application of these principles. The final chapters, 6, entitled 'Simulated evolution of other parts of language', and 7, 'Implications for other parts of language', were not included in the original Ph.D. dissertation. They look beyond vowel systems to the self-organizational modelling of language as a whole, pointing out the

interest which the results of de Boer's phonetic/phonological investigation ought to have for similar treatments of syntax and semantics, and for the interrelation of all three linguistic levels. This is done with reference to the published results in chapter 6; in chapter 7, there are some speculative suggestions for expanding the framework to more complex sounds than isolated vowels and for linking it to syntax.

De Boer's central question is the application to language in general of the principle of self-organization in dynamic complex systems, through computer simulation of vowel systems in particular. The global organization of a vowel system is considered to be emergent through local interactions without a pre-existing blueprint. Thus, linguistic form results 'from language users talking to each other and learning the language from each other' (30), which is just the opposite to the relationship between invariant form and variable substance which is generally maintained by linguists. Language is shaped adaptively through maximization of efficiency (minimizing effort), effectiveness (maximizing communication success), and ease of learning.

The emergence of vowel systems in large populations of speakers and listeners is simulated by a computer model which builds an articulatory and a perceptual model as well as a memory store into a simulation game. The articulatory model maps articulatory representations of vowels in three degrees of position and height, and in two degrees of rounding, to acoustic representations of the first four formants. De Boer performs this mapping rather crudely by deriving the $3 \times 3 \times 2$ articulatory parameter values for vowels from the transcriptions used by Vallée (1994) to symbolize a large inventory of vowels synthesized with Maeda's articulatory synthesizer. The formant frequencies corresponding to these articulatory settings are then calculated by an interpolation function, starting from acoustic information on vowel articulation provided by Vallée. Then two noise sources are added, the parameter values of which may be variably set: (i) articulatory noise obtained via small random value changes to all three articulatory parameters and (ii) acoustic noise obtained by shifting formant frequencies up or down by random amounts. De Boer provides an example of the interpolation ('Synthesizer equations' on page 44), but does not explain the constants and variables used in it, which would be essential not only for an assessment by a phonetically sophisticated reader, but also for the comprehension of an uninitiated one. Cui bono est?

The perceptual model compares incoming signals with stored prototypes of all the vowels and finds the closest match by applying a weighted Euclidian distance measure to the formant values, after converting the four formants to F1, and an effective F2′ for F2, F3, F4.

The articulatory and perceptual models determine what sounds speakers can produce and how hearers perceive them in language games. So the next stage of the computer simulation of vowel systems inserts speakers and

hearers as agents into an imitation game, thus introducing dynamics into the model. Two agents are randomly chosen from a sufficiently large population, one as an initiator, the other as an imitator. The former synthesizes a randomly selected vowel from its inventory according to the articulatory model. The latter analyses the received signal according to the perceptual model. It finds the closest corresponding vowel in its inventory and synthesizes it according to the articulatory model. The initiator then applies the perceptual model to the received imitation, and if this results in a match with the vowel prototype that the initiator produced in the first place, the imitation game is a success; otherwise it is a failure, which the initiator communicates to the imitator. Both initiator and imitator accumulate the frequencies of uses and of successes of each of their vowels. Their ratio is a measure of the successfulness of a vowel, which is mainly determined by how well it is shared by all the agents in the population.

In the case of a successful imitation, the imitator changes its vowels to improve coherence across the population of agents, by trying out six neighbouring vowels which differ along each of the three articulatory parameters by a small positive or negative amount, and it keeps the one that most closely matches the received signal. If the imitation is unsuccessful but was successful with other agents, a new vowel with all articulatory parameters set at mid-values is added to the inventory, on the assumption that the imitator lacks a vowel distinction. If the imitation was also unsuccessful previously, it is shifted to the received signal, assuming that it is not shared by other agents. A success threshold is defined for adding a new vowel to the inventory. In all these actions of the imitation game, agents use only local information about perceived signals and about their own vowels, and modifications are independent of global information about the vowel system.

With the prerequisites of the imitation game thus specified, computer simulation can test if a population of agents is able to generate shared vowel systems and if these resemble recorded language systems. The simulation starts with empty vowel systems for all agents; the population of agents is then set to a particular size, and after a predetermined number of games snapshots are taken. This way the development of a vowel system can be studied, and the emergence can be made even more realistic by exchanging agents through the series of games.

With the population size and the number of games fixed, a set number of simulations can be run, and for each run the average number of vowels per agent is calculated on the basis of the memory store in each agent. Then the agent with a number of vowels equal to the average is selected as representative of that run and its vowel system classified. If different noise settings are also used in the articulatory model, distributions of 3- to 9-vowel systems can be generated across the simulation runs. These provide the basis for comparison of emerging simulated vowel systems with real systems in languages. However, the parameter settings de Boer used did not produce 5-vowel

systems as the most frequent pattern, but rather 4-vowel ones, contrary to empirical language statistics. The problem with de Boer's approach is the sensitivity of the output to the 'noise factor', which cannot be interpreted in any simple phonetic and linguistic way. This in turn makes it impossible to evaluate the simulation of vowel systems with respect to linguistic reality vs. computational artefact, although the addition of communicating agents in self-organizing systems is a very interesting, praiseworthy, and extremely ambitious extension in the sphere of language simulation. But it is also far from realistic as regards actual language interaction and learning. There, agents are men, women and, especially as regards learning, children. De Boer's models evidently build on male speakers and hearers only (60), and this prompts the question as to how successful imitation is triggered by the widely differing formant patterns of these different types of agents for the 'same' entities. Furthermore, de Boer is wrong in assuming that 'volume and frequency contours … do not influence the perception of the vowel *quality* much' (44). As Traunmüller (1985) has shown, in isolated vowel production the relation of F0 to the formants is crucial for interpreting signals as being related to vowel quality, body size or vocal effort.

In any deductive modelling of vowel systems a detailed discussion of Lindblom's publications is mandatory. De Boer refers to Liljencrants & Lindblom (1972) and Lindblom (1986), but unfortunately he does not mention the important change from maximal to sufficient contrast in these two papers. Nor does he quote the seminal papers, namely, Lindblom (1984, 2000), where the principles of self-organization, adaptive systems, the non-priority of form over substance, and phonetic emergents in behaviour, all essential for de Boer's line of argumentation, are laid down. Moreover, Lindblom has added socio-cultural factors to his previous framework, and in addition has considered phonological learning in children and extended computational system generation beyond isolated vowels to CV syllables. So de Boer could and should have developed his own theoretical basis more from within existing phonetic expertise than from outside it. That would have given him a deeper understanding of phonetic questions.

The fact of the author's moving between two worlds, from his theoretical grounding in AI to the research issue in phonetics, has also led him to provide somewhat trivial definitions, for instance of 'phoneme' (6) and 'coarticulation' (7), both of which one should really expect the reader to know in a phonetic and linguistic research context. The editors of the series no doubt wanted the text to be placed in a wider linguistic framework – phonetics being too much of 'an interesting […] curiosity' (4f.) – which resulted in the addition of chapters 6 and 7. However, chapter 6 includes a great deal of repetition from chapter 3, as regards other linguistic levels, and de Boer even returns to describing phonemes and coarticulation (138). The series would have gained enormously if the editors had been stricter in demanding a more thorough preparation of a Ph.D. thesis for publication.

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R. M. W. Dixon & Alexandra Y. Aikhenvald (eds.), *Word: a cross-linguistic typology*. Cambridge: Cambridge University Press, 2002. Pp. xiii + 290.

Reviewed by DUNSTAN BROWN, University of Surrey

This edited volume contains a selection of revised versions of papers from the International Workshop on 'Word' held at the Research Centre for Linguistic Typology, La Trobe University, in August 2000. An earlier version of the first chapter, by R. M. W. Dixon & Alexandra Y. Aikhenvald, had been circulated to contributors so as to ensure that the studies 'were cast in terms of the same typological parameters' (x). The cover blurb suggests that it 'will be an invaluable resource for scholars of linguistic typology and of morphology and phonology'. It is therefore appropriate to judge this volume in terms of the contribution the typological parameters make to our understanding of 'word', and to assess whether the book will prove a valuable resource for typologists.

Chapters 2–10, while addressing key theoretical considerations, look in detail at the notion 'word' as applied to a diverse set of languages, and this thereby serves to show how adequate, or indeed inadequate, the typological parameters from Dixon & Aikhenvald's chapter 1 are. P. H. Matthew's chapter 11, 'What can we conclude?', draws together a number of threads from the theoretical discussion and challenging data presented.

Dixon & Aikhenvald's chapter 1, 'Word: a typological framework', surveys the literature on 'word'. They note from this survey that '[s]ome of the definitions suggested for word are horrifying in their complexity and clearly infringe the principle that a definition should not be more difficult to understand than the word it purports to define' (5). The core distinction in chapter 1 is between phonological word and grammatical word. A phonological word can be defined in terms of one or more of the following: (a) segmental features; (b) prosodic features; (c) phonological rules. Grammatical words are defined in terms of the morphological elements which constitute them, and there are three main criteria: (a) the elements constituting a grammatical word always occur together; (b) they occur in a fixed order; (c) they 'have a conventionalised coherence and meaning' (19). Although 'tempered by a number of caveats', these criteria for grammatical words are universal (19). It is striking, when reading the rest of the volume, how even these criteria may prove to be inadequate on certain occasions. For instance, in his 'The eclectic morphology of Jarawara, and the status of word', chapter 5, Dixon rejects an analysis of the predicate as one grammatical word, even though the elements involved occur in a fixed order. On the other hand, Robert Rankin, John Boyle, Randolph Graczyk & John Koontz, in chapter 7, 'A synchronic and diachronic perspective on "word" in Siouan', argue that the ordering of constituent morphemes, in forms which they certainly consider to be grammatical words, is inconsistent (188). Hence, the fixed order criterion (b) on its own would incorrectly lead one to conclude that a certain combination in Jarawara is one grammatical word, when it is not, whereas it would falsely lead one to assume that certain grammatical words in Siouan are not grammatical words, when they are.

Dixon & Aikhenvald give further criteria. A further property, (d) – lack of recursiveness – is discussed, with counterexamples from Turkish (causative derivation) and Dyirbal (where the comitative can appear more than once). Rankin et al. also show that locative affixes are recursive in Siouan. A further criterion is that there should only be one inflectional affix per word (criterion (e)). Inflection here is associated with obligatoriness (22). Dixon & Aikhenvald say that this criterion would have to be modified for languages such as Turkish and Hungarian, with separate number and case marking, but it 'could still be applicable' (23). However, they do not say how it could be made to apply. They also say that the criterion may apply to verbs. A strict reading of criterion (e) would require either cumulative marking of inflectional categories, or else that there is only one inflectional category per word. That is why Turkish and Hungarian are problematic, and one can easily find examples in Indo-European languages where the verbal system has more than one element realising inflectional categories. Criterion (e) is also a problem if the distinction between inflection and derivation is not considered a useful one, as Dixon argues in chapter 5 for many South American languages (131). Given the possibility that the

derivation–inflection division is not considered useful for a large body of languages, combined with the fact that criterion (e) needs to be modified in an as yet unspecified way for a subset of languages and for a particular word class, verbs, it appears that this criterion is of limited utility.

The last criterion of wordhood discussed in chapter 1 is the pause. While this is useful for some of the languages involved, Dixon & Aikhenvald warn that it needs to be treated with caution.

Dixon & Aikhenvald then go on to discuss types of relationships between phonological and grammatical word. The first is where phonological word and grammatical word coincide. The next type of relationship is where a '[p]honological word consists of (usually) one or (sometimes) more than one grammatical words' (27). It is significant here that the examples given by Dixon & Aikhenvald involve clitics, which do not constitute a phonological word in their own right. In fact, in the preceding section on clitics, these are characterised by Dixon & Aikhenvald as elements 'which each make up one grammatical word but do not constitute a separate phonological word' (27). The third type of relationship between grammatical word and phonological word is where a '[g]rammatical word consists of (usually) one or (sometimes) more than one phonological words' (28). Compounds in many languages could be seen in terms of this relationship. There is then a fourth type of 'more complex' relationship between grammatical word and phonological word. Two examples of this are cited, from Fijian and Arrernte. In Fijian, a prefix which derives nouns from verbs forms one phonological word with the preceding common article. The result is that one grammatical word (the derivational prefix and root) consists of one phonological word (the root) plus part (the derivational prefix) of another phonological word (the combined derivational prefix and common article).

Chapter 1 concludes with an interesting discussion of the orthographic word and the social status of words. A useful appendix outlines the properties of phonological words and grammatical words in Fijian.

I now turn to chapter 2, 'Typological parameters for the study of clitics', by Aikhenvald. This chapter can be divided into three main parts: the outline and discussion of the typological parameters for clitics, the discussion of words and clitics in Tariana, and an appendix on Aikhenvald's parameters, in particular compared with those of Zwicky & Pullum (1983) and Sadock (1991). Of these, the most helpful is the section on Tariana, with its exposition of the properties of phonological words, grammatical words and clitics in that language, and this section is certainly a valuable resource for linguists wishing to see how the definitions might be applied. The status of the typological parameters for clitics is unclear. The introductory chapter of the volume bills this section of chapter 2 as 'a comprehensive typology of fifteen parameters in terms of which clitics may vary' (26). There are two questions which need to be asked in order to help us understand this typology: (i) is clitic status ever determined externally to these parameters, or are there

parameters which are criterial? (ii) is any one of the parameters singularly definitional/criterial for clitic status? The answer to (i) appears to be that clitic status is determined by the parameters, since in the chapter summary, Aikhenvald lists criterial parameters for determining clitic status (71) and she states in the appendix that clitic-specific syntactic rules (parameter (e)) are a defining parameter (74). The answer to (ii) takes a little working out. The statement that clitic-specific syntactic rules are a defining parameter might suggest that the answer to (ii) is 'yes', but it is at first unclear whether such rules must be definitional in combination with other parameters. As the term 'clitic' is used in giving the parameter, this would suggest that this parameter cannot be singularly definitional, as it would involve an irresolvable circularity (i.e. the use of 'clitic' in defining 'clitic'). Therefore the answer to (ii) should be 'no', and Aikhenvald, in criticising Anderson's (1992) ±clitic parameter in the appendix, says that 'deciding what is a clitic and what is not involves a number of parameters' (73). This demonstrates that the appendix is an essential element for interpreting the typology, and it would have been useful to have this information given earlier, when the typological parameters are first introduced. Aikhenvald claims for the typological parameters that they 'provide us with a scalar definition of clitics' (43). But this is an ambiguous statement: do the parameters as a collective provide the scale, or is each individual parameter scalar? The answer to this question appears to be that the collective parameters are a scale, although Aikhenvald also refers to a 'multidimensional continuum' (43), and later picks out certain parameters as scalar in the appendix. But these parameters require a further degree of interpretation to obtain a scale, and, crucially, Aikhenvald does not always provide clues as to the parameter values which determine the position of an item within the multidimensional space referred to (i.e. what the extreme values are), other than that on a language-specific basis certain items are determined to be more or less clitic-like, it appears. Yet, Aikhenvald also claims that she is advocating a continuum between affixes and words (pages 42 and 71), while some of her argumentation is based on the idea that there are certain properties which are unique to clitics[1] (and therefore, neither affix-like nor word-like, one would assume).

Anthony C. Woodbury's clearly written chapter 3, 'The word in Cup'ik', shows how the notions grammatical word and phonological word can be applied to a highly polysynthetic language. Cup'ik obeys criterion (a) for grammatical words in that the elements occur together, and criterion (b) in that they occur in a fixed order (89). Woodbury also shows that enclitics in Cup'ik differ from other grammatical words, as they cannot occur alone in an utterance. There are two relevant domains for the phonological word, PW (the phonological word, which contains the grammatical word and

[1] For instance, Aikhenvald refers to 'clitic-specific phonological processes' (71).

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enclitics) and PW– (a subdomain of phonological word, which contains the grammatical word minus enclitics).

John Henderson's chapter 4, 'The word in Eastern/Central Arrernte', is important for its discussion of potential examples of clitics which appear to constitute distinct phonological words. Some of the evidence for this comes from a rule of prepalatalisation before /a/ and also from the play language 'Rabbit Talk', where polysyllabic words have their first element transposed to the end and monosyllabic words are prefixed with /ey/. The domain for the prepalatalisation rule and the Rabbit Talk rule is the phonological word (106). For certain clitics the prepalatalisation rule and the Rabbit Talk rule apply, thereby indicating that they are separate phonological domains. Of course, this poses a problem for the view that clitics are not fully fledged phonological words.

Dixon's chapter 5, 'The eclectic morphology of Jarawara, and the status of word', is interesting for a number of reasons: Jarawara has no clitics; it has mismatches of one grammatical word to two phonological words (compounds and reduplication), and an instance of one phonological word consisting of two grammatical words, which would typically be a situation which arises with clitics. As mentioned earlier, Dixon's analysis of the predicate shows how the fixed ordering criterion could lead to the conclusion that it is one grammatical word, when it is not. Key to this is the rule (146, 147 fn.13) that certain suffixes commence 'a new phonological word if preceded by more than a single mora in a grammatical word to which they belong'. This shows how the definitions of phonological word and grammatical word can be dependent on each other.

In chapter 6, 'Towards a notion of "word" in sign languages', Ulrike Zeshan provides an extremely useful discussion of the extent to which the concepts of 'word' and 'sign' in sign language match up. The problem of the word boundaries is not as great as for spoken languages, as each sign is a self-contained unit. However, sign language is also a problem for the ordering criterion, (b), because complex morphology is 'almost exclusively *simultaneous* rather than sequential' (156). One of the examples of this given by Zeshan is the modification of the movement pattern of a basic sign in order to convey particular distinctions in aspect and aktionsart. This simultaneous property is comparable with ablaut in spoken languages, for instance (158), and Zeshan believes that the closest spoken language equivalent is Semitic intercalation, where patterns are superimposed on an underlying root. A number of other interesting potential points of similarity and contrast are discussed. In particular, sign languages, in contrast with spoken languages, can make use of 'simultaneous words', where two one-handed signs are produced together. Zeshan illustrates this with enumeration from Indo-Pakistani Sign Language. The final big issue for linguistic theory which Zeshan addresses is that many signs in sign languages are not arbitrary, a property of the word which is generally accepted as fundamental. Zeshan's

estimate for Indo-Pakistani Sign Language is that 'at least half of the vocabulary … is iconic in some way' (170).

Rankin et al.'s arguments against templatic morphology in Siouan have already been mentioned. In chapter 7, they also argue that Siouan languages are typically regarded as matching phonological word and grammatical word consistently. They also make the case for a further concept, 'syntactic word', exemplifying this possibility with a construction which is analysed as involving an incorporated relative clause (190).

In chapter 8, 'What is a word in Dagbani?', Knut J. Olawsky states that 'all lexical categories fulfil the conditions for grammatical words mentioned by Dixon & Aikhenvald' (212). The chapter is well set out, with a clear summary of the different properties of Dagbani clitics (223). Olawsky also demonstrates how the word has psychological validity as an entity, even though there is no specific term for 'word' in the vocabulary.

The title of chapter 9, by Alice C. Harris, is 'The word in Georgian'. As well as providing a useful discussion of Georgian, she shows that the criteria for defining grammatical words from chapter 1 are the most reliable ones for identifying the morphological word in Georgian. Some compounds in Georgian can be shown to have two stresses, indicating that they are phonological words, but they can still be demonstrated to be compounds, as the first part of the compound lacks a case marker.

Brian D. Joseph's chapter 10, 'The word in Modern Greek', contrasts with what has gone before: following Zwicky (1985, 1994), he explicitly rejects the notion of clitic as being a useful category. Instead he accounts for 'clitics' in Modern Greek in terms of a typology of typical and atypical words and affixes. Joseph remarks, 'If we want to use "clitic" as a cover term for atypical words and atypical affixes, so be it, but it need not be a grammatical primitive, a construct required by grammar' (244). This is a clear statement of theoretical position, and at first sight would not appear to differ much from Aikhenvald's claim, in the appendix to her chapter, that her typology is about a continuum from affix to word. However, Aikhenvald's chapter claims that there are properties which are unique to clitics, and it would be nice to know whether she sees 'clitic' as a grammatical primitive.

Matthews has the difficult task of concluding this thought-provoking book. He commends as 'a wise precaution' the requirement to distinguish between phonological and grammatical word (271). He also notes that ordering is actually a principle for distinguishing a grammatical unit, such as a noun phrase, not just grammatical word.

This volume does not provide us with a straightforwardly applicable cross-linguistic typology of word. The introductory chapter is extremely helpful in setting out the criteria for phonological word and grammatical word. Once this is done and applied to the challenging data in the following chapters, we find that it raises a whole range of fundamental questions, as Matthews indicates in his concluding remarks. Clearly, given the different theoretical

stances of some of the authors, such as Aikhenvald and Joseph with regard to 'clitic', it cannot be expected that such a volume would present a comprehensive cross-linguistic typology. But, in showing how far the criteria can take us, and where their limitations lie, it performs an important service. Will it prove a valuable resource for typologists? Certainly.

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Nigel Fabb, *Language and literary structure: the linguistic analysis of form in verse and narrative*. Cambridge: Cambridge University Press, 2002. Pp. vii + 230.

Reviewed by COLLEEN FITZGERALD, Texas Tech University

One intersection between linguistic and literary approaches is Generative Metrics, which applies generative principles to versification (Halle & Keyser 1971). For example, a Shakespearean sonnet contains fourteen lines of iambic pentameter, but the linguistic representation of the actual lines often diverges from this abstract shape. Generative Metrics characterizes the properties of the abstract shape and this divergence. *Language and literary structure* is an interesting addition to the linguistic study of verse, covering English and American verse from 1500 to 1900. The book centers on three main questions: How is abstract metrical form generated? How does a text get classified as having a certain form, given the amount of divergence from the generated form? What role does this indeterminacy and ambiguity of form play in verse structure?

Language and literary structure consists of seven chapters. Chapter 1, 'Literary form', lays out the issues relevant to metrical forms, using iambic pentameter as a specific example. Iambic pentameter is generated by projecting ten syllables, with foot boundaries every two syllables. Certain

well-known generalizations hold: the meter regulates only the stressed syllables in polysyllables; some types of syllables are not projected in the meter; and lines may begin with stressed syllables ('trochaic inversion'). Chapter 2, 'Generated metrical form', further develops issues related to trochaic inversion and syllable projection, as well as counting and rhythmic periodicity. This chapter focuses on the invariant properties of meter.

Chapter 3, 'Communicated form', turns to variable properties of meter. The chapter looks at the metrical form of the sonnet, showing that there is considerable variation to both sonnets and theories of the sonnet. To account for variable properties, Fabb employs pragmatic theory (specifically, Relevance Theory). This invokes strong and weak conditionals, with a heavy emphasis on *modus ponens*. Weak conditionals are particularly important, as they create ambiguity in metrical form. The resulting ambiguity means that 'the text is at the same time both a sonnet and not a sonnet … this ambiguity is experienced as aesthetic' (70).

In chapter 4, 'The communication of metre', meter provides an additional example of how inferences operate. The subject is the tendencies of iambic pentameter. Fabb assumes that gradient rules are not the subject of formal phonological theory. He therefore invokes the pragmatic approach to account for the gradient properties of meter.

The following chapter, 'Lines', claims that the line structure of a text is also implied, rather than being an inherent property. One supporting argument is that lineation is as indeterminate and ambiguous as other metrical forms. For example, the treatment of two short lines as a single line or two lines has two different sources, namely literary theoreticians like Webbe and poets like Suckling. This discussion again emphasizes the role of indeterminacy in metrical form.

Chapter 6, 'Line-groups in metrical verse and in narrative', turns to the issue of constituent structure of lines in verse and contains a very short discussion of lines and line-groupings in narratives. The latter involves the analysis of a single oral text. Finally, chapter 7, 'Complexity', briefly summarizes the monograph's main points. The chapter also connects indeterminacy and ambiguity of metrical form to aesthetics. Fabb hypothesizes that the relationship between formal complexity and aesthetics originates in the tension caused by different dimensions of the text appearing in contradiction.

Language and literary structure is a significant contribution to the linguistic analysis of literature. It describes and analyzes a broader set of English verse than previous generative accounts. Early articles in the field focused on Shakespeare, Milton, Chaucer and Donne; more recently, verse in other meters and other languages has played a more crucial role (for instance Golston 1998; Hayes & MacEachern 1998; Fitzgerald 2003).

The writing is clear throughout the book, and the opening chapters provide a concise overview of the way in which a generative analysis approaches

metrical verse. *Language and literary structure* could easily serve as the textbook in an advanced course on metrics. One particularly interesting feature is the inclusion of writings about versification, especially during the Early Modern period. Many of these writers express a more intuitive theory of prosody that resonates with the premises and strategies formalized in Generative Metrics.

The theoretical relevance lies in Fabb's solution to the problem of gradient phenomena in meter. The role of gradient metrical well-formedness as a characteristic of verse emerged in Youmans (1983). A number of researchers have wrestled with how to account for gradient data, given that before the 1990s, most formal theories addressed only categorical patterns. Variationist scholars have addressed this question, as in Labov (1969). Outside of sociolinguistics, the question relates to whether gradient phenomena are the subject of phonological theory (and linguistic theory more generally).

Fabb chooses to answer this question with a traditional formal answer: formal theories deal with categorical rules and problems. To deal with gradient data, he invokes pragmatic theory (specifically, Relevance Theory). This approach allows the coding of thoughts as strongly or weakly implicated.

However, alternative answers exist. For example, Bybee (1994) suggests a revised conceptualization of phonology. In this functional approach, the roles of language use and frequency receive greater emphasis. Frequency and probability are also given a more prominent role in the Optimality Theory analysis of folk songs in Hayes & MacEachern (1998). This approach encodes into the formalism the probability of a constraint applying. A formal theory thus accounts for functional data. These approaches assume that a formal phonology should account for gradient data, as does the analysis of Middle English alliterative verse in Golston (1998). In contrast, Fabb follows the traditional assumption that a formal theory does not deal with gradient data. As this discussion has shown, there is no consensus on the treatment of gradient data, nor on whether gradient patterns play a central or peripheral role in linguistic theory. Obviously, the ongoing and active debate over this makes Fabb's work both timely and relevant.

Some criticisms can be leveled against the book. For example, the metrical theory employed by Fabb is a version of the bracketed grid proposed by William Idsardi. This version is not in widespread usage and should be more fully explained in the opening chapters. Because Idsardi's theory only employs one edge bracket for the foot, it may pose difficulty for readers with less of a linguistic background. Other theories of metrical representation could also generate similar metrical forms, so it would have been helpful to motivate the choice of this metrical framework over alternatives.

Another point is that there are other approaches to iambic pentameter. For example, Hanson & Kiparsky (1996) offer a different conception of iambic pentameter. Some researchers also question the necessity of the foot

in verse. Fabb explores this issue, but it deserves more attention, especially since foot structure is integral to generating metrical form.

A final point is the role that narrative plays in this book and in Generative Metrics. Narratives and their potential for rhythmic behavior come up in the last section of chapter 6, although the findings relate only to lines and line-groupings. This section of the book is problematic for two reasons. First, it is a minimal portion of the book, despite narratives being mentioned in the subtitle. Second, there is support for metrical effects (beyond lines) in non-verse texts. The English Rhythm Rule shows how rhythmic patterns interact with phrasal boundaries. Another argument comes from the rhythmic structuring of narrative prose in Tohono O'odham (Papago), a Native American language (Fitzgerald 2003). Rhythmic effects surface as different word order patterns in modern poetry and traditional narrative. Ultimately, the role of form in narratives deserves a more in-depth treatment than this book provides.

Language and literary structure will prove useful to both the linguist and the literary scholar. Fabb is able to connect these two worlds with his knowledge in both domains, and his ability to address these two different audiences. The book poses interesting answers to provocative questions, such as the role of gradient phenomena in linguistic theory.

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T. Givón, *Syntax: an introduction* (2 vols.). Amsterdam & Philadelphia: John Benjamins, 2001. Pp. xvii + 500, x + 406.

Reviewed by LEONID KULIKOV, University of Nijmegen

Talmy Givón is one of the most authoritative American linguists and typologists. Remaining outside the formalist (Chomskian) approach, Givón also refrains from offering (or joining) any particular version of functionalist linguistics (as many functionalists have). He describes his own approach as merely 'functional(ist)' (sometimes adding '-typological'). Such an isolated theoretical position makes his judgments on current syntactic trends and developments particularly interesting.

The book under review was announced as the second revised edition of the author's 1984/1990 *Syntax*, which has been received, in general, quite positively (except for a very negative reaction in Carroll (1985); many of the main reviews are listed in the references) and has become one of the most popular books on syntax. In fact, however, this is more than a radical revision. The majority of chapters and sections have been written anew, even where the titles have remained unchanged. Some of Givón's theoretical opinions have been reconsidered and/or reformulated, and a number of new ideas and developments have found their place in the new edition. Furthermore, the presentation of material is improved in many respects: some classifications have become more detailed; the discussions are enriched with additional examples and illustrations. Even purely (typo)graphic features have undergone essential changes for the better: apparently, the author (and publisher) did not attempt to save as much space as possible, as can be seen from the liberal use of bulleted sub-headings, indented material and the presentation of lists in columns, rather than as running text.

On the other hand, the total length of the book has been cut considerably by omitting three chapters from this edition: 7, 'Information-theoretic preliminaries to discourse pragmatics'; 20, 'The grammar of referential coherence: a cognitive re-interpretation'; and 21, 'Markedness and iconicity in syntax'.

Last but not least, the author has purged from the book the (alas) quite numerous instances of typos, sloppiness in terminology and mistakes in examples, noted by the reviewers of the first edition (see e.g. Campbell 1992: 494, 496f.; Heath 1986: 162, 1992: 841; Blake 1992: 497–500).

As for the essential intrinsic differences between the two editions of this voluminous work, it is of course impossible to discuss all of them in detail in a short review. In what follows, rather I will attempt to briefly survey at least some of the major differences that appear most important,

focusing on some of the issues that have received special attention from the author.

Some of these points and, in general, some of the reasons that led Givón to undertake a new edition are listed in the Preface. In particular, the reader will find here a list of theoretical issues which demarcate the gap between the generative and functionalist approaches: abstractness, grammatical relations, *lingua mentalis*, etc. Needless to say, Givón's disagreements with the formalist approach and Chomskian linguistics have further increased over the last two decades, and the recent theoretical developments damned by the author as 'the most extravagant mad-hatter abstractness of Minimalism' (xvi) are only partially absolved by the fact that they are 'still inspired by a germ of perfectly good intentions – the search for universals that are NOT about uttered concrete structures, but about the neuro-cognitive organization that accounts for such structures' (xvi).

Methodological issues are further treated at length in the introductory chapter 1, 'The functional approach to language and the typological approach to grammar' (thus, two theoretical aspects which were included in the title of the first edition), which merges two chapters from the first edition: 1, 'Background', and 2, 'Methodological preliminaries: communicative function and syntactic structure'. As in the first edition, the author justifies here his own approach to language, paying more attention now to placing it in a historical perspective, offering a rich collection of quotations from several classical works, starting with Aristotle (whose WORK is regarded as synonymous with FUNCTION) and continuing with such luminaries as Edward Sapir, Otto Jespersen and Simon Dik.

Another issue that receives more attention in chapter 1 is the typological approach to grammar (section 1.6, corresponding to 1.4 and 2.6 of the first edition). Demonstrating the relevance of the typological diversity of linguistic data for the functional study of language, the author supplements it with an important element, diachronic analysis, explaining cross-linguistic diversity as resulting from a variety of historical sources (thus, passives may originate in stative and resultative adjectives, nominalizations, reflexive and impersonal constructions, etc.).

Chapter 2, 'The lexicon: words and morphemes' (=chapter 3 of the first edition, 'Word classes'), as the author explains, 'covers what has been called traditionally *parts of speech*' (43). In fact, however, the classification offered in this chapter deals with two partly overlapping classes of linguistic objects, words and morphemes. Although the title of the chapter now more exactly renders its content, the classification itself remains inconsistent in some respects. In the first edition, Givón distinguished between LEXICAL WORDS and GRAMMATICAL MORPHEMES (further divided into INFLECTIONAL and DERIVATIONAL MORPHEMES), thus hinting at the fact that most lexical morphemes are free and thus behave as words, while most grammatical morphemes are bound; but, obviously, lexical bound morphemes and

grammatical free morphemes (auxiliary words) somehow remained outside the classification. Now Givón makes a distinction between LEXICAL and NON-LEXICAL WORDS, but, quite inconsistently, the latter class turns out to consist of GRAMMATICAL (= older INFLECTIONAL) and DERIVATIONAL MORPHEMES.

Another difference in the new edition is the much more detailed and elaborated classification. The general character of the changes made both in the structure of classifications and in terminology can be illustrated with just two examples. Thus, to the four types of adverbs of the first edition (manner, time, place and speaker's comments) Givón adds instrumental adverbs, wisely renames the second class TIME AND ASPECTUALITY ADVERBS and splits the last class into EPISTEMIC and DEONTIC-EVALUATIVE adverbs. Likewise, the list of minor word classes, consisting of pronouns, demonstratives and articles (⇔DETERMINERS, which now also include possessive pronouns), SENTENTIAL CONJUNCTIONS and SUBORDINATIONS (now INTER-CLAUSAL CONNECTIVES), and INTERJECTIONS is supplemented with (1) ADPOSITIONS, (2) QUANTIFIERS, NUMERALS and ORDINALS, and (3) AUXILIARY VERBS.

The next two chapters, 3, 'Simple verbal clauses and argument structures', and 4, 'Grammatical relations and case-marking systems', deal with two layers of the representation of the clause structure, semantic roles and grammatical relations. They essentially correspond to the first edition's chapters 4, 'Simple sentences; predications and case-roles', and 5, 'Case-marking typology: subject, object and transitivity'. The syntactic classification of verbs, distinguishing between SUBJECTLESS VERBS (now DUMMY-SUBJECT VERBS), INTRANSITIVES, TRANSITIVES, etc., remains essentially unchanged, but the presentation of case-roles, one of the central points of the book, has undergone some crucial changes. In the first edition, Givón mostly concentrates on the ordering of the three MAJOR roles, Agent, Dative and Patient, arranged according to Givón's hierarchy of topicality: AGT > DAT > PAT (Givón 1984: 87–89, 134, 139f., et passim). The main point of controversy in this hierarchy is of course the relative position of Dative and Patient. Traditionally, Patient is ranked higher than Dative, which more straightforwardly corresponds to the hierarchy of grammatical relations, Subject > Direct Object (DO) > Indirect Object (IO), but, in fact, there is a mass of evidence for both orderings, PAT > DAT and DAT > PAT, as rightly noted by Van der Auwera in his review (1985: 506f.). In the new edition, Givón's answer to this criticism basically amounts to reprising the argumentation of the first edition:

> The primacy of the dative-benefactive in the competition for direct-objecthood is supported by the fact that in most languages it is obligatorily made the DO. And in the few languages such as English where it can be either the DO or IO, it is nonetheless overwhelmingly the DO at the level of text frequency. (vol. I: 200)

Givón's statistical claims ('in most languages …', 'the few languages such as English') do not appear convincing. Apparently, languages differ as far as

the relative ordering of Dative and Patient is concerned. Here it might be in order to refer to the important paper by Dryer (1986).

The discussion of case-roles in chapter 4 has been radically revised. Now the author pays particular attention to the behavior-and-control properties, formulated in terms of syntactic processes which serve to identify grammatical relations: passivization, reflexivization, relativization, equi-NP reference in complementation, etc. (177f.). He further focuses on the main types of conflict between overt-coding and behavior-and-control properties. The most famous example of such a conflict is morphological vs. syntactic ergativity (217–219). In the first edition, Givón is quite sceptical regarding the reality of syntactic (deep) ergativity. Now he apparently admits the existence of some languages where 'several behavior-and-control properties align with the ergative-absolutive morphology' (217), but his 'diachronic explanation' of the common mismatch between morphological ergativity and syntactic nominative-accusativity does not appear convincing:

> Most ergative languages are old ergative languages. Their behavior-and-control properties have had enough time to realign themselves with the *nominative* control principle. Only their morphology remains a relic of their old syntax. Hence their 'surface' ergativity.
> 'Deep' ergative languages, in Australia, Eskimo, Philippine and Indonesia, have become ergative relatively recently. Their behavior-and-control properties thus still reflect those of an *inverse* clause in a nominative language. (vol. I: 219)

Both claims appear to be speculations not relying on any historical evidence. They have already been the subject of criticism by one of the reviewers of the first edition (Verhaar 1985: 151), who rightly points out that at least two of the languages mentioned by Givón, Malay and Tagalog, were syntactically ergative as early as the 16th century; he also questions the correctness of the account of syntactic/deep ergativity in terms of topicality. This criticism is left unanswered, and so are a number of related questions: how do we know that ergativity in Australia and Eskimo is 'relatively recent'? How old is ergativity in 'old ergative languages'? Does any of this hold true for languages with well-documented history which attest the rise of ergativity, such as Indo-Aryan?

Unfortunately, such speculative diachronic explanations are quite typical of Givón. Particularly annoying for historical linguists, they have already caused severe criticism, for instance by Campbell (1992: 494f.). Instead of a synthesis of synchronic and diachronic analyses (which may be fruitful in many cases), they rather exemplify a sort of PSEUDO-PANCHRONIC approach, which hardly contributes to a better understanding of linguistic facts.

Chapter 5, 'Word order', is supplemented with an important section on 'so-called non-configurationality'. The very title shows the author's scepticism regarding the notion of (non-)configurationality (coined within the

generative tradition) and the claim that 'in flexible-order languages, the subject and object [are] not "real" independent syntactic constituents ("nodes"), but rather [are] "indexed in the verb"' (279). Givón further argues, convincingly, that this and similar claims are 'founded upon a number of rather questionable interpretations of the empirical evidence' (279). In addition, it is pertinent to note quite an annoying abuse of the term NON-CONFIGURATIONAL, employed in several, quite traditional, descriptive studies as a newly-fashionable term referring to languages with free word order – which of course has little scientific value.

Givón wisely omits the next chapter which was present in the first edition, 7, 'Information-theoretic preliminaries to discourse pragmatics' (its place in a syntactic textbook is indeed quite problematic), but some of its remnants are scattered throughout several chapters of the new edition, in particular, section 9.1 of chapter 7, which deals with the PRESUPPOSED/ASSERTED INFORMATION distinction. On the other hand, the next chapter, devoted to tense, aspect and modality (TAM), is now split in two, giving chapter 6, 'Tense, aspect and modality I: functional organization', and chapter 7, 'Tense, aspect and modality II: typological organization'. As in many other chapters, several improvements are made in the typological discussion of the categories in question: while the first edition simply picked up several individual languages as representative examples of TAM-systems, now the author concentrates on possible types of systems.

The range of topics discussed in chapter 8, 'Negation' (=9 in the first edition), remains essentially the same, although several new (and popular) issues, such as NEGATIVE POLARITY, are added.

Finally, the two concluding chapters of volume I, 9 and 10, have been combined, and now appear under the general heading 'Referential coherence': 'I: pronouns and grammatical agreement' and 'II: reference and definiteness'.

Volume II opens with chapter 11, 'Noun phrases', where only minor changes have been made (thus, the discussion of restrictive vs. non-restrictive modifiers is more elaborated, which, as in many other cases, has essentially enhanced the clarity of presentation).

In chapter 12, 'Verbal complements and clause union', the author has added a section on 'the two major diachronic routes to clause-union' (79). Givón distinguishes between '*embedding languages*, where clause-integration arises diachronically from embedded complement clauses of reduced finiteness', so that 'syntactic clause-union … reach[es] completion', and '*serial-verb languages*, … where clause integration arises diachronically from clause-chaining and no strong finiteness gradation exists between main and "subordinate" clause', so that 'the very same semantic event combinations yield incomplete clause-union' (79). The section contains some interesting illustrative material and discussion, but the conclusion at which Givón arrives at the end is yet another example of his pseudo-panchronic

typological approach:

> Full clause-union – with co-lexicalized verbs, a unified set of G[rammatical] R[elation]s, and a re-consolidated single-focused finite morphology – is but the apex of the graduated syntactic scale of clause integration. The profound scalarity of complementation merely illuminates the fact that clause-union is a gradual *diachronic* process. (vol. II: 89)

Here, a discussion of evidence from languages with full clause union AND a well-documented history (cf., for instance, English phase constructions with *finish* and causative clause-union with *make*) would have been invaluable. Without a solid basis in diachronic evidence, claims such as that just quoted are of little value, remaining pure a priori speculation.

The range of topics discussed in chapter 13, 'De-transitive voice', remains essentially the same as in the corresponding chapter of the first edition, but now the author makes a more explicit distinction between SEMANTIC and PRAGMATIC de-transitive voice constructions. The former are 'those whose functional definition does not depend on entities outside the boundaries of the event-clause' (92). Here belong reflexives, reciprocals, and middle-voice constructions (treated in the first edition under MULTIPLE PASSIVES). The pragmatic voice constructions are 'those whose functional definition depends on some facets of the wider, extra-clausal, discourse context' (92). This group includes, alongside the unmarked transitive voice (ACTIVE-DIRECT), inverse, passive and antipassive. As Givón explains, 'the semantics of transitivity is not affected in such constructions'; '[r]ather, they render the same semantically-transitive event from different pragmatic *perspectives*', which 'involve, primarily although not exclusively, the *relative topicality* of the agent and patient' (93). The relative topicality is determined by means of two parameters (rather than 'methods' (123)), (i) CATAPHORIC PERSISTENCE (in the first edition, TOPIC PERSISTENCE), which 'measures how many times a referent recurs in the next 10 clauses, following its use in a particular construction' (123), and (ii) ANAPHORIC DISTANCE (in the first edition, REFERENTIAL DISTANCE), which 'measures the gap, in a number of clauses, between the referent's current appearance in a particular construction and its last previous occurrence in the text' (123). The explanation of these parameters has gained greatly in clarity as compared with that in the first edition (rightly criticized by Blake (1992: 498–500) for its obscurity).

The structure and content of the last five chapters, 14, 'Relative clauses'; 15, 'Contrastive focus constructions'; 16, 'Marked topic constructions'; 17, 'Non-declarative speech-acts'; and 18, 'Inter-clausal coherence', have remained essentially unchanged, with only minor rearrangements and additions. Thus, in chapter 17, the author has added short but useful sections on the epistemic and deontic features of declarative and interrogative speech-acts (290f.), and the section on socio-personal dimensions of the communicative contract (17.7 = 18.8 in the first edition) has been

reshaped in terms of interaction between epistemic and deontic aspects of speech-acts.

The book concludes with a list of references and a short, five-page index. Both are worth criticizing for their incompleteness; the lack of reference to several basic works on syntax and syntactic categories is particularly regrettable. But these two shortcomings, inherited from the first edition, have been mentioned by many reviewers, so I will not dwell upon them any further.

To sum up, Givón's book is a very useful introduction to syntax. Compared to the 1984/1990 version, the new edition has gained a lot in clarity, consistency and accurateness of presentation of the material. Although some features of the book (primarily, scarcity of references and, at some points, lack of rigor in definitions and terminology) are hardly appropriate for a STANDARD textbook, the abundance of illustrative material from languages of diverse structural types, numerous stimulating and intriguing interpretations of linguistic facts, new universals and interesting ideas – an advantage noticed by nearly all reviewers of the first edition – make it well worth reading, both by experienced professional linguists and by any student of syntax and linguistics in general.

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Laurence R. Horn, *A natural history of negation* (The David Hume Series: Philosophy and Cognitive Science Reissues). Stanford, CA: CSLI Publications, 2001. Pp. xlvii + 637.

Reviewed by ANASTASIA GIANNAKIDOU, University of Chicago

Upon its initial appearance in 1989 with University of Chicago Press, *A natural history of negation* (*NHN*) established itself as a classic. The reissue edition has been greatly anticipated. As a bonus, the new edition contains an entirely new 'Introduction' (xiii–xxii), which is quite detailed, and which provides updates on recent developments in the area of negation and polarity; with this comes a supplemental bibliography, reflecting these new developments. The content of the book otherwise remains that of the original *NHN*, and it presents the most comprehensive, insightful and influential study of negation and scalar phenomena to date, while at the same time offering an intriguing theory of the semantics-pragmatics interface, and the division of labor between semantics and pragmatics. In this great synthesis, Horn offers a rich perspective that is, and will remain, a standard reference for negation, polarity, and scalarity.

In *NHN*, Horn approaches negation from various standpoints – logical-semantic, philosophical, pragmatic, morphosyntactic, as well as typological – and his achievement is an example of incomparable scholarship. *NHN* appeals to hundreds of sources, which are described, evaluated, and contrasted in remarkably balanced detail, and in Horn's characteristically entertaining prose. The empirical scope of this study is also noteworthy: apart from English, *NHN* closely surveys a number of other languages, as diverse as French and Japanese. Since its first appearance, *NHN* has been reviewed numerous times (listed in appendix B of *NHN*), and many of its fundamental claims have come to be widely known. In what follows, I will briefly describe the main features of *NHN*, presupposing basic familiarity with this history, while also connecting points made in *NHN* to more recent observations when relevant.

A TRAVELER'S GUIDE TO *A NATURAL HISTORY OF NEGATION*. Aristotle's treatment of sentence negation as a predicate denial marks the grand entrance of negation into the realm of logic. In chapter 1, 'Negation and opposition in classical logic', Horn offers an extensive historical overview of treatments of negation, starting with Aristotle's seminal analysis in the *Organon*. Aristotle establishes a principal opposition between contrariety and contradiction, the former adhering only to the law of contradiction, but the latter adhering to both the following laws:

(1) (a) $\neg (p \wedge \neg p)$ Law of Contradiction (LC)
(b) $p \vee \neg p$ Law of Excluded Middle (LEM)

We can compare contrary vs. contradictory negation to the contrast between INTERNAL (narrow scope) versus EXTERNAL (wide scope) negation in the Fregean/Russellian tradition. Negations like *not* convey both kinds of opposition, but Aristotle characterizes SENTENTIAL negation strictly as contradictory negation in his notion of PREDICATE DENIAL, and Horn's own view of negation is inspired by this idea. The interaction between negation and quantifiers is explored in the SQUARE OF OPPOSITION, outlined in the four cases below, with the letters identifying the four corners of the square:

A: Every linguist is boring.
I: Some linguist is boring.
E: Every linguist is not boring. = No linguist is boring.
O: Some linguist is not boring. = It is not the case that every linguist is boring.

This provides the general format for describing the interaction of negation not just with nominal quantifiers, but with modalities and scalar predications.

In chapter 2, 'Negation, presupposition, and the excluded middle', Horn asks: what happens if we negate a sentence the subject of which fails to refer? Three case studies are offered: future contingencies, category mistakes, and vacuous definite descriptions:

(2) (a) There will be a sea battle tomorrow.
    (b) There will not be a sea battle tomorrow.
(3) The square root of 2 is not blue.
(4) The king of France is not bald.

Intuitively, (2a, b) cannot be true at the same time, but can they be simultaneously false? Aristotle himself gives what appears to be an ambiguous answer, which nevertheless seems compatible with a view of the future as nonveridical in the sense of much recent work (Zwarts 1995; Giannakidou 1998, to appear).

With category mistakes, and vacuous terms resulting in presupposition failures, the question is what status we are to assign to the sentences containing them. Are sentences (3) and (4) ungrammatical, infelicitous, meaningless, or simply sentences with undefined truth values? It is argued, correctly, that grammaticality is not at stake in either sentence, but category mistakes and presupposition failures do not constitute phenomena of an identical nature. In the former case we have a lexical mismatch stemming from lexical-sortal restrictions of the word meanings; as regards the latter, Horn's position is that of Aristotle: negations with non-existent subjects are false. Cases where we negate the presupposition of existence are instances of metalinguistic negation, which is a purely pragmatic operator (a point we

come back to later):

(5) The king of France is not bald – there is no king of France.

Horn also discusses Karttunen & Peters' (1979) proposal concerning ambiguity between ORDINARY and CONTRADICTION negation, and its application to the focus particle *even*. It is argued, quite persuasively, that this distinction and hence the ensuing analysis of *even* is flawed.

In chapter 3, 'Markedness and the psychology of negation', Horn revisits what was called in chapter 1 the 'asymmetricalist' position, i.e. the view that negative statements are more marked than affirmative ones. More marked has come to mean 'less informative than', or else 'accentuating' (61) affirmative statements either by presupposing them or by correcting them. Recently, the markedness thesis has received support from psycholinguistic evidence that 'negation seems to require – or at least strongly prefer – an affirmative context against which to operate' (172); processing evidence also shows that negative statements are responded to more slowly than affirmative ones, even when the same information is conveyed (168).

Horn concludes that 'the asymmetry thesis … applies at the level of pragmatics. … [T]he real asymmetry is located, not in the relation of negative to positive propositions, but in the relation of (speaker) denials to assertions' (201). And the nature of this relation is explained immediately afterwards: 'while affirmation not only can but standardly does function to introduce a proposition into the discourse model, negation [...] is DIRECTED at a proposition already in the discourse model' (203; my emphasis – AG). It is this directionality that ultimately makes the asymmetricalist thesis 'literally false but psychologically true' (203). In support of Horn's position, it is useful to connect the idea that negation is 'directed' towards a proposition already present in discourse to the fact that negation is a focus-sensitive operator (Rooth 1992, and work by Barbara Partee). Focus-sensitive operators, e.g. *only* and *even*, have been argued to be anaphoric in very much the same way; hence the behavior of negation is not at all specific to negation, but rather, is expected, and demonstrates the focus sensitivity of negation.

Horn's refutation of the asymmetricalist view is cast within a pragmatic model which also drives the discussion in chapter 4. The core idea is that 'there is in language a systematic interaction between two antinomic forces' (192): a force of unification, or SPEAKER's economy, which simplifies; and an antithetical force of diversification, or HEARER's economy, which expands. Horn reformulates the Gricean four-maxim model in the light of this antithesis and identifies an R-principle and a Q-principle:

(6) (a) Q-principle (hearer-oriented)
Make your contribution sufficient: say as much as you can (given R).
(b) R-Principle (speaker-oriented)
Make your contribution necessary: say no more than you must (given Q).

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As we see, the two principles interact by appealing to, or constraining, one another. The Q-principle is lower-bounding, exploited to generate upper-bounding implicata, and is essentially negative; for example, *some* Q-implicates *not all*, *warm* Q-implicates *not hot*. The R-principle, on the other hand, is an upper-bounding law generating lower-bound implicata, and it involves an inference to the best interpretation – it is the principle governing (for instance) understatement, or prototypically, indirect speech acts (346).

In chapter 4, 'Negation and quantity', Horn uses this model to analyze the typical cases of Q-based implicatures observed in scalar phenomena, focusing on the relation of subcontrariety. The main claim is that both the 'less than' reading which appears to be licensed with scalar adjectives and the 'exactly n' reading of numerals are conversational implicatures generated by the Q-principle. Horn's theory is very well known, and has established an extremely influential research program (although, as Horn also notes, it is by no means without dissent; cf. pages 250f.). Its advantage is that it avoids positing lexical ambiguity for numerals and scalars. In addition, the blocking of Q-implicatures is discussed, raising the issue of implicature projection, which has recently resurfaced in the work of Chierchia (to appear), which attempts to integrate Q-implicatures into semantic composition. The discussion in *NHN* presents a compelling case for the semantic component to be kept relatively simple and implicature-free (for Horn's updated position on this debate, see Horn 2003).

Another issue which features centrally in chapter 4 is the question of why languages do not lexicalize the **O** corner of the square of opposition (although they do lexicalize **E**), i.e. why there are no quantifers *n-all*, *n-every*, etc., realizing contradictory negation of a universal, whereas we do have *nobody*, *nothing*, etc., realizing the contrary **E**. The empirical scope here extends to sequences of negation with modal verbs, and Horn's answer appeals to the fact that subcontraries **I** (*some P*) and **O** (*some not P*, which is equivalent to *not all P*) are 'informationally interchangeable' (255). This equivalence, and the simpler expressibility of **I** over **O**, make **O** 'functionally expendable' (256). In other words, since a quantifier *n-all* would express the truth-conditional meaning of *some*, conventionalization favors lexicalization of the simpler quantifier. Finally, chapter 4 offers the suggestion that *only* can be treated as downward entailing. However, showing that *only* is downward entailing has proved a Sisyphean task for many – see Atlas (1996) and Giannakidou (to appear) for problems; note that Horn (to appear) actually gives up the idea that *only* is semantically downward entailing.

In chapter 5, 'The pragmatics of contra(dicto)ry negation', Horn discusses affixal negation and the phenomena of litotes and neg-raising. The main idea is that negation can be conventionalized as 'a device for attenuating an assertion, or for qualifying the speaker's commitment to the truth of the expressed proposition' (308). Litotes, and more generally structures

with double negation where the two instances do not cancel each other functionally or rhetorically, illustrate an equilibrium between the Q- and R-principles, yielding a weakening effect (304). Neg-raising, on the other hand, is claimed to represent 'a strengthening of the contradictory to a contrary, rather than a weakening to a subcontrary' (328, generalization (64)). Although both neg-raising and understatements (including litotes) are R-governed phenomena, neg-raising and other R-related phenomena differ in terms of conventionalization (338, 352); hence we cannot collapse neg-raising with litotes (which creates weakening).

Crosslinguistically, neg-raising tends to appear with verbs of belief, probability, and volition; factives and implicatives do not neg-raise (324). Horn unifies neg-raising verbs as a natural class by positing that they are mid-scalar (329), which represents the unmarked value. In this discussion, Horn also emphasizes that the lower and higher readings of negation are not truth-conditionally equivalent. Indeed, this observation is supported by the contrast between nonveridicality and antiveridicality proposed by Zwarts (1995) and Giannakidou (1998), which creates different syntactic domains for negative polarity items (NPIs). Higher (contradictory) readings do not entail that the complements are false, thus creating a nonveridical environment; but the lower reading creates an antiveridical environment by negating the lower proposition. In this case, strong NPIs, otherwise licensed only by antiveridical operators, can indeed be accepted. *Any* does not exhibit this pattern because it is not a strong NPI, but appears in a wide variety of non-negative environments; but strong NPIs and minimizers in Spanish, Catalan, and Greek match this description precisely (see especially Giannakidou & Quer 1997), and the pattern has also been argued to hold in Slavic languages. In English, this becomes evident when we consider the NPI *all that*:

(7) (a) I don't think John is all that intelligent.
(b) *I regret that John is all that intelligent.

By linking neg-raising and the extension of syntactic domain for NPI-licensing to nonveridicality, such facts encourage a treatment of the syntactic problem of locality as part of the more general semantic licensing puzzle, and suggest that recourse to special syntactic conditions may not be necessary.

Chapter 6, 'Metalinguistic negation', discusses the contrastive 'spurious' use of negation which negates presuppositions and other aspects of the global utterance (recall example (5) above). Horn argues that metalinguistic negation constitutes a purely pragmatic use of ordinary negation, which focuses 'not on the truth or falsity of a proposition, but on the assertability of an utterance' (363). As an additional argument against the ambiguist position, it is stated that 'no natural language seems to employ two distinct negative operators which correspond directly to internal and external negation' (366), although languages do exhibit distinctions between

declarative and emphatic negation, e.g. the Greek distinction between *dhen* and *mi*(*n*) (366).

It is interesting to note that Greek possesses yet another negation, *oxi*, whose use is that of 'anaphoric negation' (Veloudis 1982), like the English particle *no*:

(8) **Oxi**, o Socratis dhen ine spiti.
No, Socrates is not home.

At least syntactically, *no* and *oxi* look like external negations. Unlike *no*, however, *oxi* is the device used in contrastive metalinguistic negation (Giannakidou 1998).

(9) O Janis exi oxi tria pedia, ala tessera.
John has not three children, but four.
(10) Leme oxi 'Trotsky**it**', ala 'Trotsky**ist**'.
We say not 'Trotsky**ite**', but 'Trotsky**ist**'.

Items like *oxi*, then, can be taken to support identification of metalinguistic negation with external negation – but then again, they are lexically distinct from the sentential negation particle. To the extent that such forms can be identified in other languages too, the claim that there is no lexicalization of metalinguistic or external negation must be weakened.

Whatever the ultimate characterization of metalinguistic negation may be, Horn provides ample evidence that it must be distinguished from ordinary negation in terms of (a) incorporation; (b) NPI-licensing (ordinary negation supports it but metalinguistic negation does not); and (c) contrastive *but*-conjunction: metalinguistic negation only combines with contrastive *but* in *not X but Y* structures where *not X but Y* is a constituent (402). It is important to note that *oxi* in (9) and (10) would indeed be ungrammatical without the *but*-conjuncts (see also the examples for *not* (79), page 403), a fact lending further support to the analysis of *oxi* as a metalinguistic negator.

In chapter 7, 'Negative form and negative function', Horn lays out his own theory of negation. His system is inspired by Aristotle's insights, and proposes a formalization of an Extended Term Logic (ETL) with negation – *not* as well as inflectional *n't* – as a single VP-operator corresponding to Aristotle's predicate denial. As a predicate denial, negation typically receives contradictory ('wide scope') readings:

(11) (a) All that glitters is not gold.
(b) $\neg \forall x$ [glitter (x)$\rightarrow$gold (x)]

This is the default reading of sentential negation. Deriving this scoping is consistent with the Montagovian idea that the quantifier is not quantified in (or QR-ed in frameworks that have such a rule), but introduced directly; negation applies next, yielding the contradictory scope. However, universal

quantifiers can also scope above negation:

(12) (a) All the cookies were {not eaten/uneaten}.
(b) ¬ ∀x [cookies(x)→were-eaten (x)]
(c) ∀x [cookies(x)→¬ were-eaten (x)]

Here we have both the expected wide scope contradictory reading as well as the narrow contrary reading with *were not eaten*, derived by assuming that the subject quantifier is quantified in (or has undergone QR). In the case of *were uneaten*, we have only a contrary reading because *un-* is an affixal negation, thus equivalent to Aristotelian PREDICATE TERM negation. Hence the view of negation as a predicate denial derives the two scopings of negation and the asymmetry with lexical negation without positing ambiguity.

The prediction that we have both scopings with negation, however, turns out to be too strong for the existential quantifier:

(13) (a) Some cookies were not eaten.
(b) # ¬ ∃x [cookies(x) ∧ were-eaten (x)]
(c) ∃x [cookies(x) ∧ ¬ were-eaten (x)]

Negation is interpreted here as a contradictory only. In the spirit of the earlier **O→E** shift (established in the discussion of subcontraries in chapter 4), Horn explains this fact by invoking blocking by the determiner *no*, which lexicalizes the **E**-meaning (¬ ∃).

NEGATION AS A VP-OPERATOR. In arguing that negation operates on VPs rather than propositions, Horn appears to depart from the logical-semantic tradition which treats negation as a propositional connective. One of Horn's arguments for the VP analysis is that negation never appears in sentence-initial position (473). Tense, on the other hand, is presented as a parallel to negation, and Horn's treatment of negation is likened to treatments of tense as a VP-operator (472). Here, I would like to consider this tension and suggest that Horn's departure from classical logic is only superficial.

Consider what exactly counts as a proposition syntactically. Current syntactic theories propose that subjects are generated inside the VP, thus rendering VP itself equivalent to a proposition – and indeed the idea is adopted in formal semantics. In the light of this move, the analysis of negation as a VP-operator is not at odds with the propositional analysis, but rather, is a variant of it: the scope predictions it makes are exactly the same, and the relative freedom of subjects to scope above negation can be explained by appealing to independent properties of subjects that force them to vacate the VP, e.g. to get case, become topicalized, or assume a quantifier position.

The intended parallel with tense, on the other hand, seems hard to establish. Tense, unlike negation, is an inflectional category which indeed surfaces as a V-modifier; but negation tends to appear outside the verb complex, either as an inflectional element (e.g. negative auxiliaries in languages like Finnish, or English *don't*), or as an adverbial preceding or following the verb.

Given this difference, it would make sense to say that negation, unlike tense, applies after everything else in the VP has been put in place, whereas tense is more a verb-related category (since eventualities may be treated as containing temporal variables). Consider also that in more recent work on tense semantics, a consensus has emerged that we need at least two positions for tense – a low verb-related one and a higher IP-related one – in order to combine the need to restrict tense (higher position) with the assumption that temporal information is already contained in the V-complex.

To conclude, Horn intended his treatment of negation as a formalization of the Aristotelian doctrine; but in the end, *A natural history of negation* achieves much more than being the most comprehensive and insightful study of negation to date (which is, of course, a major achievement already). With the Q- and R-principles, Horn's neo-Gricean downsizing makes an absolutely compelling case for a division of labor between semantics and pragmatics in which semantics is kept relatively simple and pragmatics does a lot of work. This concept of the semantics–pragmatics interface gives impressive results in a wide range of phenomena in which negation serves as the case study. Very few works in contemporary linguistics can compare to the coverage, depth, and versatility of this book, and even fewer can compete with it in terms of impact on current linguistic theorizing.

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Marit Julien, *Syntactic heads and word formation* (Oxford Studies in Comparative Syntax). Oxford: Oxford University Press, 2002. Pp. viii + 407.

Reviewed by ANDREW SPENCER, University of Essex

In this book, a revised Tromsø Ph.D. dissertation, Julien argues from a massive typological survey that the linearization of Tense-Mood-Aspect (TMA) morphemes is best accounted for within a Kayneian approach to morphosyntax, under which all inflections are syntactic heads and 'words' are illusions created by the frequent juxtaposition of syntactically placed morphemes (36). Chapter 1 sets the scene and discusses problems with the concept of word, and chapter 2 presents the syntactic theory. Chapter 3 discusses the suffixing tendency in head-final languages, arguing that it falls out from independent syntactic assumptions. Chapter 4 looks at TMA prefixes. Chapter 5 considers other inflections (mainly agreement), potential counterexamples and the relation between syntax and affixation rate. A sixth, shorter, chapter discusses the morphology module, including derivation and compounding. There is a Conclusion, an Appendix of symbols and abbreviations, an Appendix summarizing word order and verb morphology correspondences, References and three indexes.

The book shows occasional signs of its Ph.D. origins (for instance, some of the rebuttals of proposals for Japanese syntax in chapter 3 could have been excised) but overall the argumentation is well-focussed and the message clear: morphology is a waste of time. This conclusion is reached by studying TMA markers in 530 languages, the largest sample I've ever seen in a typology study. Just collecting together all those grammars is a major logistical task. Julien has an excellent command of this complex and confusing material and deploys the syntactic theory with great ingenuity. This is clearly the work of a very talented and industrious scholar.

In Julien's theoretical framework there is a universal underlying SVO order, prepositions rather than postpositions, binary branching trees, and leftward movement triggered solely by the need to check features. Feature checking works according to the theory attributed to Anders Holmberg (63). Movement is triggered by strong features on a head and by c-features ('c' is for 'categorial selection'), which attract XPs into Spec positions. An uninterpretable feature on Y° may be checked by:

(a) movement of a feature on X to Y° (no overt movement)
(b) head movement of X° (checking of strong and c-feature)
(c) movement of XP to Spec, YP (checking of just c-feature)

Word formation results from (c) as well as (b). Morpheme order is not regulated by morphological selection. Head-final languages are initially problematic for Julien's thesis. She claims that a morpheme order such as S O V T can be obtained by moving the [V O] constituent as a phrase to the Spec of some suitable XP, and then moving heads or phrases out of that XP. This can result in derivations which violate strict cyclicity, so some alternative will have to be found to standard theories of locality (169). TMA prefixing languages are easier to handle because the inflectional heads already form a cluster to the left of the V. Such a cluster can be simply a string of heads which cohere phonologically with the verb without forming a morphosyntactic constituent (in other words, they are essentially clitics), while a TMA suffix can only arise by verb movement to some structurally defined position (merged heads or Spec + head).

The core of the thesis is that if affixes are placed by syntactic principles then word order and affix order are instances of the same thing, and one should correlate with the other. Chapter 5 proposes a number of implicational universals. V-final order implies that tense is marked by a suffix but not vice versa. This suggests that syntax is responsible for the suffixing preference here. Julien claims (235) that her approach predicts that some word/morpheme order pairings will occur and others will be excluded as shown in (1) and (2).

(1) Possible orderings of SVO and TA affixes
  (a) (S) T A V (O)
  (b) (S) T V + A (O)
  (c) (S) (O) V + A + T (O)
  (d) S A V O T
(2) Impossible orderings of SVO and TA affixes
  (a) *(S) A T V (O)
  (b) *(S) A V + T (O)
  (c) *(S) V + T + A (O)
  (d) *S A V T O

V-initial languages favour postposed TA markers, V-medial languages favour preposed TA markers, but V-final languages strongly prefer suffixes. This is predicted by the analysis for the following reasons. In a V-initial language the V must be higher than the subject, hence, higher than IP, hence higher than (most) inflectional heads. In a V-medial language there are various inflections between the subject and the verb. In V-final languages the VP is moved to a Spec position and various heads are moved out of that VP. These heads are always left-adjoined to inflectional heads and the latter are therefore always suffixes. An inflectional marker can only intervene between the verb and its object if the verb has raised, in which case it will have adjoined to the inflectional heads. Such a complex head 'will necessarily have the behavior of a word' (287) so the inflections will be perceived as suffixes.

Chapter 6 discusses the morphology module. Linear ordering of morphemes is handled by syntax, while paradigmatic relations between morphemes are the result of the morphology. For this to be true it's important that morphemes be well-behaved Saussurean signs respecting a fairly strict version of ideal agglutination. Julien surveys deviations from agglutination. It's crucial that there be no truly discontinuous morphemes, as appears to happen in extended exponence. Either the two morphemes really mean different things or we have two affixes whose meaning is non-compositional, an idiom. Other types are really 'conditioned allomorphy': one of the morphemes is really the principal exponent of some other property. Syntactic categories can sometimes condition allomorphy, so allomorphy isn't purely 'morphological'.

I turn now to an evaluation. Julien makes a number of useful points about the problems associated with the notion of wordhood, though all of them were made with at least equal eloquence in the 1930s and 1940s (see Dixon & Aikhenvald 2002 for a recent survey). The first chapter, with almost no reference to any serious research in morphology, will therefore strike morphologists as both naive and arrogant. It's true that there's no universally applicable definition of wordhood (we don't need Julien's book to tell us that) but then there's no universal definition of 'syntactic constituent' or 'speech sound' either.

But the central claim about word structure is so off-the-wall that most linguists will reject it out of hand. Julien wants us to believe that *slept* is perceived as a word because *slep-* and *-t* are regularly juxtaposed by English syntax (unlike, say, *has* and *slept* in *has* (*probably*) *slept*). Julien can't say, as any morphologist would, that *slept* is a word form of the lexeme SLEEP and that there's no past tense phrasal affix in English (comparable to the possessive phrasal affix). What she doesn't make plain is that for her account to get off the ground we need to know what rules out myriad examples of the general form **sleep probably-ed*. For that we need a COMPLETE syntax of English adverbial/parenthetical placement. Because the basic claim is so strong it's no good just having a sketch of the relevant fragment of grammar. Even just a handful of counterexamples should invalidate the program if it's to mean anything. Without such empirical backing, Julien's work, and all work like it, will continue to be regarded as a pointless glass bead game, of no interest to the rest of the profession.

Typologists may be puzzled to see their methods co-opted to back up minimalist syntax. I, too, find the methodology odd. It's an unenlightening game to think up counterexamples to Julien's thesis, but surely if Julien wants us to take her theory seriously she shouldn't be wading through 530 confirmatory cases; rather, she should be scouring grammars for apparent counter-examples and providing a convincing analysis of them. And merely statistical correlations are worse than useless, because they would argue for an explanation in terms of grammaticalization: morpheme-order

TENDS to look like word order because affixes were once (genuine) words themselves.

At a methodological level one gets the impression that there's been a huge amount of rather pointless work here. But then the book contains some alarmingly strange methodological turns. A striking instance appears on page 292, in which Julien summarizes a ten-page discussion of some serious problems for her theory posed by English and Norwegian. She remarks 'I think it would be premature to reject the syntactic approach solely on the basis of the English and Scandinavian facts, which are surrounded by so much uncertainty, as long as data from numerous languages are in accordance with the syntactic approach to an overwhelming degree'. It really doesn't seem to occur to Julien that within the morpheme-oriented descriptive grammars she's consulted (sometimes the only significant work we have on a given language) there might lurk similarly embarrassing problems. Indeed, that's precisely why Chomsky has always been so scathing about typological, large-language-sample approaches to language universals.

The logical incoherence of this book (which isn't the author's fault – it's typical of this framework) creates the overwhelming impression of a gifted linguist pursuing a completely misguided program in a theoretical and methodological vacuum. It's a sad reflection on our field that the many interesting observations in this book will probably be ignored by morphologists and typologists. At the same time, many proponents of minimalist morphosyntax will no doubt cite the book as proof of their position.

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Michael Kenstowicz (ed.), *Ken Hale: a life in language*. Cambridge, MA: MIT Press, 2001. Pp. xii + 480.

Reviewed by NIGEL FABB, University of Strathclyde

This is a festschrift for Ken Hale, with contributions from his colleagues at MIT and their collaborators, including chapters on phonology, phonetics, morphology, semantics and syntax. Some of the chapters make excursions into the ideology of linguistics, its scientific basis, and its relation to literary

studies. The chapters are not introduced, and there is no index. The book is a tribute to Hale, who died shortly after its publication; personal anecdotes and his list of publications make clear his significance as an individual linguist and as an influential member of one of the key American linguistics departments. Some of the articles explicitly refer to ideas to which he had a particular attachment: the fact that native speakers have special insight into the covert operations of a language, the indispensability of theory (as abstract as it must be) to underpin fieldwork, and specific theoretical notions such as the W* parameter and light verbs.

Four chapters address questions in phonology and phonetics. In 'Infixation versus onset metathesis in Tagalog, Chamorro, and Toba Batak', Morris Halle takes an (ordered-)rules-and-representations approach to infixation. The term 'infixation' is standardly used to describe the placement of one morpheme inside another. Three languages which seem to show infixation in this sense instead have prefixation plus a phonological process involving the onset of the form to which the prefix attaches. This onset is either exchanged with the onset of the prefix (onset metathesis, seen also, for example, in some language games), or this onset is preposed to become the onset of the prefix. Thus, in both cases, we see a phonological process which is morphologically unexceptional, delivered by a theory which has ordered rules and derivations. While Optimality Theory (OT) has claimed that infixation is driven by functional demands relating to the need to have well-formed syllables, Halle shows that syllable structure is also unexceptional in 'infixation' and so this evidence for OT disappears.

In contrast, Michael Kenstowicz & Hyang-Sook Sohn defend an OT position in 'Accentual adaptation in North Kyungsang Korean', a corpus-based survey of phonological issues relating to (mainly English) loanwords. Of particular interest is the fact that the linguistic behaviour of loanwords is influenced by the citation form, as a distinct linguistic entity. Thus, for example, a loanword in what should be nonfinal position in a phonological phrase behaves as though it is final – by analogy with the fact that a citation form is a phonological phrase on its own (259). Analogy to the citation form is also shown to block another kind of analogy, a parallelism effect (261). Kenstowicz & Sohn compare two kinds of explanation based on analogy, or mimicry, or faithfulness: they show that OT explanation in terms of an output–output faithfulness constraint (BASE-IDENTITY) is more successful than an alternative rules-and-representations-based explanation, Kiparsky's (1968) Alternation Condition.

The chapter by Cheryl Zoll, entitled 'Segmental phonology in Yawelmani', takes an OT approach to 'defective units': these are not segmental units whose features are attached to a root node; they are associated with suffixes, realized only sometimes. In Yawelmani they include 'quasi-segments' (always glottal stops), 'latent consonants' ([h], [m], [n], [l]), and 'latent vowels'. The distinction between these is not in the segments themselves,

but is derived by constraints such as: only a glottal may be realized as a secondary articulation.

The chapter by Samuel Jay Keyser & Kenneth N. Stevens is 'Enhancement revisited': 'enhancement' is the use of a nonfeatural vocal gesture (i.e. a gesture not based on a feature specification) to help distinguish a speech sound from other sounds of the language with which it is in acoustic competition. Aspiration of English voiceless stop consonants in certain contexts is an example of enhancement (by glottal spreading, not distinctive for obstruents in English). There is enhancement of articulator-bound features (by the recruitment of other articulators), but no enhancement of manner features. Enhancement is gradient, and thus explains why gradience may be a characteristic of the output of vocal gestures, which are based on, but not uniquely determined by, categorial feature specifications.

Two chapters address issues in morphology. James Harris, in 'Spanish negative *in-*: morphology, phonology, semantics', explores the various morphological constituent structures which, for phonological reasons, must hold for Spanish words with different forms of the prefix *in-*; for example, *inestabilidad* must have the overt morphological constituent structure of [in[[estabil]idad]]. He also looks at hypothesized semantic constituent structures which represent the semantic composition of these words; this word is semantically ambiguous and has the above as one of its structures, with the meaning 'lack of stability', but the other interpretation, 'the property of not being stable', must have [[in[stabil]]idad] as its structure (the <e> is epenthetic). In other cases the semantic constituent structure would require an isomorphic morphological constituent structure containing impossible morphemes. Harris dismisses a 'rebracketing' account, and concludes that morphological constituent structure and semantic constituent structure are not isomorphic.

Michel DeGraff's chapter on 'Morphology in creole genesis: linguistics and ideology' relates the study of morphology to ideological stances in linguistics, particularly as regards the view – which he contests – that languages classified as 'creole' are different in kind from other languages. This is a richly illustrated survey of morphology and morphological productivity in Haitian Creole, to counter the claims of morphological impoverishment made in the face of extensive counterevidence by past creolists (in support of a notion that the language itself is relatively impoverished). The second part of DeGraff's attack comes from Chomskyan linguistics. Haitian Creole is a language learned like any other language, not a special case, and so should be organized by the Faculty of Language in a way no different from any other language. The fact that the language has had a particular kind of history should be irrelevant, but DeGraff turns the focus on historical origins against the creolist tradition by tracing its presuppositions back to their missionary and colonialist roots.

Two chapters relate to semantics. Sabine Iatridou, Elena Anagnostopoulou & Roumyana Izvorski have a chapter 'Observations about the form and meaning of the perfect', based on data from English, Greek, and Bulgarian, all of which have a present perfect. They adopt the distinction between a universal perfect (the predicate holds at every subinterval between and including its endpoints) and an existential perfect. They show that the utterance time is included in the perfect by assertion (the eventuality holds at its endpoints); that there is no need to specify anteriority, which comes for free; and that the Reichenbachian E_R (event time – reference time) interval is not relevant to an understanding of the perfect. The universal reading of the perfect exists only if it is modified by certain adverbials, and also requires that the perfect participle has the feature 'unbounded', available, for example, from the imperfective aspect (but also an inherent possibility for e.g. English statives). Two appendices present (i) a hierarchy for the sentential tree which places a node for perfect above aspect (itself above voice), and (ii) an argument that the meaning of the perfect is supplied entirely by the participle, accompanied by discussion of a perfect phrase as a modifier.

Kai von Fintel's chapter, 'Counterfactuals in a dynamic context', investigates counterfactuals such as 'if kangaroos had no tails then they would topple over' in a dynamic semantics, in which the context for interpretation of an utterance can constantly change. Counterfactuals are interpreted by accessing a set of possible worlds which are close to the actual one; these possible worlds are bounded by a 'modal horizon', which can change (be expanded, but also contracted) in a sequence of conditionals. Von Fintel suggests that the construction of logical arguments (in formal logic) may be subject to special rules; in particular, he calls 'Strawson entailment' a deduction which fixes the modal horizon so that it cannot change in the course of the logical argument.

Four chapters focus on syntax, all concerned in one way or another with movement. Wayne O'Neil's chapter, 'Grammar games: unscrambling skaldic syntax', is an exercise in literary linguistics which focuses on two kinds of regulated disruption to Old Icelandic syntax performed in *dróttkvaett* poems. One kind of disruption involves the cutting of a sentence into sections and their interspersal ('clause intercalation'); this is constrained in that a clause cannot contain the beginnings of more than one new 'intercalated' clause. O'Neil suggests that this follows from a constraint on processing, and hence does not come under the control of the syntactic rules. In contrast, word order rearrangements respect syntactic constituent structure: parts of constituents can be moved to right or left but always to the edges of clauses. Both intercalation and movement can apply within the same syntactic constituent, presenting considerable difficulty to the audience, but incidentally exemplifying the 'interwoven' characteristic seen in much mediaeval aesthetic practice on the periphery of Europe.

The chapter by David Pesetsky & Esther Torrego, 'T-to-C movement: causes and consequences', is a reinterpretation, using current notions of Agree and Move, of two topics of research interest in the early 1980s: the *that*-trace effect and distributional differences between sentences (CPs) and noun phrases. With revisionist insight, the authors compare current syntactic theory with the representation-based Government and Binding theory and its dependence on filters such as the ECP. They suggest a unified approach to these problems based on C bearing an uninterpretable T-feature with the EPP property (which forces movement). Either T (carrying an uninterpretable T feature) moves to C, and is realized as 'that'; or a nominative DP can also move to C if nominative case on a DP is an uninterpretable T feature. The authors explore various consequences for the location of clauses as subjects or as objects, and the presence or absence of complementizers and specifiers of C.

Shigeru Miyagawa, in his chapter 'The EPP, scrambling and *wh*-in-situ', draws on the EPP in current syntactic theory to reinterpret two parameters from the early 1980s. Hale's 'configurationality parameter' permits languages to choose an option where subject and object are symmetric rather than asymmetric relative to the verb; Miyagawa shows how this symmetry can be derived by a particular kind of V-to-T movement such that both subject and object are by definition equidistant from the verb. The *wh*-parameter, originally a distinction between languages in whether *wh*-movement is overt or covert, is reinterpreted as a morphological parameter involving whether two distinct features, a *wh*-feature and a Q-feature, are both realized on the *wh*-phrase. If the Q feature is not realized on the *wh*-phrase (but, for instance, is realized on a particle), the *wh*-phrase need not move to satisfy an EPP requirement.

The most difficult and probably the most significant chapter in the book is Noam Chomsky's 'Derivation by phase', which reinvents the syntactic cycle in a Minimalist framework. A phase is a phrasal node headed by C or v* (strong phases) or v (weak phase); v is a light verb and v* a light verb with full argument structure. Strong phases are targets for movement and Spell-out (delivery of the phase to PF and – Chomsky argues – also LF) takes place here. Once spelled-out, the complement of the head of the phase is no longer accessible to higher structures, but the head and specifier and other adjoined material remain accessible up to the next strong phase. Rules may occur after Spell-out, such as movement in the phonology, which has no LF-semantic effect. Various movement phenomena are evaluated in this light, bearing in mind also the consideration that languages should be syntactically similar at LF; many head-raising rules may be phonological in this sense. The data discussed in the paper involves two types of object movement in English and other Germanic languages, and a reinterpretation of Holmberg's Generalization (object shift is permitted only if V has raised to T). As in all of Chomsky's work, there is discussion of how linguistic enquiry

relates to scientific method: we are told that empirical discovery must be guided by questions about scientific method including the notion of 'optimal design', and the various ways in which this might be interpreted.

All the chapters should be broadly comprehensible to any student with an advanced undergraduate or beginning graduate-level education in linguistics, and for a fraction of the price, the collection as a whole offers as many good theoretical articles as a year's worth of any journal.

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Géraldine Legendre, Jane Grimshaw & Sten Vikner (eds.), *Optimality-theoretic syntax*. Cambridge, MA: MIT Press, 2001. Pp. xviii + 548.

Reviewed by TANJA SCHMID, Universität Konstanz

This edited volume is a collection of articles which apply Optimality Theory (OT) to the syntactic domain. It consists of sixteen chapters: a general introduction to OT syntax is followed by fifteen articles covering a wide range of syntactic phenomena. An overview by the editors at the beginning of the book outlines the main ideas in the contributions. I will give a brief summary of each chapter in what follows.

In 'Introduction to Optimality Theory in syntax' Géraldine Legendre introduces the architecture of OT by means of syntactic phenomena. In addition to basic notions of OT, such as constraint conflict, ranking, and the question of the input, Legendre also discusses issues in OT such as optionality and ineffability. Thus, the foundations are laid for an understanding of the following chapters, especially for readers not familiar with the framework.

Peter Ackema & Ad Neeleman, in 'Competition between syntax and morphology', account for the observation that certain complex lexical items can alternate between syntactic and morphological realization. They argue that complex elements may be realized either syntactically or morphologically and that the choice for one component vs. the other is determined by constraint interaction: a constraint that favours syntactic over morphological realization outranks a constraint that requires the satisfaction of selectional

properties of, for example, affixes. By abandoning the idea of a uniform realization, Ackema & Neeleman account for properties of complex elements like particle verbs, compounds, and idioms.

Judith Aissen, in 'Markedness and subject choice in Optimality Theory', accounts for the combination of marked subject choice and complex morphology by invoking the OT devices of harmonic alignment and local constraint conjunction. Prominence scales of grammatical function (Su > Non-Su) and person (Local > 3) are harmonically aligned by associating the high-ranking as well as the low-ranking elements of both scales. The resulting constraint sub-hierarchies are universally fixed. Crosslinguistic variation results from the interpolation of distinct constraints. Local conjunction of the derived sub-hierarchies with a constraint penalizing null morphology captures the intuition that morphological complexity is associated with marked configurations.

In 'Optionality and ineffability', Eric Bakovic & Ed Keer discuss two notorious problems of OT, namely optionality and ineffability. They propose that both phenomena are alternate effects of the standard interaction of faithfulness and markedness constraints. Assuming that inputs may minimally differ with respect to functional features, optionality occurs whenever feature-sensitive faithfulness constraints outrank the respective markedness constraints. When markedness constraints outrank faithfulness constraints, the different input specifications are neutralized and ineffability of certain constructions is thus derived. The analysis is applied to the distribution of complementizers and *wh*-phrases in English and Norwegian relative clauses.

Joan Bresnan, in 'The emergence of the unmarked pronoun', suggests a theory of pronominal markedness to explain asymmetries in the typology of pronominal systems. Bresnan distinguishes different kinds of pronouns: zero, bound, clitic, weak, and free. The non-free pronouns are more marked than the free ones, as shown by the fact that languages never lack free pronouns, that free pronouns are predominantly used in pidgins, and that they are used to fill gaps in other pronoun paradigms. Bresnan proposes a markedness theory that accounts for the emergence of the unmarked pronoun in situations where the more marked forms are not available.

Hye-Won Choi, in 'Binding and discourse prominence', is concerned with the mixed A- and A′-binding properties of scrambling in German. Choi accounts for these and for the connection of A′-movement and focalization by invoking interacting constraints of syntax and discourse. A proposed syntactic constraint requires subjects to precede non-subjects whereas discourse constraints require old and prominent information to precede new and non-prominent information. Arguments are assumed to be specified for discourse status in the input. Choi makes use of local conjunction of binding constraints to account for the German facts.

João Costa, in 'Emergence of the unmarked word order', derives the unmarked word order of several languages from a small set of violable

constraints. It is proposed that syntactic constraints interact with discourse-sensitive constraints. The unmarked word order is analysed as an instance of emergence of the unmarked, as it is often masked by the effects of higher ranked discourse-related constraints. Beginning with Portuguese, Costa derives the unmarked word order of languages like Greek, Spanish, Italian, Malagasy, and the Celtic family by re-ranking the proposed constraints, thus testing the power of OT as a theory of language variation.

In 'Optimal clitic positions and the lexicon in Romance clitic systems', Jane Grimshaw accounts for the clitic inventory of Italian, French, and Spanish, as well as for ordering restrictions on clitic combinations. In Grimshaw's account, the order of clitics results from the interaction of general alignment constraints requiring specifications like person and number to occur at an edge of the clitic cluster. By ranking certain alignment constraints above faithfulness constraints, Grimshaw accounts for clitic substitution (spurious *se*) in Spanish. Finally, the inventory of clitics is derived by faithfulness constraints interacting with markedness constraints ranked in accordance with universal markedness hierarchies.

Géraldine Legendre, in 'Masked second-position effects and the linearization of functional features', gives a unified account of second-position phenomena such as verb-second and second-position clitics. Legendre proposes that both verbs and clitics are linearized at PF, their position being due to the interaction of two conflicting alignment constraints. The constraint NON-INITIAL requires that the feature in question is not realized at the beginning of an intonational phrase and the constraint EDGEMOST(X, LEFT) forces the feature to be left-aligned with the edge of the nearest projection. Legendre investigates second-position effects in the VSO language Breton and the SVO language Macedonian, in which these effects are partly masked by overriding constraints.

Gereon Müller, in 'Order preservation, parallel movement, and the emergence of the unmarked', gives a uniform account of order preservation in various movement operations by invoking the general constraint PARALLEL MOVEMENT. This constraint, requiring asymmetric c-command relations to be preserved across different levels of syntactic representation, is typically low-ranked. Thus, order preservation appears in the unmarked case as a typical instance of emergence of the unmarked. Müller illustrates the effect of Parallel Movement using a variety of examples from German, English, Bulgarian, etc. and argues that the differences between languages and constructions fall out naturally from the relative ranking of Parallel Movement with respect to various movement triggers.

Vieri Samek-Lodovici, in 'Crosslinguistic typologies in Optimality Theory', investigates the size of a possible OT typology. He addresses the question of limiting this size by making use of two basic properties of OT: harmonic bounding and language-specific constraint ranking consistency. Samek-Lodovici illustrates these concepts with the typology of focus

constructions. Four constraints regulating the position of structural focus lead to 4! possible rankings. For three inputs with different underlying focus, 13,824 rankings are possible. Samek-Lodovici shows that harmonic bounding and constraint ranking consistency reduce the size of possible paradigms to eight.

In 'Form and function in the typology of grammatical voice systems', Peter Sells derives inventories of voice systems and accounts for their typological variation. Sells assumes that arguments are marked for one of three prominence levels in the input. Due to linking constraints, one candidate is selected as the morphologically unmarked voice form of a language. To derive inventories containing more than one voice, constraints demanding the marking of contrasts are invoked. The next most optimal candidate with a contrasting prominence relation is added to the voice inventory when one voice contrast is required, and so on for more contrasts. As the linking constraints stand in a universally fixed sub-hierarchy, the typological variation of voice systems is restricted.

In 'Constraints on null pronouns', Margaret Speas investigates the distribution and interpretation of null pronouns in languages like English, where null pronouns do not appear in finite clauses, languages like Thai, where null pronouns occur as subjects and objects in finite clauses, and languages like Spanish, where null pronouns occur as subjects but not as objects in finite clauses. Speas makes use of the interaction of purely syntactic constraints on control, binding, and case together with faithfulness constraints, and gives a uniform account of the different types of null pronouns in both infinitives and finite clauses.

Sten Vikner, in 'V°-to-I° movement and *do*-insertion in Optimality Theory', discusses the position of the finite verb in embedded clauses cross-linguistically, with reference to Danish, English, French, and Icelandic. The position of the verb, either preceding or following the sentential adverbial or negation, is derived by interacting constraints which are ranked differently in the four languages. Apparently unrelated phenomena like *do*-insertion and complementizer optionality are shown to correlate with differences in verb movement. This correlation follows directly from the proposed constraint interaction.

Colin Wilson suggests two kinds of optimization processes in 'Bidirectional optimization and the theory of anaphora'. An interpretive optimization among sentences that share a syntactic structure but differ with respect to its semantic interpretation precedes an expressive optimization among sentences which share a semantic structure but differ with respect to its syntactic expression. Wilson combines the two competitions into a coherent theory of the syntax-semantics interface, and proposes a bidirectional interface model in which both competitions are formalized as OT optimizations. The need to have both optimizations is motivated mainly by binding phenomena in Chamorro.

In 'Case patterns', Ellen Woolford extends case theory to account for structures where the case of an argument depends on the case of another argument (dependency effects), and structures where the case of an argument depends on the transitivity of the verb (valency effects). Woolford adds a set of violable markedness and faithfulness constraints to inviolable case-licensing principles. These violable constraints determine which case will surface when more than one case is licensed to an argument. They are also responsible for the surface inventory of cases used in a language. Woolford focuses on issues concerning dative and ergative case in Japanese, Icelandic, Basque, and other languages.

All sixteen articles in this excellently edited volume offer interesting and clearly written OT analyses of syntactic phenomena. Despite the broad range of empirical topics, the articles are very well cross-referenced and connected by recurring themes like alignment, or emergence of the unmarked. Instead of alphabetical order by author, a thematic order for the chapters might have been helpful. However, the book provides a useful index. To sum up, *Optimality-theoretic syntax* is highly recommended, not only for researchers interested in current OT syntax but also for any reader interested in thorough syntactic analysis in general.

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Tomiko Narahara, *The Japanese copula: forms and functions*. Houndmills: Palgrave Macmillan, 2002. Pp. x + 219.

Reviewed by Seiki Ayano, Mie University

This book is an attempt to provide an account of one of the vexing small grammatical creatures in Japanese, i.e. the copula, in terms of morphology, syntax, semantics and pragmatics/discourse. Its principal goals are (i) to investigate the morphological decomposition of predicates that are considered to contain a copula, (ii) to examine the morphosyntactic and semantic properties of decomposed morphemes, and (iii) to account for the pragmatic/discourse functions of the copula and its accompanying morpheme(s) on the basis of their morphosyntactic and semantic feature specifications. The book consists of four parts, which are further divided into relatively short chapters. In what follows, I will provide a part-by-part summary, which is followed by critical comments both on the content and the format of the book.

Part I (chapters 1–2) lays the groundwork by addressing the central issue of this book and putting forth a proposal. From her observation of some basic facts concerning the Japanese copula *-da*, namely its optional nature in some sentences and its obligatory absence in others, Narahara claims that *-da* does not carry tense, contrary to the commonly held view that it does. Instead, by reviewing the literature on the copula in Western philosophical studies, the works of Japanese traditional grammarians, and modern morphosyntactic studies, Narahara proposes that a copula is 'capable of carrying many types of grammatical features' (38). Of the grammatical features that she considers to be borne by the copula, she proposes that polarity plays a central role. She does not elaborate on her proposed analysis any further than that, but returns to it later, in part IV.

In part II (chapters 3–5), Narahara elaborates on her observations on the Japanese copula. She challenges the widely-held view that inflectional suffixes in Japanese such as *-(r)u* for verbs and *-i* for adjectives express present/non-past; verbs and adjectives in contemporary Japanese appear in the same form in the pre-nominal and sentence-final positions. She argues that these suffixes do not encode the unmarked tense in Japanese, i.e. present tense; in other words, present tense is not morphologically manifested. She proposes that instead, the suffixes for verbs and adjectives represent a categorial property. Extending this idea, Narahara proposes a novel analysis for the contemporary Japanese copula. In contrast to verbs and adjectives, the copula *-da*, which is the sentence-final form, has two different pre-nominal forms, depending on the categorial property of the lexical item to which it suffixes: *-no* for the nominal predicate (e.g. *bengosi-no* N(oun) 'lawyer-copula N') and *-na* for the adjectival nominal predicate (e.g. *hen-na* N 'strange-copula N'). The proposed analysis is (i) that *-no* and *-na* can be decomposed into two different morphemes, *-n* and *-o* and *-n* and *-a*, respectively, (ii) that the morpheme *-n*, which is common to both, is a copula, and (iii) that *-o* in *-no* and *-a* in *-na* indicate the categorial property of a given predicate to which they are suffixed: *-o* shows that the predicate is nominal and *-a* shows that it is an adjectival nominal. In the same fashion, the sentence-final copula *-da* consists of two morphemes, *-d* and *-a*. Narahara maintains that although the first morpheme, *-d*, is a copula, *-a* in *-d-a* needs to be treated differently from the suffixes *-o* and *-a* in the pre-nominal forms mentioned above, in that both nominal and adjectival predicates are suffixed by *-d-a* in sentence-final position. More crucially, observing that *-d-a* cannot appear in a yes-no question, she suggests that *-a* represents something other than the categorial property of the predicate to which it attaches. Before examining the properties of *-a* in part IV, the author provides an account of the existence of the two different copulative morphemes, *-n* and *-d*, from a diachronic perspective in part III (and at the beginning of part IV).

Part III (chapters 6–8) deals with the historical development of inflectional paradigms in Japanese: verbs, adjectives and copulas. While the pre-nominal

and sentence-final forms merged into the same form (i.e. the pre-nominal form) between the twelfth and the fourteenth centuries for verbs and in the seventeenth century for adjectives, the copula has maintained two distinct forms. In the first half of part III of the book, Narahara examines the development of verbal and adjectival inflectional paradigms, and argues that her proposal in the preceding section is on the right track with regard to the morphosyntactic properties of *-(r)u* for verbs and *-i* for adjectives. In the course of her discussion of this issue, she also shows that *-n-o* is the pre-nominal form of the old Japanese copula *-zo* and that *-n-a* derived from the fusion of the adverbial form of the copula, *-ni*, and another copulative element, *-ar-u*, which resulted in *nar-u*, with further phonological changes (*naru* > *namu* > *nan* > *na*).

In part IV (chapters 9–11), Narahara begins with an analysis of the development of the copulative morpheme *-d*. On the basis of earlier studies, she argues that the copulative morpheme *-d* derived from *-ni-te*, the gerund form *-ni-ar-*, which has undergone various phonological processes to become the contemporary gerund form *-de*. Thus, the copulative form *-de ar-u* developed, from which the sentence-final form of the copula *-d-a* was derived through phonological reduction. The innovative point that the author makes about the suffix *-ar-u* in *-de ar-u* is that this morpheme expresses 'affirmation' in isolated cases. That is, she shows that in yes-no questions, *-ar-u* displays an overt affirmation effect; hence the unacceptability or awkwardness of yes-no questions occurring with *-ar-u*. Crucially, she claims that this accounts for why *-d-a*, the contracted form of *-de ar-u*, cannot occur in yes-no questions. Further, it is shown that the *-a* of *-d-a* is an affirmative morpheme and that it brings about overt affirmation effects in a wider context. In contrast to the suffix *-ar-u* in *-de ar-u*, which can occur with epistemic modal predicates such as *sirena-i* 'may be', *-d-a* cannot. According to Narahara, since overt affirmation expresses 'the speaker's confidence and certainty in his or her knowledge and belief in the proposition being affirmed' (182f.), *-d-a* is incompatible with epistemic modal predicates as well as yes-no questions. Finally, in the last chapter of the book, Narahara shows how the proposed property of *-d-a* interacts with principles in pragmatics. More specifically, this follows from the affirmation property of *-d-a* interacting with the pragmatically governed 'tone down strategy' – which requires the speaker, facing an addressee of higher power, status or authority to scale down their expression of certainty: one has to avoid the use of *-d-a* in such situations. The same principle provides an account for the absence of *-d-a* in female speech since women are expected to over-apply the principle.

In my view, Narahara's very ambitious attempt to examine the Japanese copula has both merits and demerits. One good aspect of this book is that it has made available references published in Japanese on this topic to those who would not find them readily accessible otherwise. Another merit is that

the book serves as a reference for the historical development of the Japanese copula as well as verbs and adjectives.

However, there are some weaknesses. First, the main evidence for the overt affirmative feature of *-a* in *-d-a* presented in the book is that it is incompatible with yes-no questions and epistemic modal predicates. However, two obvious questions arise: (i) why does *-ar-u* in *-de ar-u* exhibit 'overt affirmation' in yes-no questions only? and (ii) why is a yes-no question with the past tense form of *-d-a*, namely, *-dat-ta*, not blocked for the same reason that a yes-no question with *-d-a* is blocked? With respect to the second question, Narahara shows that *-dat-ta* is a contracted form of *de ar-ta*, which is the past tense form of *-de ar-u*, and she maintains that since *-dat-ta* is one word, the infix *-at-* does not have any semantic or syntactic import. This claim is, at best, speculative, and needs further elaboration.

The second weakness is of a crosslinguistic nature, concerning 'adjectival nominals' in Japanese. Any Japanese grammar would be more elegant if it could exclude unnecessary language-particular properties which can be categorized into more crosslinguistically valid ones. More specifically, there is empirical evidence to support the view that adjectival nominals can be classified as adjectives. For example, Kubo (1992) shows that adjectives and adjectival nominals exhibit parallel syntactic behaviors: only adjectives and adjectival nominals (i) co-occur with degree words such as *totemo* 'very' and *kanari* 'quite', (ii) allow comparatives, and (iii) are compatible with the nominalization suffix *-sa*. Since newly-coined adjectives and adjectives loaned from other languages (originally from Chinese) have become 'adjectival nominals', and since this division between indigenous lexical items and borrowings can be observed crosslinguistically and crosscategorially, it is plausible that adjectives as well as other lexical items can be grouped into two types, primary ([+primary]) lexical items and secondary ([−primary]) lexical items, as is argued by Kubo (1992), following Emonds (1985). Of the two, [−primary] lexical items display regularity in terms of morphology and syntax. Under this analysis, 'adjectives' and 'adjectival nominals' are both adjectives and they are feature-specified as [+primary] and [−primary], respectively. If this line of argument is on the right track, then Narahara's attempt in part III (chapter 7) to identify one of the bound morphemes involved in adjectives as a copula (i.e. *-ar* as in *uresi-ku-ar-u* 'be happy') can be conceptually supported as well. That is to say, two types of adjective in Japanese must be accompanied by a copula. (Cf. Nishiyama's (1999) analysis of adjectives, drawing on Bowers' (1993) predication theory: *-ar* in, for example, *uresi-ku-ar-u* 'be happy' is a dummy copula, while *-ku-* is a predicative copula.)

In general, the book is well written and reads easily, but I have a complaint concerning its organization. The author delays the crucial element of her proposed analysis of the problem of the obligatory exclusion of *-d-a*, raised at the outset of the book, until the final part. This may well make it

difficult for readers unfamiliar with the topic to follow the empirical arguments.

One final comment relates to the proof-reading of the book. Unfortunately, there are several typographical errors, for instance, the inconsistent spelling of *Man'yoo syuu* and the misspelling of Bloch (1946), a pioneering American linguist who studied Japanese, as Block throughout the text as well as in the index and references. In addition, there are some mismatches between the numbers of examples and those in the accompanying text, e.g. examples (17) and (18) on page 103, which might cause some confusion to readers.

Despite the shortcomings outlined above, the book is a valuable contribution to the field since it attempts to bridge the gap between studies of the copula within Western philosophy and linguistics, and those within the Japanese linguistic tradition. I would strongly recommend it to anyone who is interested in knowing more about this small grammatical creature in Japanese.

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Susan Pintzuk, George Tsoulas & Anthony Warner (eds.), *Diachronic syntax: models and mechanisms*. Oxford: Oxford University Press, 2000. Pp. xii + 380.

Reviewed by BARBARA VANCE, Indiana University

This collection of papers, from the 5th Diachronic Generative Syntax Workshop, provides an excellent survey of recent developments in the field. The editors' introduction offers, in addition to a discussion of the individual papers, an overview of the generative approach to historical syntax, which seeks explanations for change in two principal areas: acquisition (cf. Lightfoot's work (1999 and earlier) on parametric change) and variation (cf. Kroch's (1989) Grammar Competition Model). Most of the papers are

couched in the Government and Binding or Minimalist frameworks, but Optimality Theory, Lexical Functional Grammar, and Categorial Grammar are also represented. Newer trajectories in the field are suggested by papers proposing syntactic accounts of grammaticalization phenomena (chapters 2, 3 and 13) and by the use of computer modeling to simulate syntactic change (chapter 4). The editors have assembled a collection of very substantial papers in which extensive databases, sophisticated statistical analyses, and clever theoretical interpretations are abundantly present. I will discuss the articles in two groups, the first set characterized principally by innovations in approaches to historical syntax, and the other mainly by the discovery of new data leading to fresh analyses of old issues (although some overlap exists).

Nigel Vincent's contribution is the only one in the volume to exploit the potential of Optimality Theory to address syntactic change. In 'Competition and correspondence in syntactic change: null arguments in Latin and Romance' (chapter 2), Vincent develops a constraint-based analysis of two instances of change in the pronominal system from Latin to Romance, using Lexical Functional Grammar as his framework. These accounts are more programmatic than complete, and thus cannot be easily evaluated for empirical coverage or even in terms of the overall success of the particular constraints proposed: Vincent himself notes (44) a fairly important constraint reversal across related tableaux that remains to be worked out. However, the article is well worth consulting for its lucid discussion of the potential conceptual advantages of approaching diachronic issues by building competition directly into the account.

Ans van Kemenade argues, in 'Jespersen's Cycle revisited: formal properties of grammaticalization' (chapter 3), that the process of grammaticalization is driven by morphosyntax, and not by semantics, as grammaticalization theorists would have it. She takes as her example the 'cycle of negation' in the history of English and shows that Jespersen's account translates neatly into an analysis in which each stage is instantiated by the move of a negative element from a specifier to a head position. Of particular interest is her discovery of a stage in which the negator *ne* is syntactically a topic in the initial specifier position (as shown by its incompatibility with other topics) but is phonologically a clitic. This stage provides evidence that morphophonological weakening is more advanced than the syntactic and semantic weakening that will characterize the next stage, in which *ne* becomes a head and co-occurs with clause-initial topics. The author thus argues that this classic case of grammaticalization (and potentially others as well) may be productively analyzed entirely from within formal syntactic theory.

In 'Evolutionary perspectives on diachronic syntax' (chapter 4), Ted Briscoe introduces a model of syntactic change which incorporates insights from modern evolutionary theory and the mathematical and computational

study of dynamic systems. He argues for the superiority (over previous models) of a statistical model in which (i) the population of language learners and users contains overlapping generations, and (ii) learners setting parameters track the frequency of grammatical variants (rather than, for example, the first or last variant heard), because such a model clearly predicts the familiar S-shaped curve of language change. In a more speculative vein, Briscoe suggests that languages may be productively analyzed as 'adaptive systems', in which case they are expected to instantiate an 'inductive bias' on the part of the learner (e.g. default parameter settings) and to involve little 'invention' – which would mean that Creoles are simply an instance of very rapid language change.

Anthony Kroch & Ann Taylor (chapter 6, 'Verb–object order in early Middle English') tackle the difficult and much-discussed issue of the transition from OV to VO order in the history of English, using new data and the kind of sophisticated statistical techniques that have now become associated with their work. They argue, contra earlier analyses that see a clean break between Old English OV and Middle English VO, that the transition was gradual – that underlying VO order was already present in late Old English texts, where it alternated with the older underlying OV order, and that some of the OV orders of early Middle English are still underlyingly OV. In order to make sense of very complex data, in which underlying orders are frequently disguised by operations such as stylistic fronting and scrambling, they devise ingenious methods for teasing apart basic and derived word orders. They are able to determine, for example, that only quantified phrases scramble leftward in early Middle English, and thus that OV orders with nonquantified objects are underlyingly verb-final. Although this technique necessarily produces rather small numbers in many of the finely-distinguished word-order categories which they are able to posit, the composite effect of their careful statistical analyses makes a very convincing case both for their main claim and for the effectiveness of their methodology.

Ana Maria Martins' innovation (chapter 8, 'Polarity items in Romance: underspecification and lexical change') is to adapt underspecification theory to the problem of changes in syntactic features. She presents a diachronic and cross-dialectal view of the syntactic behavior of polarity items in Romance, first showing that Old Romance had a system in which both of the following properties held of negative indefinites: (i) they obligatorily co-occurred with the sentential negation element, and (ii) they were permitted in non-negative modal contexts. None of the modern Romance languages or dialects continues this pattern; rather, all have either lost the environment in (ii), or else lost (completely or optionally) the co-occurring sentential negator in (i), or else they have lost both. Martins captures these generalizations with a nonbinary feature system incorporating the notion of underspecification familiar from phonology. To explain the observed diachrony, she observes that there is an evolution in both the (i) and (ii) contexts toward reducing the

degree of variable underspecification. This is a natural development, she claims, because children acquiring language may overlook certain less salient contexts for licensing polarity items.

John Whitman (chapter 9, 'Relabelling') puts forward the novel hypothesis that all instances of syntactic reanalysis (understood as a change in structure without an immediate change in the surface string) are due to 'relabelling', or a change in one lexical item's categorial feature. He further proposes that the effects of this change, which result when the head loses or gains features that need to be checked or can check other items, are limited to the minimal domain (in the sense of Chomsky 1995) of the head. Whitman examines a number of interesting potential examples of 'relabelling', including verb to preposition reanalysis in serial verb constructions in several African languages, the change of Chinese *ba* from V to a functional head, and the change of Chinese *shi* from subject pronoun to copula, an instance of specifier > head reanalysis which he argues to follow from his proposal.

The variety of approaches above, as well as the wide range of historical problems addressed, can be taken, I believe, as an indication of the continuing healthy growth of the once-tiny field of diachronic generative syntax. It will be apparent from the contributions below that a major concern within the field remains that of providing increasingly detailed and sophisticated views of well-known instances of syntactic change. Kroch's (1989) grammar competition model, which hypothesizes that individuals may acquire two grammars with competing values for a given parameter and which predicts an S-shaped curve as the new grammar replaces the old grammar in a population over time, continues to be considered a valuable framework for dealing with apparently gradual change.

In 'Adjuncts and the syntax of subjects' (chapter 5), Eric Haeberli examines the possibility of Topic–Finite Verb–Adjunct–Subject orders in various Germanic languages, in an attempt to shed light on some long-standing controversies about the landing site of various elements in the verb-second constructions of Old English. His study, which is supported by extensive new historical data and a thorough statistical analysis of them, provides evidence for three main conclusions. First, topics in Old English are in the CP domain rather than in the inflectional domain. Second, there is a clear difference between northern and southern Middle English: the latter reflects the OE pattern of allowing an adjunct to intervene between the finite verb and the subject while the former does not. Haeberli further relates this property of the northern dialect to the loss of the AgrSP position, a development linked to its impoverished agreement morphology. These first two results are all the more interesting in that they confirm conclusions made by Kroch & Taylor (1997) on the basis of entirely different data. Finally, the Old English data provide evidence not available from Modern Germanic for placing the adjunct in a functional projection between IP and TP.

Alexander Williams ('Null subjects in Middle English existentials', chapter 8) presents a study of null expletives in the history of English. He documents, with impressive empirical and statistical backing, the rapid decline of expletive pro after about the year 1250 and shows that this change is ultimately tied to the loss of V1 declarative order, which constitutes the most robust context for the licensing of null expletives (which must be c-commanded by the finite verb). In order to make sense of his very complex data, Williams makes several original and convincing arguments in favor of eliminating certain irrelevant sentence types, thereby further supporting the methodology advocated by Kroch & Taylor, mentioned above.

'The value of definite determiners from Old Spanish to Modern Spanish', by Montse Batllori & Francesc Roca (chapter 10), is a 'competing grammars' account (though without extensive statistics) of the reflexes of the Latin demonstrative *ille* in the history of Spanish. The Old Spanish forms *el*, *la*, *los*, *las* participate in two distinct grammars, a conservative one, in which they retain many characteristics of demonstratives (and are generated in the head of a Demonstrative Phrase), and an innovative one, in which they are more like definite articles (and move from Demonstrative Phrase to the higher Determiner Phrase). The older grammar is lost when the movement from Dem^{o} to D^{o} fails to be posited by learners and the determiners are simply base generated in D^{o}, losing their demonstrative characteristics entirely. At this point, the Modern Spanish grammar, which permits the co-occurrence of the *el* forms and true demonstratives (e.g. *el libro este* 'the book this'), develops. This scenario appears to provide another example of the sort of grammaticalization defined by Willis (below), since it involves the reassignment of an element from one functional head to a higher functional head. The editors, in their introduction, also point out that the characteristics of the change observed over time are classic features of grammaticalization, e.g. semantic bleaching, fixing of distribution, loss of movement, and gradualness.

Lars Delsing, in 'From OV to VO in Swedish' (chapter 11), investigates a similar problem to that of Kroch & Taylor. He finds that between the years 1300 and 1600 both orders are found in nonfinite clauses, but he explicitly rejects a 'competing grammars' analysis of this stage. For Delsing, the competing grammars hypothesis is suspect because it is rarely posited for contemporary language use, where speakers' intuitions can be examined (but see comments on Pollock (1997), below). Instead, Delsing isolates two different constructions which, he claims, are both possible because they have, in Minimalist terms, equally costly derivations. Type I objects (regular DPs) are licensed by the filling of the D position inside their own projection; they therefore cease to move to a preverbal position as soon as the underlying OV grammar is lost. Type II objects (pronouns or bare nouns with a 'light' verb, which can be analyzed as NPs without a D) must move to a Spec position to be licensed, and therefore continue to occur preverbally until another change

(perhaps the loss of V to I) makes this impossible in the early seventeenth century. Delsing's fairly large corpus makes this scenario believable, but a different kind of statistical analysis and/or an even larger database might reveal an ongoing competition alongside the clear conditioning he identifies.

Chung-Hye Han (chapter 12, 'The evolution of *do*-support in English imperatives') takes on a thorny problem and proposes an account which appears to effectively answer some important questions raised in the course of Kroch's (1989) discussion of the Grammar Competition Model. Kroch's puzzle was the following: given that the other contexts in which *do*-support develops – affirmative and negative questions and negative declaratives – all rose gradually from 1400 to 1750, why is it that negative imperatives showed very little *do*-support until 1575 and then suddenly jumped to the level of negative declaratives and continued to rise with them? Han argues convincingly that the familiar V to I movement in Middle English must be broken down into several smaller head movements, the two relevant ones of which are V(erb) to Asp(ect) and M(ood) to T(ense), and that these are lost sequentially, the higher one first. When verb movement is lost, *do* is inserted in the higher node as a dummy verb. Arguing that imperatives do not project a T-node, Han shows that the first wave of *do*-support involving M to T did not, therefore, affect them, and that *do*-support could only have been expected to develop once the second wave of verb movement loss began. This account (which is also extended to several other puzzles) can be productively compared to Pollock's (1997) work on the sequential loss of infinitival verb movements in the history of French, the last stage of which is claimed to be still in progress.

Thorbjörg Hróarsdóttir ('Interacting movements in the history of Icelandic', chapter 13) uses an extensive data set on OV/VO variation in the history of Icelandic to make theoretical claims about both synchrony and diachrony. She assumes Kayne's (1994) model, by which VO is the universal base order. The most obvious analysis would derive OV from VO plus leftward object movement and posit the loss of such movement over time. Hróarsdóttir rejects this approach, partly because there is no loss of nominal morphology in the history of Icelandic, which would indicate a change in feature strength, and thus, in Minimalist terms, a change from overt to covert movement. More serious is the problem posed by complex diachronic data involving constructions with two nonfinite verbs. Hróarsdóttir shows that in order to obtain the correct order for the verbs, one would have to posit different types of movement for each of three such Old Icelandic constructions. Yet all three constructions disappeared at the same time. She therefore proposes a quite different account, which has the advantage of tying all three constructions to a single movement (identified as PredP main to Spec PredP fin), which is lost over the course of the eighteenth and nineteenth centuries. This account relies in turn on an analysis of VO vs. OV in which leftward movement of the object to Spec AgrOP is universally

obligatory; what differentiates the two orders is remnant VP preposing, which takes place in VO but not OV languages. Hróarsdóttir is able to generalize many parts of her account to a number of other Germanic languages.

Like Whitman and Batllori & Roca, David Willis (chapter 14, 'Verb movement in Slavonic conditionals') discusses a putative category change, in this case that of the Old Russian clitic *by* from T° (at which stage it is an auxiliary) to C° (where it has been reanalyzed as a conditional marker). Willis's reanalysis, like Batllori & Roca's, involves a moved category being reanalyzed as basic, in that *by* moves to C° in Old Russian and is then reinterpreted as the lexicalization of the C° position. Insofar as C° can be viewed as a gradiently more functional category than T°, Willis views this change as an instance of grammaticalization.

It will be obvious from the preceding summaries that there is a common focus on the individual as the locus of grammar change; relatively little attention is paid to social phenomena such as the spread of new forms (despite frequent reference to the grammar competition model, which characterizes populations as well as individuals). And although language contact has been posited as a major source of the changes in data that provoke parameter shifts (Kroch & Taylor 1997 and herein), none of the other analyses in this volume proposes such an explanation. One can then wonder whether this narrow focus is a necessary by-product of the way in which questions are usually asked within this framework, or whether the social contexts of most past acquisition events are simply irretrievable. Given the enormous progress made in this volume toward characterizing the grammatical nature of many important changes, it seems reasonable to expect that continued empirical study of the phenomena discussed here will reveal, in addition to the 'models' and 'mechanisms' of the volume's subtitle, additional MOTIVATIONS for syntactic change, either from within or from outside of Universal Grammar.

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Peter Svenonius (ed.), *Subjects, expletives, and the EPP* (Oxford Studies in Comparative Syntax). Oxford & New York: Oxford University Press, 2002. Pp. vii + 245.

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This book is a collection of seven papers presented on June 6 and 7, 1997, at a conference in Tromsø bearing the same title as the volume. It addresses a number of interrelated topics in the domain of the syntax of subjects, focusing on expletive constructions and the EPP requirement.

An interesting and well-written introduction by Peter Svenonius opens the volume by outlining the state of the art and giving a brief sketch of the collected papers. Svenonius focuses on the three issues of the title, namely the definition of 'subject', the syntax of expletives, and the EPP.

The empirical coverage of the papers, which have a clear comparative approach, mainly includes Germanic languages, although Romance is well represented, as well as languages belonging to other groups (e.g. Finnish, Hungarian).

On the basis of new data from Vallader, a Rhaeto-Romance variety spoken in the Engadine, Knut Tarald Taraldsen suggests that the *que*/*qui* alternation found with a moved *wh*-subject does not imply an agreeing complementizer, as in existing analyses, but an expletive *i* in Spec,IP, which makes the final vowel of the complementizer *que* elide. This expletive also appears in the colloquial French interrogative construction featuring an enclitic *-ti*. Unlike *il*, expletive *i* does not have any number feature to check. The difference between French, which only allows this expletive in sentences with a moved *wh*-subject, and Vallader, where expletive *i* has a more liberal distribution, is due to the possibility that in the latter language, the number feature of a postverbal subject DP can raise to I without pied-piping the DP, while in the former, this is not possible. In French, the number feature raises from I to C and is checked by the subject raised to Spec,CP.

The definiteness effect is a much studied property of expletive constructions and is discussed in a number of papers in the volume. As convincingly shown by Øystein Alexander Vangsnes, it cannot be attributed to the expletive itself, contrary to what is suggested by existing proposals, which go back to Milsark's (1974) Ph.D. dissertation. Basing his proposal on a detailed analysis of subject positions in Icelandic, Vangsnes shows that on the one hand, the definiteness effect can also be observed on postverbal subjects when no overt expletive is present in the clause, and on the other, that no definiteness effect shows up in transitive expletive constructions (TECs),

where the subject DP appears in an intermediate position to the left of VP (presumably Spec,TP) and cooccurs with an expletive in Spec,IP. Vangsnes adopts a case-based approach to the definiteness effect: the semantic property licensed in the postverbal position is labelled 'weak case', a default case checked in Spec,VP. Vangsnes also rejects the idea that the associate raises to the position of the expletive: if there is no semantic restriction on subjects overtly moved to Spec,AgrSP, why should there be a semantic restriction (the definiteness effect) on subjects moved covertly to the same position? Agreement between the associate and the finite verb, one of the pieces of evidence adduced to motivate the raising of the associate, is accounted for by assuming a very local agreement mechanism: the associate directly agrees with the verb in its merging position V°. Looking at the lexical form of expletives (either a locative or a personal pronoun), it can be concluded that expletives have a deictic feature. This is checked in a projection located between I and C, which anchors the state-of-affairs with respect to the participants in the act, in particular the subject.

Anders Holmberg & Urpo Nikanne discuss a particular property of Finnish, namely the fact that it is a null-subject language displaying an overt expletive, thereby differing from other null-subject languages, such as those from the Romance family. The overt expletive appears in sentence-initial position in sentences where no other potential topic appears. According to Holmberg & Nikanne, this is due to the fact that the EPP feature, interpreted as a negatively specified Focus feature, [−Foc], and located in the F head containing the 'subject' properties, is optional in Finnish. If the EPP feature is present, either an XP must be topicalized or the overt expletive is inserted to check it. The expletive has no phi-features or nominative case; it is a pure expletive that does not control agreement. Agreement and case are checked covertly by the associate of the expletive.

Katalin É. Kiss discusses the EPP requirement in another Topic-prominent language, Hungarian. The requirement that every sentence should have a subject seems to be violated when the preverbal position is filled by an argument different from the subject or is empty. É. Kiss suggests interpreting the EPP as a predication requirement: sentences must contain a subject of predication, which need not be the grammatical subject. In topicless, verb-initial sentences, the predication relation can also be instantiated by the Davidsonian event argument. This makes Hungarian sentences with a non-subject topic compatible with the EPP. The semantic EPP requirement interacts with another syntactic phenomenon: how grammatical subject marking (nominative case marking) takes place. In English, it is obtained syntactically through movement of the most prominent argument to Spec,TP; this is why the subject of predication always coincides with the grammatical subject. In Hungarian, subject marking is a lexical-morphological process which does not involve Spec,TP. Evidence comes from the fact that Hungarian does not display any grammatical function-changing processes,

such as passive, raising, exceptional case-marking, and the like. This results in a dissociation of the two subject properties in that language.

A different understanding of the EPP is suggested by Ian Roberts & Anna Roussou, in an analysis which also makes it possible to have a unified account of the EPP and the V2 requirement. They take these two requirements to depend on a condition on T: THE HEAD CONTAINING T MUST HAVE A FILLED SPECIFIER. When the T feature is spelled out in the IP domain, its specifier, an A-position, is filled by a DP; when T is realized in the CP domain, any XP can fill the Spec,CP specifier, an A′ position. The ultimate reason for the above condition is that T must be bound, i.e. it enters a chain/dependency with AgrS and C. DP and XP-fronting take place to identify the dependency as an AgrS-dependency or as a C-dependency, respectively. As for null-subject languages, the EPP is satisfied by the AgrS head itself, which has fully specified nominal features. Since T is not present in nominals, this analysis also accounts for the fact that EPP effects are absent in nominals.

Studying the distribution of subject clitics in northern Italian dialects, M. Rita Manzini & Leonardo M. Savoia consider how EPP and agreement relate to the null-subject parameter. They suggest that subject clitics are realized in a functional category D, which immediately dominates Infl. This category also needs to be realized in English, but this language does not possess a specialized lexical element to realize it, hence the obligatory presence of a subject DP (the EPP effect). In null-subject languages, D is checked by the finite verb. This analysis guarantees that the basic functional structure of the sentence is universal, and attributes language variation to the way features are realized at the PF interface.

Peter Svenonius discusses the placement of adverbs with respect to subjects and objects. Since a fair amount of variability in adverb placement is observed that cannot be explained through verb movement across the adverbs, Svenonius concludes that a clause structure à la Cinque, containing functional heads each hosting an adverb, is not a viable hypothesis. He suggests that adverbs can be adjoined at different levels of the sentence and that more than one adverb can be adjoined to one and the same projection. Ordering restrictions are not attributed to the obligatory sequence of functional heads but to semantic interactions among the adverbs. Looking at the respective order of adverbs and subjects, Svenonius shows that there are both distributional and interpretive differences across Germanic languages. These depend on the way the [+Topic] feature, which is located in AgrS, is assigned to different subject types in different languages.

This book should be read by everybody interested in the theory of syntax and in comparative syntax. Given the broad empirical and theoretical coverage, it might very well be used in syntax courses for advanced students.

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