REVIEWS

Margaret Deuchar & Suzanne Quay, *Bilingual acquisition: theoretical implications of a case study*. Oxford: Oxford University Press, 2000. Pp. x + 163.

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This book reports on the simultaneous acquisition of English and Spanish as first languages, bringing together earlier work of both authors (see, e.g. Quay 1995; Deuchar & Clark 1996; Deuchar & Quay 1998, 1999; Deuchar 1999). Although a vast literature is available on language acquisition in bilingual children, comparatively few empirical studies analyze data from children under age 2. Deuchar & Quay's book deals with the well-known question of 'one or two initial systems' in a bilingual child from the very first words to the emergence of multiword utterances. The age range covered is from 0;10 (10 months) to 2;3 (two years, three months).

The table of contents lists seven chapters: the first two introduce the study and the methodology used, four chapters are concerned with phonological, lexical and syntactic acquisition and with language choice, and the final chapter points out directions for future research. The reader is also provided with a list of figures (19 in total) as well as with a list of tables (16 in total). Overall, the book is thoroughly written, well structured, and, remarkably, contains neither foot- nor endnotes in the text. Deuchar & Quay explain their methodology very explicitly and guide the reader by clearly announcing the content of following sections and by repeatedly summarizing findings and conclusions. However, as the book consists of only 116 pages of text, of which a considerable part is devoted to these summaries, one would have preferred a more detailed data analysis and discussion. Moreover, as the overview of previous research is more than selective, a reader not familiar with bilingual first language acquisition will be left wondering which of the results really present new evidence and which ones confirm earlier studies. Data presentation is generally clear, although some tables (5.5., 6.1. and 6.2.) would benefit from a separate presentation of the two languages and language contexts. A condensed bibliography and an index follow three appendices, which provide ample information about data collection, the child's cumulative lexicon and early multiword utterances.

The first chapter considers general aspects of case studies and gives a

detailed account of the child's linguistic environment. The child M, daughter of the first author – a native speaker of English – and of a Spanish-speaking father, grew up in England being exposed to both languages as a function of location as well as of interlocutor. Both parents spoke Spanish to her in the home, but English outside the home and also whenever monolingual English speakers were present. Before giving more information on the data collection in chapter 2, Deuchar & Quay briefly address some recent publications on bilingual acquisition. They conclude that their study differs from others in that the child is much younger, that data have been collected far more frequently and in two separate language contexts and in that it has an explicit theoretical orientation. While this is certainly true for the first two aspects mentioned, it is far less clear for the third and last ones: most recent studies report on data collected in separate contexts, and although the authors insist repeatedly on this theoretical aspect, there are few references to any particular theory of language acquisition or to linguistic theory in general.

Chapter 2, 'Methodology of data collection and transcription', offers a detailed description of the data collection procedure. Apart from daily diary notes, weekly audiovideo recordings were made in both language contexts. These recordings were transcribed in the CHAT format of the CHILDES system (MacWhinney 2000).

Chapter 3, titled 'Some aspects of phonological acquisition', addresses the question of whether a young bilingual child has one or two phonological systems. The analysis of M's phonemic inventory at age 1;10 reveals that each word generally reflected the sounds of the respective input language, but it could not be established whether her phonological representations were linked to two languages or simply to specific words. In order to find out more about the nature of a system in terms of contrasts, the second part of the chapter is devoted to the voicing contrast in utterance-initial stops, measured in differences of VOT (voice onset time). On the basis of the acoustic analysis of M's production at three different ages, a gradual development was observed from no system of contrasts at age 1;7 towards the establishment of the voicing contrast in English between ages 1;11 and 2;3 and the beginnings of a different (however not adult-like) contrast in Spanish at age 2;3. These results appear to be in accordance with findings on the monolingual acquisition of the voicing contrast in both English and Spanish. Deuchar & Quay propose to explain the difference in acquisition in terms of the relative acoustic salience of lag differences in the input, lag differences in the English input being much larger than in the Spanish input the child received.

Chapter 4, 'Acquisition of the lexicon', is concerned with the question of one or two lexical systems, traditionally associated with the production of translation equivalents. The analysis of M's lexicon shows that bilingual children can produce such equivalents from the beginning of speech production. According to Deuchar & Quay, these findings disconfirm Clark's

(1987) principle of contrast, which states that for reasons of economy in acquisition, children will tend to avoid acquiring synonyms in early developmental phases. However, as this avoidance strategy is assumed to operate within each language system separately, the question thus is whether the presence of equivalents necessarily means language differentiation on the lexical level and whether one can speak of a lexical system at all at this stage. This problem has been discussed by various researchers before. However, Deuchar & Quay do not take a clear stand on this issue, stating that one cannot 'argue in a theory-independent way that translation equivalents indicate two separate lexicons' (64). This is one of several occasions where one wonders why a study emphasizing its theoretical orientation would wish to argue without and not within some specific linguistic theory.

In chapter 5, titled 'The emergence of syntax', two questions are addressed: whether early mixed utterances give evidence of a single initial system, and whether utterances containing words from one or the other language exhibit the same or a different syntax. Although in the domain of early language mixing, the one-system hypothesis has been convincingly disconfirmed before, Deuchar & Quay only report on a limited number of studies and present the issue as still open. In their own analysis of early two-word utterances, the child is shown to generally use Spanish words in the Spanish context and English words in the English context. Mixed utterances are mainly due to lexical need, i.e. the child may use a Spanish word in the English context if she does not yet know the corresponding English item. These findings are not surprising, but are well in line with previous research.

Turning now to the syntax of early two-word utterances, Deuchar & Quay decide not to conduct a separate analysis for each language. It might thus be an artifact of the methodology that they find all two-word utterances to exhibit a predicate-argument structure (which is claimed to exemplify a 'rudimentary syntax') and that no variation in word order could be discerned. A further problem here might be that no quantitative analyses were performed, the data mainly consisting of type utterances from the diary. Deuchar & Quay discuss Radford's (1988) account of early two-word utterances as having the structure of adult small clauses, which combine an NP and another lexical category. Deuchar & Quay emphasize that some of M's early utterances apparently cannot be accounted for in this framework. However, they do not address its more recent formulation within the framework of X-bar theory (see e.g. Radford 1995), nor do they discuss any other accounts of early syntax.

Deuchar & Quay further argue that the emergence of two syntactic systems in their case can only be observed once language-specific morphology occurs. From age 1;11 onwards, some contrasting verb forms, the English-specific possessive marker and correct adjective agreement in Spanish were attested. However, data presentation is restricted to a few examples, and it is not always clear whether the forms are productive. Most probably, the

database has been too small for a systematic analysis. Deuchar & Quay also seem to exclude the possibility of discerning differences in word order, as they regard Spanish and English as being too similar in this respect. However, a salient contrast that might have been fruitful to explore is that Spanish is a null-subject language while English is not. Although there is no discussion of the possible syntactic representation of the cited examples, Deuchar & Quay believe they have shown that there are two syntactic systems from age 1;11 because inflections are only used language-specifically. They do not take into account that, if Spanish morphology had occurred on English lexical items for example, this would not automatically represent evidence for a single system, but might also be the outcome of borrowing or code-switching processes.

Chapter 6, 'Language choice', takes up the issue of lexical differentiation again and therefore needs to repeat some of the findings and the argumentation from chapter 4. This could have been avoided given a different order of chapters. Bilingual children have been previously shown to exhibit appropriate language choice before age 2;0. Even though Deuchar & Quay expect this ability to develop gradually, they do not consider their data chronologically, but instead examine the proportion of appropriate language choices at two different ages. Statistical analyses show a significant tendency for words to match the context at the ages of 1;7–1;8. The use of a higher proportion of Spanish items in the English context than vice versa is explained by the fact that the English recordings were usually conducted in the home, which was the usual context for Spanish to be used. Moreover, the presence of the bilingual mother in the recordings as well as the behavior of the English-speaking interlocutor who did not insist on the use of English might have influenced the child towards the use of more Spanish.

The results of the study are summarized in chapter 7, titled 'Conclusion and implications'. The aim of the study, as emphasized by the authors, was to explore the implications of this case study for language acquisition theory and, more specifically, for bilingual language acquisition. However, the findings are not discussed with reference to theoretical models of language acquisition or of bilingual competence. The 'theoretical orientation' of the book apparently means testing of hypotheses that have been advanced in previous research. It is regrettable that there is so little discussion of these hypotheses on a theoretical level. For example, while the chapter on syntax makes use of some concepts of generative language acquisition theory, these references remain no more than implicit. It follows that conclusions such as 'one should consider the syntax of all utterances together' (112–113), referring to early two-word utterances, are not independently motivated. Finally, chapter 7 also refers to research and addresses some aspects that have not been mentioned before, but should have been, for a more fruitful discussion of the data.

All in all, the book's main shortcoming is perhaps that its title is too ambitious. However, the study has been conducted with a very sound methodology, and the data obtained are a valuable source of information on the beginnings of bilingual acquisition. This is particularly true concerning the analysis of the early lexicon. One remaining problem, which is common in studies of very young children, is that there are still far too few data for definitive conclusions concerning the earliest phases of bilingual language acquisition. But especially in the domain of phonological acquisition, Deuchar & Quay's work shows very clearly what needs to be done in future research.

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Sheila Embleton, John E. Joseph & Hans-Josef Niederehe (eds.), *The emergence of the modern language sciences: studies on the transition from historical-comparative to structural linguistics in honour of E. F. K. Koerner*, vol. I: *Historiographical perspectives* & vol. II: *Methodological perspectives and applications.* Philadelphia & Amsterdam: John Benjamins, 1999. Pp. lv+311 (vol. I); pp. lv+335 (vol. II).

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These two volumes honor a scholar, editor and organizer whose work during the past 30 years has had a unique impact on the field of linguistics in general

and on the development and establishment of the history of the language sciences as a field of study in its own right. The diverse topics covered in the 42 papers brought together here reflect E. F. K. Koerner's own interests and achievements. The volumes are identical in sharing the editors' introduction, a bibliography of the honoree's writings, and a *tabula gratulatoria*. The editors' introduction gives an overview of received interpretations of Ferdinand de Saussure's (1857–1913) *Cours de linguistique générale* (1916), Koerner's opposing and revisionary views, and his organizational and editorial accomplishments. This is followed by a bibliography of Koerner's writings produced between 1968 and 1999. Each volume contains its own name and subject indices, and a table of contents of its companion tome. Bibliographical information for individual contributions is given at the end of each paper.

The three parts of volume I offer historiographical perspectives, chronologically organized around the work of Saussure. The first paper in part I, by Lia Formigari, focuses on the fate of general grammar during the rise of comparative grammar and the separation of science and philosophy. The German philosophers August F. Bernhardi (1770–1820) and Karl Wilhelm Ludwig Heyse (1797–1820) attempted to overcome the inductive and a posteriori limitations of both grammatical traditions by providing a transcendental basis from within a Kantian and Hegelian framework, respectively. They condemned both traditions because they were descriptive rather than foundational. This position relegated methodological oppositions existing between both approaches to the background of the discussion. The concerns of general grammar survived, however, in the work of Karl Philipp Moritz (1756–1793) and Johann Friedrich Herbart (1776–1841), albeit in transformed form within their different psychological frameworks.

Jan Noordegraf discusses the presence of botanical metaphors and analogies in the work of Matthias de Vries (1820–1892) and the writings of Lambert ten Kate (1647–1731), Tiberius Hemsterhuis (1685–1766) and Lodewijk Caspar Valckenaer (1715–1785). Noordegraf suggests that the work of the Schola Hemsterhuisiana exhibited 'a certain awareness of the autonomy of language' and its systematic character (20).

Gerda Hassler outlines the theoretical considerations underlying Pierre Benjamin Lafaye's (1809–1867) dictionary of synonyms. Lafaye realized that dictionary entries erroneously presupposed identity of meaning between definiendum and definiens. The use of synonyms whose meanings were left unanalyzed resulted inevitably in circular definitions. Lafaye's dictionary was to give semantic analyses of the differences in shades of meaning in synonyms and to complement general dictionaries. Determining differences in meaning between synonyms with the same root was based on generalizations drawn from the semantic analysis of their affixes. The study of the semantic differences between synonyms with different roots had to be based on an analysis of the elementary components of the complex ideas they

signified. Synonymic relations between words in this class were due to elementary ideas they had in common.

D. Gary Miller looks at Samuel Kleinschmidt's (1814–1866) achievements as syntactician in his grammar of Greenlandic (Kleinschmidt 1851). Miller's discussion of the syntactic behavior of what Kleinschmidt called infinitives and participles offers some interesting and valuable insights from the viewpoint of modern syntactic theory, but it does not provide a historiographically satisfactory account of Kleinschmidt's analysis of this aspect of Greenlandic syntax. For example, Miller's wording in English of Kleinschmidt's observations on syntactic contexts involving infinitives and two negations is problematic. His rendering of Kleinschmidt's statement that negations 'einander bis zu einem gewissen grade aufheben' [cancel each other out up to a certain degree] (Kleinschmitt 1851 : 92–93) as 'the global meaning will be affirmative' (44) is clearly not adequate. This, together with a general disregard for Kleinschmidt's metalanguage and a notable tendency to keep Kleinschmidt's *Originalton* at a minimum, creates an obstacle to understanding Kleinschmidt's actual achievements in the study of the syntax of Greenlandic.

John E. Joseph outlines A. Dufriche-Desgenettes' (1804–1878) life and career as a phonetician working outside the academic establishment. The core of the paper is dedicated to eleven letters by Dufriche to Louis Havet (1849–1925), written between 1873 and 1875. Joseph locates the first use of the term 'phoneme' by its originator Dufriche in these letters and traces it to Saussure via Havet. The letters also contain observations on Dufriche's vowel triangle, phonetic alphabet, and insistence on the difference between phonetics and phonology.

Kurt R. Jankowsky's chapter covers Henry Sweet's (1845–1912) and Eduard Sievers's (1850–1932) role in the development of linguistics. He provides detailed biographical sketches and overviews of both scholars' work. Jankowsky focuses on their contributions in phonetics, which were to have a substantial influence on historical linguistics, and on their implicit reliance on the notion of 'phoneme'.

In the last contribution to part I, Maxim I. Stamenov introduces the work of Ivan Georgov (1862–1936), the Bulgarian pioneer in the study of L1 acquisition and the development of self-awareness in children. Stamenov discusses in detail Georgov's study of his two sons' acquisition of Bulgarian and offers an insightful critique of his methodology and data. Georgov was the first to propose that the acquisition of personal pronouns, inflections of finite verbs, reflexive pronouns, and possessive pronouns and the conceptual categories they stand for was 'intertwined and made dependent on each other during L1A' (101). Georgov conducted a cross-linguistic study of the acquisition of personal and possessive pronouns, showing that children learned how to use personal pronouns before possessive pronouns.

Part II is opened up by Douglas A. Kibbee's inquiry into the notion of 'the

people and their language' in French linguistics and Saussure's *Cours* (112). Kibbee traces Saussure's views on the development and the relation between dialects and the literary language back to ideas already existing in 19th-century French linguistics. By concentrating on the oppositions continuity/discontinuity, unity/disunity, and nature/artifice in works in 19th-century French historical linguistics, Kibbee shows how the consensual interpretation of the language of the people, which viewed literary language as an artificial development, informed historical work during this period and how Saussure is indebted to this tradition.

Saussure's portrayal of comparativists and Neogrammarians in his *Cours* forms the topic of George Wolfe's contribution. Saussure believed that, because comparativists adhered to a naturalist/organicist view of language and utilized written data in their work, they were unable to achieve a genuine 'historical perspective' on the development of language. For Saussure, such a perspective, together with a simultaneous shift to viewing language as a collective product, eventually developed within the Neogrammarian framework. However, the latter fell short of discovering the ultimate goals of linguistic science. One of these goals was 'writing the history of all known languages', providing the basis for the derivation of more general laws (136).

W. Terrence Gordon & Henry G. Schogt analyze Saussure's *Cours* and notes on anagrams taken between 1906 and 1909. After giving an overview of Saussure's notes on the *loi de couplaison* and hypograms in Latin verse, the authors discuss eight complementarities (*langue/parole*, *signifiant/signifié*, *synchronique/diachronique*, *forme/substance*, *signification/valeur*, *différence/opposition*, *syntagmatique/associatif*, and *arbitraire/motivé*) put forward in the *Cours* in relation to the notes on anagrams. The authors identify a ninth complementarity, *arbitariness/linearity*, which differs from the others in that linearity is a descriptive feature in the *Cours*. In Saussure's anagrams, however, this feature becomes 'functional, or at least dynamic'; linearity is still maintained in the signifier albeit 'without contiguity' (143).

Brigitte Nerlich is concerned with the development of Saussure's and Ludwig Wittgenstein's (1889–1951) ideas on the identity of linguistic signs. For both men, the identity of linguistic signs was not a question of substance. Saussure complemented his relational view of identity already present in his early work with his later realization that, in spite of changes to the substance of a linguistic sign, it 'remains "the same"' if speakers use it '"in the same way" and recognize it as the same in all its variation' (166). In Wittgenstein's early formal work, the question of identity was relegated to psychology, but in his later writings on ordinary language the identity of a linguistic sign was viewed as emerging from social practice, i.e., the following of rules guaranteeing that a sign was used in particular situations.

Anders Ahlqvist supplies a preliminary introduction to Saussure's Old Irish copybook. The copybook, housed at the University Library in Geneva, contains Saussure's notes taken in lectures given by Ernst Windisch

(1844–1918) between 1876 and 1877. The copybook reveals what was central to the teaching of Old Irish during the period. Ahlqvist provides brief commentaries on Saussure's notes, which include observations on the task of Celtic Studies, the Old Irish sound system, and the declination of stems.

The late introduction of Saussure's work in Bulgaria is documented by Jivco Boyadjiev. The author traces the successive reception of Saussure as a comparativist, semiologist and general linguist in the writings of Bulgarian linguists and in textbooks available in the country. The first complete translation of Saussure's *Cours* into Bulgarian was only recently accomplished (Sosjur 1992).

The first essay of part III, by Emilio Ridruejo, situates Ramón Menéndez Pidal's (1869–1968) conception of phonetic change against the background of Schleicherian/Neogrammarian ideas and idealism. Central to Menéndez Pidal's work was his view of traditional articulatory habits as forming the basis for phonetic laws. These laws introduced changes in the sound system of a given language by gradually unfolding into a certain direction over a long period of time. The origin, diffusion and limitation of sound changes were not explained by system-internal factors, but by means of social and historical events, e.g. the acquisition of a new first language by a population.

Werner Hüllen examines national tones in German linguistic writings produced between 1914 and 1945. He argues that the ambiguity inherent in terms used in linguistics, such as *Muttersprache* and *Volk*, allowed their being used and '(mis-)understood' in different political contexts (223). Hüllen identifies letters, addresses and teachers' study aides as text types that readily lent themselves to incorporating national overtones in linguistic topics, and he discusses the topics of national deification of language, national kitsch, national actionism, and national prejudice in some representative text samples.

Joseph L. Subbiondo draws attention to the role of the history of linguistics in J. R. Firth's (1890–1960) *The tongues of men* (1937). Unlike Leonard Bloomfield (1887–1949), Firth acknowledged the existence of linguistic traditions and achievements predating the 19th century, and he insisted on their relevance for modern linguists. Firth viewed modern attempts at constructing languages like Esperanto or Basic English as a continuation of 17th century efforts to design philosophical languages serving as universal means of communication. Subbiondo suggests that the importance of the history of linguistics in Firth's work secured it a place in the British linguistic tradition, a characteristic that separates it from American linguistics where, in the wake of Bloomfield, an ahistorical attitude prevailed.

Cristina Altman discusses Joaquim Mattoso Câmara's (1904–1970) eclectic reception of European and American structuralist ideas and the role of the Summer Institute of Linguistics in preparing the ground for Brazilian linguists' embracing of structuralism in the 1960s. This process was marked

by a break with the philological establishment and a simultaneous demotion of diachronic work. Contemporary work in Brazilian linguistics is characterized by a 'neutralization of the opposition' between synchronic and diachronic linguistics and by the recovery and study of indigenous linguistic productions and traditions (256).

Stephen O. Murray furnishes convincing evidence that Chomsky's early work during the 1950s and 1960s was not rejected by the establishment but received positively. The Neo-Bloomfieldians viewed Chomsky's *Syntactic structures* (1957) as an application of structuralist principles to syntax rather than an attempt to oust structuralism. Chomsky's manuscript of *The logical structure of linguistic theory* (1975), instead of being rejected as unpublishable, was actually solicited by two publishers.

Danny D. Steinberg traces Chomsky's thinking on psychology from an early anti-mentalistic stance to his adoption of a mentalist position. Throughout this development, Chomsky's view of syntax as primary and autonomous remained the same, and he adhered to a division of labor between linguists and psychologists with the former designing generative grammars and the latter developing models of speech performance incorporating generative grammars. Steinberg argues that the secondary role of semantics in Chomsky's grammars disqualifies their use in speech performance models. He suggests that the syntactic derivations and rules of Chomsky's grammar be 'simply regarded as *connecting fictions*' (279) and urges linguists and psychologists to cooperate in developing more adequate grammars.

Joseph F. Kess & Tadao Miyamato's account of the history of Japanese psycholinguistics concludes volume I. Kess & Miyamoto provide an overview of the development and institutionalization of Japanese psychology from its beginnings in the late 19th century up to the present. A brief discussion of the central texts in Japanese psycholinguistics illustrates the discipline's alliance with psychology and recent movement towards cognitive science. Japanese research in psycholinguistics focusing on 'lexical access, word recognition, and the structure of the mental lexicon of Japanese' is given special attention (288).

Methodological perspectives and applications are the topics of the second volume of this Festschrift. The former topic is the focus of part IV, which begins with Regna Darnell's treatment of Indo-European methodology in the history of Native American historical linguistics. In response to Campbell's (1997) interpretation of the history of the field as developing independently from anthropology, Darnell offers an alternative reading which questions John W. Powell's (1834–1902) reliance on Indo-European methodology, emphasizes the role of Americanist linguistics 'as a handmaiden to Boasian ethnology' (6), and focuses on Indo-European methodology in the work of Edward Sapir (1884–1939) and Bloomfield.

Saul Levin highlights the importance of precise phonetic transcription

systems in linguistics. He discusses developments in Greek and Latin orthographic conventions, such as Pierre de la Ramée's (1515–1572) redefinition of Latin ⟨v⟩ as representing a voiced labial fricative, a value which 'deviated from the ancient semivowel' it stood for (19). Levin further shows that the use of ⟨a⟩ in transcriptions of Sanskrit in Latin orthography by contemporary Indo-Europeanists does not accurately represent its true phonetic value [ʌ]. He concludes with critical remarks on some IPA conventions and phonetic and phonemic representations in Spanish, Sanskrit, Arabic and Biblical Hebrew.

Ranko Bugarksi traces the emergence of the autonomy of the science of linguistics and of its specific object domain in the work of Saussure, Louis Hjelmslev (1899–1965), Bloomfield and Chomsky. He proposes that the development of the autonomy of linguistics unfolded from a heteronomous/pre-structuralist via an autonomous/structuralist to an autonomous-interdisciplinary stage. Bugarski objects to the reduction of linguistics to semiotics, psychology or sociology, but favors a linguistics that cooperates and integrates with other sciences while still preserving its autonomy.

E. Wyn Roberts surveys definitions of and arguments for and against the use of the concept of zero in morphology and phonology in modern linguistic theories. He chastises linguists for relying on unquestioned assumptions and/or operating with inadequate definitions of linguistic zero. Roberts believes that an understanding of linguistic zero 'as a place where there is minimal value, or energy' would solve the problems hitherto associated with the concept (64).

The debate over the status of linguists' theoretical constructs is joined by Gary D. Prideaux. Based on his own research in psycholinguistics and discourse analysis, focusing on markedness and constituent structure and closure in written and oral English texts, Prideaux argues that these constructs are not fictional but have 'empirical content in terms of language production and representation' (77).

John T. Jensen documents the gradual transition from ordered rules to ranked constraints in modern phonological theory. He offers a concise account of the solutions proposed in early generative phonology, lexical phonology, harmonic phonology, cognitive phonology, optimality theory and sympathy theory, which are illustrated nicely with data from Yawelmani.

The essays comprising part V concentrate on Indo-European linguistics. Allan R. Bomhard delineates the history of research relating Indo-European to other linguistic groups from the 19th century to the present. The bulk of the paper is dedicated to the work of Vladislav M. Illič-Svityč and Aaron B. Dolgopolsky, which stimulated a renewed interest in distant linguistic relationships in the 1960s, and to J. Greenberg's and A. R. Bomhard's more recent proposals, both of which consider Indo-European as a member of a Eurasiatic group, a subgroup of Nostratic.

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Thomas V. Gamkrelidze shows how findings in synchronic and diachronic typology make the series of glottalized, voiced(-aspirate) and voiceless(-aspirate) stops postulated in Glottalic Theory a better candidate for the consonant system of Proto-Indo-European. Gamkrelidze views opposition to Glottalic Theory as one sign of its '"paradigmatic" character' (113).

Helena Kurzová reviews the development and treatment of the middle voice in Indo-European languages. Language typology indicates that the middle voice is characteristic of subject-oriented languages. Kurzóva identifies as the common meaning of middle-passives that "the verb is not oriented towards the prototypical subject ≡ agent" and suggests that middle-passives developed from active/agentive verbs (119).

Carol F. Justus re-examines Szemerényi's (1960) interpretation of the Proto-Indo-European number system as being decimal. Based on evidence from the evolution of number systems in the Ancient Near East, Roman numerals and the Germanic upper decades, Justus convincingly argues that Szemerényi's phonological reconstructions clouded the different organization of early counting systems and the signification of their numerical signs. Justus shows that the Roman system and the long hundred system in early Germanic were sequenced collection units employing additive and subtractive strategies, rather than the decimal system presupposed by Szemerényi. Under this analysis Proto-Indo-European *dék'm and *k'mtóm 'were separate words, referring to smaller and larger collection units' (149).

Vit Bubenik's sketch of the treatment of Sanskrit tense and aspect in the works of Berthold Delbrück, J. S. Speijer and William D. Whitney completes this part. The author briefly contrasts Whitney's morphological with Delbrück's and Speijer's semantic approaches, summarizes Pāṇini's analysis of Sanskrit temporal morphology and reviews Whitney's and Speijer's observations on periphrastic temporal constructions in late Classical Sanskrit. Bubenik points out that each of the three authors falls short of explicitly discussing Sanskrit aspect and Aktionsart in their work.

Part VI is dedicated to Latin and comparative Romance linguistics. Philip Baldi illustrates the impact of new discoveries on Indo-European historical linguistics by means of two short Latin texts. The Lapis Satricanus inscription (pre-500 BCE) contains the first attested instance of the old genitive ending -osio and shows that the shift of intervocalic *s to r had not taken place yet. For Baldi, the presence of the form esom 'I am' in the inscription on the Garigliano Bowl (5th century BCE) corroborates Proto-Italic *esom and makes *h₁ésmi a more likely Proto-Indo-European form.

Roger Wright criticizes historical-comparative and structuralist approaches to studying the history of the Romance languages for their neglect of historical contexts, which has resulted in misleading representations of the evolution of this language family. He advocates a historical-sociolinguistic turn in Romance historical linguistics that discards the Indo-

European tree model and takes into account interdialects and variation within languages.

Martin Maiden points out the relevance of earlier diachronic analyses of empty affixes in Romance linguistics for work in autonomous morphology. He believes that the findings contained in these contributions constitute evidence for 'consider[ing] morphological structure in abstraction from any meaning' (199). Maiden's review of these treatments concentrates on Yakov Malkiel's achievements, in particular on the latter's seminal article on interfixes in Ibero-Romance (Malkiel 1958).

John Charles Smith outlines future research on markedness and changes in Romance past participle agreement. Although he acknowledges the role of hierarchies in morphosyntactic change, he discards assertions identifying them as markedness hierarchies. Evidence from object-participle agreement suggests to Smith that 'the relation of hierarchies of actualization or extension to a general theory of markedness' should be viewed 'as epiphenomenal' (212). Smith favors a functional account based on sentence-processing strategies.

A genetic, geographic and typological comparative perspective on Daco-Romanian and the surrounding Balkan languages is offered by Brian D. Joseph. He suggests that similarities in the interplay between prepositions and definiteness, together with parallels in stress patterns, in Daco-Romanian and Albanian, reflect a Proto-Albanian substratum. The simple past meaning of the Daco-Romanian compound perfect indicates that the language is more Romance than Balkan. Typologically, Daco-Romanian resembles Greek in constructions involving *tough*-movement, but differs from both Romance and Balkan languages in that the feminine singular accusative weak pronoun follows the participle in compound perfect-like constructions.

The last part of volume II contains essays on various topics in Germanic, Caucasian and Asian linguistics. David J. Holsinger & Joseph C. Salmons argue against positions that see primary *Umlaut* in early Old High German as a purely morpholexically conditioned phenomenon. The existence of umlauted and non-umlauted preterite subjunctive forms of *Rückumlaut* verbs does not support such claims. The authors suggest that these data indicate the development of primary *Umlaut* into a lexical phonological rule during the early stages of Old High German and that they provide a window to 'the beginnings of the morphologization of umlaut' (249).

Robert A. Hall, Jr. (1911–1997) reaffirms the authenticity of the Kensington Runic inscription, whose language has been identified as Old Bohuslänsk. Hall argues further for the authenticity of the text by providing a discursive analysis of its three sections, background, event and further background, which concentrates on the role of topicalization, redundancy and stress in creating textual cohesion.

Matsuji Tajima documents the development of compound gerunds in early Modern English texts. The perfect and passive gerunds appeared

earlier than has been assumed. The perfect gerund already occurred in early
16th century texts while the passive gerund was already present in Middle
English in early and mid 15th century writings. However, both gerunds
continued to be infrequent even in the early 17th century. Tajima did not find
any instances of the perfect passive gerund in his early Modern English
corpus, but gives examples of its presence in 19th century texts.

The interplay of synchronic and diachronic elements in the system of male
and female gender affixes in Tsez, a member of the Tsezic branch of the
Nakh-Daghestanian family, is explored by Bernard Comrie. Members of
noun class I, denoting male humans, are marked by *o* while those of noun
class II, denoting female humans and inanimate objects, are marked by *i/y*
and *u/w*. Comparative data from other Nakh-Daghestanian languages seem
to indicate, however, that *u/w* mark the members of class I. Comrie suggests
that in the development of the Tsezic languages, the marking of class II
nouns by *i/y* has been invariable while the marking of class I nouns by *u/w*
'has been disrupted by the loss of any overt' markers on class I, a process
that was accompanied by an innovative affiliation of *u* with class II (286).

Alexander Vovin argues against interpretations of the Old Korean
phonogram ㅂ as representing a voiceless fricative. Relying on evidence
from Old Chinese reconstruction and Koguryo writing, he suggests that in
the Old Korean and Koguryo systems this phonogram represented 'lateral
/l/ (or rhotic /r/)'. In his opinion, the phonogram had survived from Old
Chinese in a system mainly using 'Middle Chinese readings' (298).

In the final paper of this volume, Paul Sidwell insists on the importance of
historiography in assessing three widely and uncritically accepted Bahnaric
phonological reconstructions from the 1960s. He contends that the
procedures used in these phonological reconstructions do not exemplify the
application of the comparative method, but are 'simple averaging exercise[s]'
(307) that do not explain actual diachronic developments. Sidwell explains
this state of affairs by pointing to the historical context, i.e., the SIL
tradition, whose goals and procedures guided the work on these proposed
'reconstructions'.

The editors of these two volumes have managed to assemble a collection
of papers that celebrates and nicely reverberates the themes central to E. F. K.
Koerner's long and productive career in historical linguistics and the history
of the language sciences. The vast majority of contributions exhibit a high
standard of scholarship in these fields and offer novel and thought-provoking
perspectives. Most importantly, however, some authors in this Festschrift
have lived up to the challenge posed by the compass of the honoree's interests
and achieved a 'Koernerian fusion' by incorporating the history of their
fields in their respective arguments in historical linguistics, thereby
demonstrating the value, importance and relevance of the history of the
language sciences to contemporary issues in linguistics.

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Martin Haspelmath, *Indefinite pronouns* (Oxford Studies in Typology and Linguistic Theory). Oxford: Clarendon Press, 1997. Pp. xvi+364.

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Any book will have some readers, but some books deserve the attention of everyone. Haspelmath's book is one of the second kind. This typological study of indefinite pronouns is wide-ranging, both in the data presented, as well as in the theoretical discussion. Haspelmath shows that the variety of usage of indefinite pronouns in the world's languages is much larger than one might have expected, but he also shows that there are various typological generalisations and restrictions on this variety.

To approach the linguistic diversity, Haspelmath distinguishes nine typologically primitive functions of indefinite pronoun encoding (31–52), as shown here in (1) to (9). An opposition between two of these nine functions is crucial for at least some indefinite pronouns in some languages. There are even more possible functions of indefinite pronouns, but they are left aside for unexplained – yet probably practical – reasons (79–86).

(1)　specific, known to the speaker ('**Somebody** called while you were away: guess who!')

(2)　specific, unknown to the speaker ('I heard **something**, but I couldn't tell what it was.')

(3)　non-specific, irrealis ('Please try **somewhere** else.')

(4)　polar question ('Did anybody tell you **anything** about it?')

(5)   conditional protasis ('If you see **anything**, tell me immediately.')
(6)   indirect negations ('I don't think that **anybody** knows the answer.')
(7)   direct negation ('**Nobody** knows the answer.')
(8)   standard of comparison ('In Freiburg, the weather is nicer than **anywhere** in Germany.')
(9)   free choice ('**Anybody** can solve this simple problem.')

The book consists of nine chapters and two extensive appendices. Chapter 1 is a short survey of the content of the book in five pages. Although the style is rather dry, these pages immediately put one in the midst of the subject. Chapter 2 is the real introduction. Here, the definition of the subject is presented (9–13), earlier work on the subject is discussed (13–15) and some comments on the typological method are made (7–9, 15–20). An important problem which Haspelmath faced is that information on indefinite pronouns is hard to find in reference grammars. Consequently, the main body of Haspelmath's investigation is based on a (still very large) sample of 40 languages on which detailed information was available – in printed format or in the form of linguistically skilled informants. However, the constraint of availability makes the sample Eurocentric. Luckily, the encoding of indefinite pronouns shows high variability. Even close relatives show considerable differences. The 40-language sample is thus sufficiently diverse for a cross-linguistic investigation. Later on (in chapter 9), some hypotheses that arise from the 40-language sample are tested using less complete data from a sample of 100 languages based on reference grammars.

Chapter 3 presents what I would like to call a CROSS-LINGUISTIC INVESTIGATION. In this chapter, the variation of indefinite pronouns is discussed, both in their form and function, using examples from a wide array of languages. The result is an impressive catalogue of phenomena that are traditionally classed under the general heading 'indefinite pronoun'. From now on anybody working in this area will have to take care to take apart the various possible meanings of indefinite pronoun. This cross-linguistic investigation results in a TYPOLOGY of the subject (52), which consists of the nine functions of indefinite pronouns as summarised above. This order of things is exemplary, in my opinion, because a cross-linguistic investigation is a precondition to producing a sensible typology – one that is informed by the possible variation that the typology has to account for. Anybody can make up a set of possible linguistic types, yet not everybody takes the effort to fine-tune the types to the actual variation.

Chapter 4 investigates the interrelation between the types. The nine functions of indefinite pronouns are combined into an implicational map (64), reproduced here as figure 1. Such a map represents the cross-linguistic primitives metaphorically as a semantic space in which closely connected items are placed near each other – in this case enhanced by interconnecting lines.
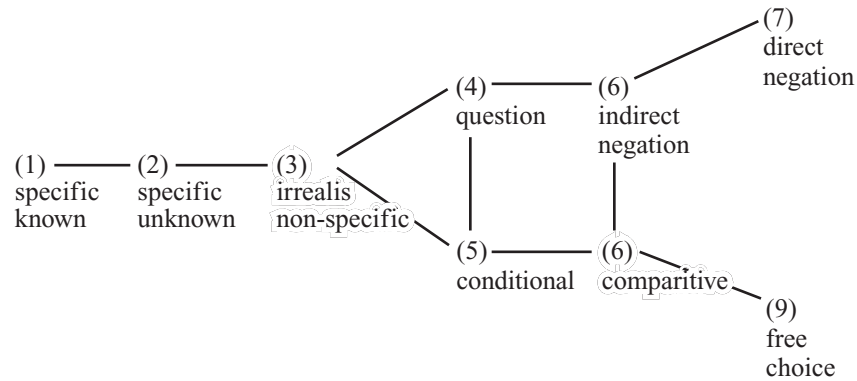
Figure 1
Haspelmath's implicational map for indefinite pronoun functions (63–64)

This map is a strong restriction on possible linguistic structures, as only 10 out of 45 logically possible lines are said to be necessary to account for the linguistic diversity. On the other hand, there are 105 theoretically possible combinations predicted by this model, of which only 39 are actually found by Haspelmath (76).[1] This overgeneralisation is partly countered by introducing two principles (77): 'combinations of fewer than three functions are not possible in the middle of the map' and 'functions 9 and 8 are never combined with function 1'. Even in a loose interpretation of these principles, the 105 possible combinations are only reduced to 82, leaving still a set of 43 unattested possibilities unaccounted for. More problematic, the rationale behind these principles remains quite opaque. Should we expect that the other possibilities will turn up eventually if more languages are investigated? Or are there more principles at work, restricting the possibilities? The precise predictions that can be formulated on the basis of this implicational map are unclear. Haspelmath notes that 'the map was originally established inductively' (122). I will come back to this inductive process at the end of this review.

Chapter 5 deals with possible explanations for this particular form of the implicational map. Haspelmath discusses many different theoretical approaches to indefiniteness, and picks out the parts he finds useful for his own story. This results in five binary oppositions with which he 'explains' the existence of this particular implicational map (119–122). The oppositions take the form of possible semantic characteristics of the various functions of indefinite pronouns: known vs. unknown, specific vs. unspecific, scalar

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[1] In fact, Haspelmath only mentions 37 combinations on page 76, yet in his appendix A there are two more combinations: 456 as instantiated by the Romanian indefinite determiner *vre-un* (264) and 12345678 as instantiated by the Swedish *någon*-series (249), cf. Dahl (1999: 667).

endpoint vs. no scalar endpoint, endpoint on non-reversed scale vs. endpoint on reversed scale, and, finally, within the scope of negation vs. not within the scope of negation. However, these characteristics only partially explain the connections as presented in the map. This explanation is strongly underdetermined – quite in sync with the fact that many connections that are predicted by the semantic map are not attested. The implicational map predicts much more than is actually found, and it can be explained only to a limited extent. This leads to the conclusion that the model as proposed in the form of the implicational map is too strong for the present data.

Chapters 6 and 7 go together. Both discuss diachronic aspects of indefinite pronouns in the context of grammaticalisation. A large catalogue of possible sources of indefinite pronouns is presented. All indefinite pronouns originate from one of the three extremes (1, 7, 9) of the implicational map. Once an indefinite pronoun has been grammaticalised, Haspelmath hypothesises that the changes follow along the lines of his implicational map. Of course, diachronic evidence is sparse, yet the large set of cases that Haspelmath collected seems to corroborate this hypothesis.

Chapter 8 focuses on a restricted part of the indefinite pronoun spectrum: the combination of negation and indefinite marking. Negative indefinite pronouns have attracted some earlier typological attention, so Haspelmath probably felt obliged to add to that discussion. This results in a showcase of Haspelmath's approach. Within his overarching approach to indefinite pronouns, he can give indefinite pronouns their proper place under negation. This chapter shows that linguists could sometimes be a bit less afraid to think big. Of course, approaching a theme as wide-ranging as Haspelmath has done implies a lot of work, but the results can be more than rewarding.

Chapter 9 is called 'Conclusions', but in fact it consists of a strong piece of original research and should surely not be laid aside as mere summary of the foregoing. In this chapter, Haspelmath tries to find correlations between the indefinite pronoun type and other characteristics of a language by investigating a 100-language sample. He does not succeed, exactly as he expected from the fact that even close relatives in the 40-language sample show much variation. However, in this case failure does not imply that no typological correlates exist as Haspelmath does not seem to try very hard to find any. Two appendices follow, of which the first is of great importance. Appendix A consists of 74 pages of detailed discussion of the indefinite pronouns of the 40-language sample. These pages are a goldmine of examples and references to the usage of indefinite pronouns in some well-known, but also many lesser-known languages (244–317). The second appendix is a survey of the 100-language sample.

Finally, I would like to spend a few more words on the inductive process that purportedly led Haspelmath to formulate the implicational map as shown in figure 1. He does not explain how this induction has worked, so I have attempted to repeat the process in a completely automatic way. The

ideal situation would be if the same model would appear from a purely mathematical analysis of the data. The general idea behind this mathematical analysis is that the distance between two indefinite pronoun functions in a two-dimensional space is iconic to the chance of co-occurrence within one indefinite pronoun expression. The larger the proportion of cases in which the two functions co-occur, the nearer the two points should be in the semantic space. To make this analysis, I have collected all indefinite expressions in Haspelmath's 40-language sample (which total 133). For each combination of functions, I have counted the number of cases where they co-occur. The distance should be inversely proportional to this number (high number of co-occurrences means low distance). I also counted the number of 'breaks', i.e. cases in which one of the two functions occurs, but not the other. The distance should be proportional to this number (high number of breaks means high distance). Then I tried to find the distribution of the nine functions in a two-dimensional space in which the distances approach these conditions as nearly as possible. The result is shown in figure 2.[2]

(7)
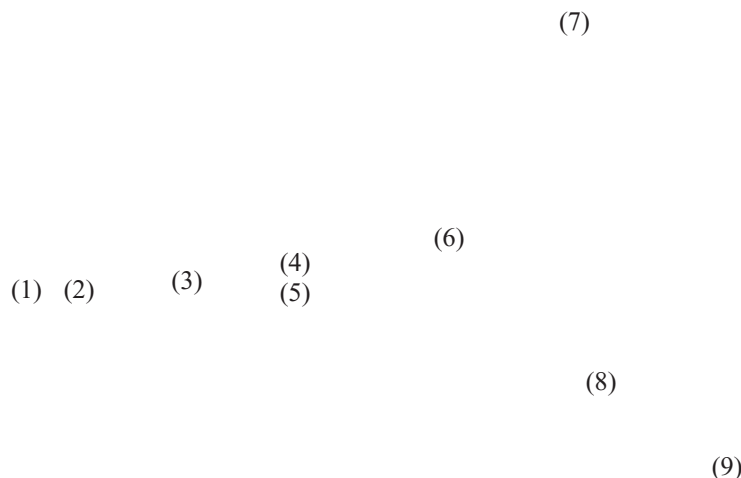
(6)

(4)
(1) (2)   (3)   (5)

(8)

(9)

Figure 2
Two-dimensional approximation of the distances between the indefinite pronoun functions, based on the 133 indefinite expressions in Haspelmath's 40-language sample (mean error: 4%)

[2] To be precise, I have used $error_{ij} \times \frac{10 \times (\text{number of breaks})_{ij}}{(\text{number of co-occurance})_{ij} + 10}$ as a measure of the distance between two indefinite pronoun functions i and j. The factors 10 are added for practical reasons only, and do not influence the results in any structural way. The factor $error_{ij}$ in the above measure should be as close to the value 1 as possible for all combinations of i and j. To minimise the errors, I used the algorithm FindMinimum in the software package Mathematica. This algorithm tries to find a local minimum through an iterative process, starting from a specified point. All nine indefinite pronoun functions started from the same point in a two-dimensional space, and the iteration was continued until a minimum of the mean of $(error_{ij} - 1)^2$ was found. Because FindMinimum only returns a local minimum, I

I should stress once again that this distribution was found by a purely mathematical analysis of the data. The similarity between this figure and the model as proposed by Haspelmath (see figure 1 above) is striking. However, the predictions that are made by this figure are slightly different. Circles should be imagined instead of the lines in Haspelmath's model. The argumentation then goes as follows. There is, for instance, much more freedom to draw a circle around the points 456 compared to a circle around the points 346. This predicts that the combination 456 will turn up more frequently than the combination 346 (neither of which is attested in Haspelmath's data). Future research must decide which model makes the better predictions.

However, I should conclude by saying that the discussion of the model accounts only for a small part of the book. Haspelmath presents the model as the major result of his investigation, yet there are very many side issues; topics that do not form part of the model are thoroughly discussed. Also, even if the implicational map turns out to be deficient in the future, the data presented in chapters 3, 6 and 7 and in appendix A are of lasting value. In conclusion, this book is a major addition to our knowledge about the possible variability of human language. The research is exemplary and the results rewarding. It is an important work, not only for those interested in indefinite pronouns, but also for anyone interested in linguistic variation.

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Roland Hausser, *Foundations of computational linguistics: man-machine communication in natural language*. Berlin: Springer, 1999. Pp. xii + 534.

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In this book, Hausser sets out a detailed case for the view that all aspects of language – language-processing, language-production, even the grammar formalism itself – are strictly 'time linear', that is, reflect processing in real

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have tried various starting points for the iteration. All returned roughly the same result, *pace* a rotation of the whole map. This indicates that the minimum as depicted in figure 2 is a real minimum. The mean error is around 4% in all cases.

time, a view which, if it can be sustained, involves a radical shift in our concepts of language, linguistic knowledge and the relation between language and language use. The central part of the book defines a 'Left-Associative Grammar', this being a grammar formalism which generates strings on a strictly left-right basis. The evidence presented for such a model is of two major types. On the one hand, Hausser argues that the complexity results it makes available are a substantial advance on all other formalisms, whether phrase-structure grammar, transformational grammar or categorial grammar. Secondly, he sets out in detail grammars for fragments of English and German, as a display of how it can be used to analyse both fixed and free word order languages, with a detailed account in addition of German morphology.

These central chapters of the book are by no means its sole objective however. Hausser argues that all grammar formalisms should be nested within a comprehensive theory of cognition which encompasses both linguistic and nonlinguistic action. Furthermore, he argues that a criterion for evaluating grammar formalisms is that grammar, parser (modelling processing) and generator (modelling production) conform to the strongest form of type transparency (chapter 9, section 3), namely that both parser and generator use rules of the grammar directly and in the same order as articulated in the grammar. Bravely, he sets out to meet this challenge by devising a general computational model of communication (presented in detail in part IV). He defines a computational system which reflects a nonlinguistic concept of context (chapter 22); he incorporates a parser of a left-associative grammar formalism, with a mapping of the strings generated by the grammar onto structured objects representing thoughts and their representation in some containing context database (chapter 23); and he also defines a generator (chapter 24) which is a reverse mapping with 'autonomous navigation through the propositions of the contextual word bank … simultaneously put into contextual action and into words' (453). And all these are set out against a new approach to pragmatics as background, with seven pragmatic principles, and an accompanying theory of signs (chapters 5–6).

The most successful parts of the book are the central parts setting out the formalism, and demonstrating the mathematical and linguistic results. Hausser provides a clear and devastating critique of orthodox constituent-based phrase-structure grammar and categorial grammar formalisms on the grounds of their undecidability (part II), and provides proofs (chapter 11, section 1) that a left-associative grammar formalism generates all and only the recursive languages (in marked contrast to phrase-structure and categorial formalisms), and thus in principle is able to provide a complete characterisation of formal languages and, by extension, natural languages, relative to a constraint that all operations in the left-associative formalisms to be posited must only add finite complexity to the core left-associative

grammar format. The type-transparency between grammar and parser then ensures that the impressively low complexity results of the grammar carry over to the parser. On the basis of this left-associative grammar formalism, Hausser defines a new hierarchy of languages, giving rise to new complexity results (chapter 12). The mathematical results obtained are substantial, and a major challenge to grammar formalisms based on a concept of constituent structure and substitution. As Hausser points out, whether these formal results can be sustained in application to natural language depends on there being alternative analyses of data purporting to show the necessity of levels of complexity in natural language well above those defined in the hierarchy Hausser presents. For example he sidesteps the normally recognised observation that natural languages are of at least exponential complexity as supposedly demonstrated by the systematic ambiguity of postposed prepositional phrases as either postnominal or adverbial modifiers (as in *The man saw the girl with the telescope*) by providing an analysis purely in terms of adjacency (236), suggesting that the ambiguity is not structural, but merely semantic/pragmatic.

He then goes on in part III to set out detailed grammars for fragments of English and German. These are of very considerable interest in their own right, displaying both the elegance of such grammars in certain respects, and the extent to which the lack of invocation of structure necessitates disjunctive statements. Unlike phrase-structure grammars, which are based on sub-stitution of one constituent type by some other, left-association grammars are based on the principle of possible continuations, using a concept of category covering every possible sequence of expressions. Beginning with the first word, the grammar describes possible continuations for each resulting category, called a new sentence-start. The rule format is a transition from one sequence of words to another for each rule r, together with an associated rule package. Elementary categories are of two sorts: X, X′ where X′ is a requirement for a sequence of expressions of category X, with an associated operation that cancels out the category X′ in the presence of a category X. Individual categories can then be constructed as a sequence of other categories: so, for example, a transitive verb is of the category (N′ A′ V), being a category which needs a nominative-marked sequence and an accusative-marked sequence to yield a sequence of category V, to wit a sentence. A simple example of an elegant solution provided by this form of grammar is its ability to characterise languages in which there is relatively free constituent order with a fixed verb position. Allowing variables in the description and recursive application of any given rule package, the system can express straightforwardly statements such as the first constituent must be an NP but once there is an NP and the verb is next then a sequence of NPs may follow (chapter 16, section 5).

Despite the fact that the formalism generates words in left-right sequence, it has a number of mechanisms for handling discontinuity effects in natural

language (introduced as part of the detailed application to English and German in part III):

(i) the possible rule packages made available at each stage (central to a left-associative grammar);

(ii) the checking off of any imposed category requirements (the primary device for capturing discontinuity effects);

(iii) concatenating required categories in a list (358) so that noncontiguous X′ and Y′ can be combined as X′ ∘ Y′ and satisfied together (used for German Mittelfeld constituent-order variation);

(iv) manipulating the method of adding a category to a sequence of categories at a fixed point in that sequence, e.g. to ensure checking of clausal adverbials identically whether that clausal sequence precedes or follows the verb (362);

(v) a linearisation device specific to generation which ensures that from some subpart of a semantic structure (484), the process of linearisation can return to that subpart having generated some subordinate sequence (used to define a linearisation procedure for relative clauses – 488).

Hausser claims that these do not involve more than finite extensions of the core left-associative grammar, and sentences generated by such grammars remain parsable in linear time. Hausser's complexity results turn on the fact that all grammars that generate the required string-sets are defined only as inducing operations upon strings: there is no pairing of strings with structures defined over them. What is less clear, however, is whether the system lacks any concept of syntactic structure, terminology aside. As Hausser points out, at the level of interpretation, a tree structure configuration is built, a level arguably also essential to a characterisation of structural properties of the language, for example in addressing the adjunct attachment problem. Moreover this level has to be invoked in production as a language-specific pragmatic level, mapping structure in the context word base onto a linearised configuration reflecting word order and relative-pronoun choices (484–488), and such a level provides an essential part of the characterisation of individual language-particular properties of relative clauses. But if this is so, the issue of parsability of natural languages in real time as a reflection of properties of the grammar formalism turns on whether the concept of parsing for complexity results defined exclusively over string sets is the same as that associated with parsing for the purpose of pairing such strings with intended interpretations. For if it is not, the significance of the complexity results Hausser establishes for linguistic theory in general becomes much less clear.

Inevitably in such an ambitious book, some sections are much more successful than others, and in my view, the setting out of a novel pragmatics covering both linguistic and nonlinguistic actions, and of language processing within that, is very much less successful than the sections on formal

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properties of left-associative grammars. Here the book suffers from apparently having been written in a vacuum, making only token reference to two decades of relevant work. Despite the fact that he is modelling a process of how language is interpreted in context, Hausser makes no reference to work on the context-dependency of natural language interpretation done within Situation Theory (Barwise & Perry 1983), Discourse Representation Theory (Kamp & Reyle 1993), or Dynamic Predicate Logic (Groenendijk & Stokhof 1991) other than one cursory footnote (400, n. 12), even when the concepts he defines are close to competing frameworks. To give one example, though he provides a formal way of differentiating what he calls M-concepts, which are context-neutral, from I-concepts, which are relativised to individual contexts, he does not draw out the striking parallels between this and the concept of (parametrised) infon developed in situation theory by Barwise, Perry and others (see Barwise & Perry 1983). He makes no reference to the more recent work in pragmatics (Relevance Theory – see Sperber & Wilson 1995) and AI (Centering Theory – see Walker et al. 1998 for a representative collection). He makes no reference to parsing work in the computational linguistics field, e.g. the work on D-Tree Grammars of Marcus and colleagues (Marcus 1980 and subsequently), and only the most minimal reference to psycholinguistic work on parsing or production (400). Moreover, the assumptions he makes about concepts and their one to one correspondence with lexical items are essentially identical to those of Fodor (first set out in Fodor 1981, 1983, but more recently in Fodor 1998), but none of the debate between Fodor and others in the philosophy of psychology in this connection receives even a passing mention (see Fodor & Lepore 1992 for an evaluation of the state of the art in this area). The trouble with having set aside all such work virtually without comment is that Hausser fails to address the central background problem to which much of that work has been directed, namely that linguistic content systematically under-determines interpretation in context, of which it provides but a partial specification. He takes as his starting point a Buehler metaphor (see for example Buehler 1934) of language as a tool (91–3), comparing a sentence and its relation to interpretation in context as a best-match analysis parallel to the use of a tool in a nonlinguistic action. Using a screwdriver devised for screwing and loosening screws for some action of stirring one's tea is, he suggests, a use that is available for a screwdriver only if there is no better match between tool and action in the context, such as provided by a spoon. This characterisation of a tool and its extended uses is applied to natural language, though, unlike Buehler, with a cognitive construal. An expression is said to be interpreted nonliterally only if no better match is available. This concept of a language as a tool, however, is of limited applicability, for it fails to bring out the gap between linguistic content and interpretation in context: unlike the case of language, there is no sense in which a screwdriver has intrinsic content that provides partial determination of its role both to

tighten/loosen screws and its role to stir one's tea. Following up on this tool metaphor, he takes Shannon-Weaver's information theory as his point of departure (91), but this is a code model based on the assumption of transfer of some thought by an agent, suitably encoded, to the hearer, a view of language which for good reason is no longer held by others, in particular because it fails to allow either expression of the gap between signal and interpretation or the lack of certainty in the interpretation process (see Sperber & Wilson 1995 for extensive criticism). More than this, Hausser claims, at least in principle, that production of language simply involves the mapping between string and semantic structure defined in parsing set in reverse: 'in production, the elementary signs follow the time-linear order of the underlying thought path while in interpretation the thought path follows the time-linear order of the incoming elementary signs' (98). Indeed, he sets up a computational system which does precisely this, relative to a suitably constrained database as context. Despite Hausser's distinction between M-concept and I-concept within an explicitly cognitive account (70–72), he places very little emphasis on the mapping of an M-concept onto an associated I-concept, rendering this distinction almost trivial so that the difference in sustaining generation as the inverse of parsing is not brought out. Indeed, the one instance of anaphoric connection at which this essential gap might be addressed is said by Hausser to be established at the level of semantic structure as part of the projection of the string onto a sequence of M-concepts (464). Hausser says (93–95) all utterances are interpreted from a STAR-point (S – space, T – time, A – agent, R – recipient), and claims that evaluation is invariably relative to these contextually provided values, the STAR-point regulating reference to data structures already present. But the nature of context-dependence is far more widespread than these four parameters, affecting tense, pronouns, ellipsis, scope construal, requiring a much more general analysis of how particular interpretations are established in processing, or realised in production. Production, in particular, cannot simply involve some sequence of actions in a reverse direction. At the very least, it involves some decision from a fully specified thought onto some linear sequence with critical choices to be made in case of all aspects of linguistic content where there is not a full matching between grammar-internal specification of content and context-dependent values. Even from his own formulation, the transition from some thought to the linearisation of a string involves decisions about word order in a so-called language-specific pragmatics module (484) that go well beyond the steps which the LA-grammar articulates as the steps of parsing which a hearer has to entertain in retrieving the appropriate propositional content.

Such invocation of language-specific pragmatics buttresses the worry that Hausser's use of familiar terms has become stretched beyond the point for which they remain suitable. Syntax is defined to be generation of strings, with no concept of structure. Semantics is defined to involve the projection of

structure. Pragmatics is taken to determine the mapping between semantic structure and linear word order in ways that are specific to individual languages (488). Moreover, it involves classifications of expressions into discrete categories (345, 489): yet neither of these phenomena falls within the remit of pragmatics, given the conventional assumption that pragmatics concerns the general nonlinguistic constraints underpinning communication and their interaction with linguistic input in communication. In order to evaluate the strength of Hausser's claims about the essential left-right dynamics of natural language, and the abandonment of all concepts of constituent structure, one needs to have clear statements about the nature of tree structure representations in the semantic vocabulary, the lack of relevance of these to the complexity results, and the nature of the pragmatic mapping that determines the correspondence between these and the linear order of words in a string; but these are lacking.

The book is presented as a textbook with exercises checking comprehension at the end of each chapter, but it is unlikely to be successful as such, veering as it does between mathematical results of considerable complexity, low-level linguistic introductions, and solutions to philosophical issues which are extremely naïve, based on uninsightful feature-based classifications (chapters 20–21). Moreover, as already itemised, it is disappointing in a book purporting to be a textbook that no attempt is made to set the account against the pragmatic/semantic/psychological/computational background that has been developing concurrently with the development of the proposed analysis, so that the reader is given access to alternative approaches with which to evaluate Hausser's analysis. Furthermore, there is no introduction to the process of devising a computational parser, no assignment of problem sets with provided solutions, or any other of the other normal accoutrements familiar in computational linguistic (or other) textbooks. This is surprising, given the availability of implementations of this formalism, and the interested reader is strongly encouraged to access http://www.linguistik.uni-erlangen.de/Uebungen.html for programming exercises accompanying the four parts of the book, with sample solutions.

Overall then, the book is both provocative and provoking. Though the attempt by Hausser to establish a general framework for cognition is not in my view a success, the substantive claim that natural language grammar formalisms are time-linear is a claim now receiving increasing recognition (see Tugwell 1999, Kempson et al. 2000), and it is Hausser's major contribution to the field to have been the first to give this hypothesis detailed formal substance. Furthermore, notwithstanding the only partial success of the larger cognitive enterprise which Hausser articulates, it is clear that if the consequences of adopting strict type correspondence between grammar, parser and generator are followed through, then some such novel philosophy of language and mind will have to be articulated (as also urged by Tugwell and Kempson et al.), departing as it does from orthodox assumptions of the

complete separation of linguistic knowledge in the form of a grammar and any implementation of it. So the attempt by Hausser to articulate such a global view is to be applauded for its courage, and for the provision of a starting point for others to develop. In the meantime, setting aside this attempt at a general computational model of cognition, the formal results involving left-associative grammars and the application to English and German fragments are of very considerable general interest, and well worth serious consideration by linguists. Indeed, the formal results achieved present a major challenge to linguists working in other orthodoxies.

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Daniel Hirst & Albert Di Cristo (eds.), *Intonation systems: a survey of twenty languages*. Cambridge: Cambridge University Press, 1998. Pp xii + 487.

Reviewed by MARTINE GRICE, Saarland University

'Is the book out yet?' was almost a standing joke in intonation circles. It is a relief to see that the answer is now 'Yes', as there has long been a need for a typological survey of this sort. As the title suggests, the volume contains accounts of the intonation of twenty languages: German (Gibbon), Dutch ('t Hart), Swedish (Gårding), Danish (Grønnum), Spanish (Alcoba & Murillo), French (Di Cristo), Italian (Rossi), Romanian (Dascălu-Jinga),

Russian (Svetozarova), Bulgarian (Misheva & Nikov), Greek (Botinis), Finnish (Iivonen), Hungarian (Fónagy), Western Arabic (Benkirane), Japanese (Abe), Thai (Luksaneeyanawin), Vietnamese (Do, Tran & Boulakia), Chinese (Kratochvil), and two dialects each of English (Bolinger on American and Hirst on British English) and Portuguese (Cruz-Ferreira on European and de Moraes on Brazilian Portuguese), each of which is set in context with background information as to the language's general prosodic characteristics.

The book's value as a reference work is enhanced by the fact that 21 of the 23 chapters follow a common chapter outline. This enables the reader to quickly find out about some specific aspect of intonation across a number of languages. Sections of particular interest are under the following headings: 2.1, 'The basic non-emphatic pattern': a description of the pattern generally used on broad focus declaratives; 2.2, 'Mode and expressivity': often a description of the intonation used in different types of questions and commands; 2.3, 'Focalisation and contextual effects': a section dealing with, inter alia, information structure and the realisation of broad and narrow focus; 2.4, 'Phrasing and textual organisation': a discussion of the distribution and realization of different levels of phrasing, and in some cases the effect of discourse structure; 2.5, 'Other patterns': often including an account of stereotyped utterances such as the chanted call. Of course, not every author deals with every one of the topics in the above sections, but the book's structure allows even a casual reader to quickly ascertain where the relevant information is to be sought.

The reader is strongly advised to read Hirst & Di Cristo's introductory chapter before dipping into the rest of the book. Not only is it an accurate synthesis of the book's contents, arranged according to the common chapter plan, it is a useful introduction to the field of intonation. In keeping with its typological aims, it provides a systematic way of categorizing lexical prosodic systems, giving an example language for each category: fixed stress (Finnish), free stress (Greek), accentual tone (Japanese), tonal accent (Swedish), tone (Thai) and tone and stress (Chinese). Non-lexical systems are referred to as intonation proper and are dealt with in the rest of the chapter, including discussion of the basic non-emphatic pattern which in virtually all of the languages in the book has a globally rising-falling shape. The intonation used in a number of different question types and unfinished utterances is treated in some detail and related to the reported universal tendency for such utterances to rise. This tendency appears to be particularly true for echo questions, which are said to be invariably rising in English, French, Swedish, Portuguese, Romanian and Finnish. The section on focus provides a useful account of such oppositions as FIGURE/GROUND, THEME/RHEME and TOPIC/COMMENT on the one hand, and EMPHASIS/CONTRAST on the other, discussing how these terms originated, how they have subsequently been used in the literature, and how they are employed in various chapters.

The introduction also provides an overview of INTSINT (International Transcription System for Intonation), which is used in half of the book's chapters. It is intended to be an equivalent of the IPA as it is used in narrow phonetic transcription. An INTSINT transcription is placed beneath the text and comprises a string of symbols representing pitch values at prosodic boundaries and other strategic positions. The height of a PITCH POINT or TARGET is scaled either in absolute terms within a speaker's pitch range, or in relation to the previous target; see table 1.

Scaling in relation to Previous Target					Absolute Scaling	
Higher	Lower	Same	Doorstep	Upstep	Top	Bottom
H	L	S	D	U	H	B

Table 1

Pitch height as represented by INTSINT targets

I hope to make the book more accessible by providing a comparison between INTSINT and a transcription system based on autosegmental-metrical models of intonation referred to as ToBI. Table 2 gives a first

INTSINT	E_ToBI		G_ToBI	
T	H		H	
H	H		H	^H
U	H			^H
D		!H		!H
L		!H	L	!H	L
B		B		L

Table 2

Specification of target height: correspondences between INTSINT and the English and German ToBI systems

approximation of how INTSINT can be mapped onto two language-specific varieties of ToBI, the seminal English version (E_ToBI) and a later system developed for German (G_ToBI) which, like INTSINT, incorporates a feature of upstep.

The mapping is complicated by the fact that ToBI systems have a small number of labels, none of which are absolute in the same way as Top and Bottom. Moreover, Upstep and Downstep in INTSINT relate only to the height of the immediately preceding tone, as is the case in work on lexical tone, where the two concepts were developed. This is not the case in the ToBI systems, where a H may be regarded as upstepped or downstepped in relation

to a previous H tone even if there is one or more intervening L tones. As a consequence, both H and U are equivalent to ToBI ^H and both D and L to !H. INTSINT has even more differentiation at Intonation Unit (equivalent to Intonation Phrase) edges, notably at the left edge a default mid level (as opposed to any other level which is explicitly marked) and a symbol for reset, and at the right extreme versions of Top and Bottom. There are many cases where the greater number of levels is well argued for, such as the difference between low fall (Bottom) and extra low fall (extreme Bottom) in European Portuguese (171), although a two tone autosegmental analysis could in principle capture such a distinction with the additional use of a register feature. Hirst provides convincing examples of upstep sequences in English (68) which pinpoint a problem for English ToBI, which is unable to distinguish a sequence of upsteps from a sequence of plain H tone targets which may be all on the same level.

Where the two systems differ most is in the way they encode the timing of the targets. Whereas in autosegmental approaches the tune and text tiers are associated via starred autosegments and boundary markers, INTSINT only directly encodes the location of targets when they are at phrase edges. This makes the system rely heavily on the accuracy of typesetting for the synchronisation of tune and text. Some inaccuracies are compensated for by the use of capital letters to signal accented syllables in the text tier. This often gives a rough indication of where the symbol should be. Despite this, there are numerous examples in the book where I was genuinely unsure as to whether the symbols were correctly aligned or not, for instance, page 176 (example 31), page 213 (25), page 241 (1, 2, 3), page 243 (11, 12), page 245 (24) and page 370 (23, 25, 26). This is the main weakness of the INTSINT system which, since almost half the accounts use it, has repercussions for the success of the book as a whole.

Assuming there are no typographical or formatting problems, then INTSINT can indirectly encode the difference between pairs such as L*+H and L+H* by placing the L target point EXACTLY BELOW the capitalized (accented) syllable in the first case, TO THE LEFT in the second. This type of transcription gives information as to the phonetic alignment of the target with the text rather than its abstract association with any constituent. In so doing, it leaves open the question as to what is the tone bearing unit for each language, an issue which, as argued by Hirst in his chapter on British English, should be dealt with separately.

In the interests of space, not all remaining 22 chapters can be dealt with individually. Instead I shall present a few of the book's highlights and discuss a number of the more controversial claims made by individual authors.

Bolinger's American English chapter illustrates with idiomatic examples the major accent types (profiles) of his model and how they combine into intonation phrases (contours). In typical Bolinger style, he shows the reader that there is no fixed correspondence between intonation and what he refers

to as grammar. He illustrates this particularly clearly by showing that even reclamatory questions (requests for repetition, such as the second part of the following exchange 'Are you OK?' […] 'Am I what?' 'Are you OK?' 'Oh, sure, fine.', page 50) can be falling if they are indignant ('Are you a wife beater?' 'Am I what!', page 50). Hirst's chapter on British English summarizes some of the most significant work on RP intonation, again paying particular attention to the categorisation of question types and intonation patterns which may be used with them. He argues for a sharper division between syntactic sentence type and pragmatic speech act, showing, for instance, that an utterance such as 'He BOUGHT something?' should be regarded as a statement being used pragmatically as a request for information, rather than a syntactic statement which has been turned into a question. His argument relies on the fact that in no circumstances can one request information with 'He BOUGHT anything?', which is what would be expected if such a request were classified as a question.

Gibbon's chapter on German surveys the traditional auditory approaches to German intonation and, unlike the other chapters in the book, relates them to current autosegmental-metrical models and to more recent views on the prosodic hierarchy. He also gives a short but systematic account of focalisation, which in German may be achieved by means of focus particles, intonation, or a combination of both. The chapters on Dutch, Danish and Swedish are each written by leading scholars ('t Hart, Grønnum and Gårding, respectively), who summarise their own seminal work. Anyone wishing to have an introduction 'from the horse's mouth' to the respective schools is well served by these three chapters. Furthermore, the Danish and Swedish chapters give an insight into some of the earlier work on target-interpolation models of intonation.

The Romance languages have wide coverage in this volume, comprising French, Spanish, European and Brazilian Portuguese, Italian and Romanian. Di Cristo's chapter on French provides arguments for the recursive prosodic categories of Hirst's model, particularly in questions with postposed themes (213) and in cases of focal contrastive accent (210). In his section on INTONATION CLICHÉS, he shows (216) that vocatives (here the stylised step-down contour) can be used interchangeably with two different timings: in a bisyllabic word, this two level tune can span both syllables or alternatively can be realized solely on the final syllable so that the step down occurs mid-syllable. This contradicts Ladd's (1996) claim that in French (and Hungarian) this second type of realization only occurs in monosyllables, and that the step down pattern will always span the last two syllables of a word. Another claim made about French which is broadly accepted in the literature is the right-headedness of the stress group. The extension of this hypothesis to other Romance languages, particularly to Italian, is highly controversial, since much work on Italian prosody assumes left-headedness (see for example Nespor & Vogel 1986, D'Imperio & Rosenthall 1999 and references therein).

Misheva & Nikov's discussion of what they call 'semantic accents' and 'phrase accents' in Bulgarian is rather unclear. Whereas the first is a focal accent which can occur on any item in a syntagma (roughly an intonation phrase), the phrase accent is initially said to occur only on the last word in a syntagma (285) and then later shown to occur mainly on the first and/or last word and sometimes even medially (286). They use this latter information to argue that the function of phrase accents in Bulgarian is essentially delimitative. This, in fact, fits in with Bolinger's account (47) of annunciatory and conclusive accents, which occur near the beginnings and ends of phrases. It is not clear, however, what exactly Misheva & Nikov mean by accent, since a pattern resembling a two-accent hat pattern is referred to as 'a single decentralised accent'.

There are many cases in the book where yes-no questions are intonationally marked in some way other than with a phrase final rise, a fact which is invariably discussed in the light of the intonation universals hypothesis as to the functions of falls and rises. An example of such a discussion is in Luksaneeyanawin's Thai chapter, where the functions are summarized as follows: falls signal finality or closedness and rises non-finality and openness. This is followed by a proposal for tunes involving a combination of rise and fall: the two different directions are claimed to signal the presence of a contradiction in the speaker's mind, both in Thai and in other languages, such as English. This may work for the two languages cited, but unfortunately implies that in the case of languages which have a rising falling pattern as a basic question contour, e.g. Palermo Italian (Grice 1995), Hungarian (Fónagy), Moroccan Arabic (Benkirane), Russian (Svetozarova), Romanian (Dascălu-Jinga), Brazilian Portuguese (de Moraes), to name but a few, speakers have a different state of mind from speakers of languages in which straight rises are used. Whilst the overwhelming evidence in favour of pitch-related universals should not be ignored, it is clear that more caution is called for when estimating the sound symbolic influence on such conventionalized intonation patterns.

Although much of the book was written long before its publication date, its descriptive nature means that much of it will still be of relevance to researchers and students in the field, albeit with scant reference to the more recent publications in the field. One such omission is Ladd's (1996) *Intonational phonology*, which, although primarily a book about intonation theory, covers many of the languages in this volume and should therefore have received discussion in a number of areas. The book's main drawback is that there is no auditory record in the form of a CD or access to web pages where the reader can listen to the examples. Such a facility should be considered a must for any book on intonation, whatever the framework or intended audience. Not only would auditory data enable beginners to get a feel for the material and help them to learn the transcription system used, but also, in the context of such a typological survey, it would allow researchers

to do a closer analysis of the data, attending to factors which are not necessarily the focus of attention in the individual studies. It is hoped that these data will be made publicly available in the future.

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