Possession and ownership: A cross-linguistic typology. Ed. by Alexandra Y. Aikhenvald and R. M. W. Dixon. (Explorations in linguistic typology.) Oxford: Oxford University Press, 2013. Pp. xxii, 319. ISBN 9780199660223. $125 (Hb).

Reviewed by Lars Johanson, *Johannes Gutenberg-Universität Mainz*

This collection of essays about possession and ownership aims at combining linguistic and anthropological concepts concerning the relation between language, culture, and modes of thinking, particularly the ways in which culture and cognition are manifested in grammar. Alexandra Y. Aikhenvald's opening essay, 'Possession and ownership: A cross-linguistic perspective', is a lucid introduction that defines, explains, and exemplifies all conceivable aspects of the topic.

Chs. 2–11 address the ways that linguistic structures reflect cultural patterns, attitudes toward possession, and effects of change. Isabelle Bril analyzes the complex system of ownership relations in the Oceanic language Nêlêmwa of New Caledonia. Gloria J. Gravelle investigates patterns of possession in Moskona, an East Bird's Head language of West Papua, Indonesia. Alexandra Y. Aikhenvald deals with possession and ownership in Manambu, a Ndu language of the Sepik area of Papua New Guinea. Alan Dench analyzes possession in Martuthunira, once spoken in the Pilbara region of Western Australia. Lev Michael discusses Nanti, spoken in Peru, in the context of other Arawak languages. Mark W. Post deals with possession and association in the Tibeto-Burman Galo language and its culture. Yongxian Luo examines possessive constructions in Mandarin Chinese. Anne Storch studies possession in Hone, a Jukonoid language of Nigeria. Felix K. Ameka deals with possessive constructions in Likpe (Sɛkpɛlé), a Kwa language of Ghana. Zygmunt Frajzyngier discusses possession in Wandala, a Chadic language of Cameroon and Nigeria.

The last two chapters focus on indigenous conceptualization of ownership and its changes in the modern world. Michael Wood discusses the Melanesian understanding of possession as observed in Kamula, spoken in the Western Province of Papua New Guinea. Rosita Henry deals with ownership among speakers of Temboka in the Western Highlands of Papua New Guinea. With a special focus on Australian languages, especially Dyirbal, R. M. W. Dixon discusses comitative and privative patterns of predicative possession, the problem of the head in appositional constructions of inalienable possession, and indigenous concepts of possession, ownership, and control.

In her introduction, Aikhenvald presents the theoretical principles of analysis and sums up a number of insights on the basis of her own studies, investigation of numerous grammars, and the findings suggested in the succeeding chapters. In the following, the main tenets of this detailed crosslinguistic account of the wide range of possessive structures is briefly outlined.

Possessive constructions vary depending on the nature of the possessor, the possessee, and the possessive relationship. They realize a set of recurrent core meanings: (i) ownership, (ii) whole-part relations, for example, between a body or a plant and its parts, and (iii) kinship, that is, consanguineal and affinal relations. Many languages use essentially the same constructions for the core meanings. All combinations of the types are, however, found across the world's languages. The degree to which possession is conceived as 'the same' differs from one society to another and is reflected in linguistic structures.

Possession can be expressed with possessive noun phrases. Some languages have dedicated phrase types that cover the core meanings (Moskona, Manambu, Martuthunira, Nanti, Hone). Others represent possessive meanings through more general associative noun phrases. The expression of possession may be viewed as a realization of a broader concept of association (Nêlêmwa, Galo, Mandarin, Likpe, Temboka, Wandala).

Kinship possession and whole-part relationship reflect close links between possessor and possessee, the intimate relationship of 'inalienable possession'. Culturally important objects may fall

into this class. Some languages treat consanguineal kinship and sacred or treasured objects as inalienable. The semantic content varies, and the composition of the classes may change over time, for example, when body-part terms are grammaticalized as spatial relators (Nêlêmwa, Nanti, Moskona, Manambu, Likpe, Wandala). Nouns designating inalienably possessed items may have to take on special affixes to be used without a possessor. Some languages possess 'de-possessed' forms of inalienable nouns that cannot occur independently.

Possession may be marked by the order of juxtaposed elements within a noun phrase. A marker, affixed or independent, may be attached to the possessor, the possessee, or both. Possessor marking is typically achieved with a genitive (Martuthunira, Galo, Temboka). Possessee marking can be achieved with pertensive markers showing that the referent belongs to something or someone (Nêlêmwa, Martuthunira, Wandala).

Conceptual proximity goes together with proximity in surface realization. Proximate forms express more intimate relationships with the possessor. Whole-part and kinship represent closer links between the referents than ownership. The marking follows the iconicity principle: 'the closer the relationship, the less marking is involved'. Inalienable relationships are often expressed synthetically, and they are never more analytic than alienable relationships. There is a strong conceptual link between components that form a 'whole'. If one of them is individuated, more analytic structures are used. If the possessor is the speaker or a speech-act participant, the construction is often more closely knit. What belongs to 'you' and 'me' may be envisaged as more intimate and expressed through special fused forms.

Possessive constructions can vary along a further set of parameters. The type of construction may depend on the semantics of the possessor. The prototypical possessor is animate, human, or otherwise high ranking on the nominal hierarchy, often expressed with a personal pronoun or a proper name.

Possessive relationships can be categorized in terms of controllability. Constructions may distinguish 'subjective' and 'objective' possession, that is, relationships initiated with or without a possessor's control. A number of languages distinguish permanent and temporary—for example, borrowed—possession. Some distinguish past and nonpast possession.

Possessive relations can also be expressed beyond the noun phrase, in clauses with predicative structures involving verbs of ownership, existential copula constructions, locational constructions, or verbless clauses. The choice may depend on the semantics or the discourse status of the possessor and the possessee and the possessive relationship, on the possessive relationship, and often on parameters including definiteness, animacy, and focus. Where several predicative constructions are available, verbs of ownership tend to express less permanent and less close relationships than copula constructions and verbless constructions.

Most languages have dedicated ways of expressing predicative possession. With 'have' verbs, the possessor is the subject and the possessee is the object. Reversing the grammatical relations results in 'belong' verbs. The distinction is pragmatically based: 'have' constructions concern the possessor, whereas 'belong' constructions concern the possessee.

In possessive existential clauses with an intransitive verb 'to exist', the possessor is marked as the topic while the possessee functions as the subject and the only obligatory argument. Copula clauses and verbless clauses can express relationships of identification and inclusion between possessor and possessee. A copula complement can be marked as one of location or accompaniment, similar to associative marking ('being with something'). A further option is goal marking, typically by a dative. Features such as permanent versus temporary possession are more salient in predicative than in noun phrase structures.

On the basis of numerous studies including the chapters in the volume, Aikhenvald formulates some generalizations about the expression of possession in clauses (35). If a language has a verb of possession and another construction for predicative possession, the verb is likely to be used with alienably rather than inalienably possessed items. Topicalization strategies are typically restricted to a topical possessor and a definite possessee. Predicative constructions are sensitive to definiteness and focality of the possessee and the possessor as well as to temporary versus permanent distinctions. They may also express additional distinctions such as 'owning' versus 'ac-

quiring'. The author stresses that the cognitive and cultural grounding for these generalizations is yet to be explored.

Rearrangement of grammatical relations at the clause level and beyond is used for close possession, for example, whole-part and kinship relationships. Manipulating the argument structure aims at breaking up a close connection between possessor and possessee. The possessor becomes a core argument, individuated and foregrounded, and assigned special discourse prominence, whereas the possessee is demoted, functions as an oblique argument, and is backgrounded. This reflects universal semantic tendencies. The 'whole' of a whole-part relationship is likely to be more prominent than a 'part', which can exist only with respect to the 'whole'. The rearrangement may occur in various ways. 'External possession' constructions are used if the possessor and the possessee are in a whole-part or kinship relationship or otherwise closely linked. In *He hit me on the hand*, the possessor *me* is the object, and *the hand* is marked as oblique. The pragmatic effect concerns affectedness. In many languages, the strategy is limited to body parts. The possessor is significantly affected and more salient than the body part.

Incorporation of the possessee into a verb applies to whole-part relationships and has an effect of discourse backgrounding. It is typically limited to inalienably possessed entities, especially body parts. There is no need for incorporation of the possessor, the most significantly affected participant in an event.

In a few languages, possession can be expressed through verbal derivational affixes attached to the possessor. Possessive applicatives are valency-rearranging devices encoding a whole-part or other core possessive relationships. The affix indicates that the possessor has the status of an 'applied object'.

A device going beyond the clause is the Mandarin 'double subject' construction, which essentially involves topicalization of a possessor. It consists of two juxtaposed noun phrases in clause-initial position, both with subject-like roles. The first phrase refers to the 'whole', the second one to its 'part'. Whole-part and close possession can also be expressed through relativization.

Possessive marking may have additional meanings not directly related to possession, for example, the expression of subject, object, purpose, benefactives, and locatives. The genitive sometimes shares the form with the dative, the case of purpose and beneficiary. It can mark objects of transitive verbs or share the form with an ergative. In Galo, it marks oblique noun phrases with mediative and viative meaning, expressing 'means' and 'path'. A possessive marker in a noun phrase may develop connotations of definiteness, for example, in Mandarin. Constructions employed for possession may also cover spatial and temporal relations, material, and quantification (Nêlêmwa, Likpe, Wandala). Possessive marking can express grammatical relations in nominalizations and subordinate clauses (Nêlêmwa, Mandarin, Likpe, Galo). The similarity with possessive constructions is only superficial. More general noun phrases express association. Only a few constructions traditionally termed 'possessive' involve possession. Grammatical tests may help distinguish possessive and nonpossessive meanings.

The author discusses cultural motivations for the ways in which possession is expressed, the strong correlations between possessive concepts and societal concepts or conventions. Possessive meanings and structures are frequently affected by language and culture contact, in which the treatment of possessive relations and the categorization of possessor and possessee tend to adjust to the contact situation.

The expression of possession and ownership often has overtones of power, dominance, control, and authority. The connection may be reflected in the etymology of ownership verbs such as 'to own' < 'to master, dominate'. The wealth of possessive verbs in Mandarin highlights the importance of ownership in the society.

The choice of constructions may reflect different culturally anchored types of ownership. The notions of what can be possessed and by whom differ widely across cultures. According to some worldviews, certain important items cannot be owned but are treated as inalienably possessed, intrinsically linked to the possessor. Totemic or symbolic ownership may be expressed differently from ownership of concrete items. As the societies change, formerly unownable entities may become a matter of property.

Conflicting concepts of land and language ownership are also dealt with in two other chapters. Henry studies newly developing issues regarding legal concepts of land ownership and customary law. In the concluding chapter, Dixon describes how Western concepts of possession, ownership, and control override indigenous notions in Aboriginal Australia. The associations with 'name', 'language', and 'land' have been distorted by the forced integration into the realm of Western values and goods.

This volume, the result of cooperation among eminent linguists and anthropologists, is a significant intellectual achievement. The reviewer fully shares the wish that this should be 'a fruitful start for an evolving partnership' (56).

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Articulate while Black: Barack Obama, language, and race in the US. By H. Samy Alim and Geneva Smitherman. Oxford: Oxford University Press, 2012. Pp. xviii, 205. ISBN 9780199812981. $24.95.

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In this intriguing and well-documented monograph, H. Samy Alim and Geneva Smitherman take up various language-related instances in Barack Obama's successful 2008 presidential campaign and use those instances as a vehicle to examine the relationship between language, race, and power in America. A&S are able to document that Obama's conscious linguistic awareness and his ability to style-shift depending on the audience played an important role in his being elected president. As they state: 'Barack Obama's mastery of White mainstream ways of speaking, or "standard" English, particularly in terms of syntax, combined with his mastery of Black culture's modes of discourse, in terms of style, was an absolutely necessary combination for him to be elected America's first Black president' (20). While this comment is hard to evaluate when taken out of context, A&S make their case very convincingly, especially in Ch. 3 in their analysis of Obama's famous March 2008 'race speech' in Philadelphia. This important speech occurred as a response to the Reverend Wright controversy, which at the time had the potential of eliminating Obama from being a serious candidate in the eyes of mainstream America.

Articulate while Black consists of six chapters, plus a foreword by Michael Eric Dyson and a preface, 'Showin love', by A&S. We are intrigued by A&S's collaboration in that they represent different generations of African American scholars working on Black language from a perspective that comes from within the Black community. S is certainly the most well known of a group of scholars on Black language who came of age in the 1970s. It was during that time that Smitherman 1977 was published, and she was deeply involved in the Ann Arbor Black English case. Moreover, for many linguists who do not specialize in African American English or sociolinguistics, but who have to discuss the topic of Black language in teaching introductory courses or in conversations with colleagues in other disciplines, our basic knowledge of the legitimacy of Black English as a linguistic system derives from exposure to S's work, even if only in one of various anthologies that contain excerpts. A is a leading scholar of a younger generation of African American linguists approaching the study of Black language from the in-community perspective. While A's research often deals with broader issues of language and urban education, his work on the analysis of hip hop is probably unprecedented in terms of its linguistic sophistication and his intimate knowledge of hip hop culture (e.g. A's 2003 analysis of the rhyming schemes of the artist Pharoahe Monch). A&S's collaboration thus represents a generational bridge for Black linguists. Characteristic of both A's and S's academic writing styles over the years is the incorporation of Black language as

part of their work. This style-shifting is also found in this book, often occurring when A&S make a side comment or bring home a particularly important point. While mainstream readers of the book as well as some linguists may feel a little uneasy about this, it can be seen not only as an effective rhetorical device, but also as an important way to try to break down—at least to a certain extent— the pervasive language ideology that many readers of the book will have.

Each of the first five chapters is organized around an incident or an event that occurred during the 2008 Obama presidential campaign in which some aspect of language and/or communication was highlighted. This then is used to lead into more general discussion about the nature of Black language and the issue of how race in America is often viewed through the guise of language. A&S make clear Obama's mastery of Black modes of discourse and his ability to style-shift, which may not be apparent to the mainstream public.

Ch. 1, ' "Nah, we straight": Black language and America's first Black president', starts out with Democratic senator Harry Reid's rather infamous remark about Obama during the 2008 presidential campaign: '[Barack Obama] speaks with no Negro dialect, unless he wants to have one'. This quote and a following one in which Obama himself states that '[a]ny black person in America who's successful has to be able to speak several different forms of the same language' serve as a vehicle to document Obama's conscious awareness of language and language style. In this chapter, A&S give verbatim accounts of a number of campaign rallies and other events in 2008 where Obama style-shifted into Black language in front of predominantly African American audiences in a way that connected with them. These accounts are fascinating because we suspect that many mainstream Americans are unaware of Obama's ability to use Black language and Black cultural modes of discourse. A&S make the strong case that his ability to style-shift was instrumental in his becoming president. Whites were comfortable with him because 'he sounds Black, but not *too* Black', and Blacks were comfortable with him because 'he sounds White, but not *too* White' (22). As A&S aptly put it, Obama has the 'ability to bring together White syntax with Black style' (21).

Ch. 1 also introduces some of the salient linguistic features of Black language to the reader. A&S accomplish this by elaborating on some recorded usages of Black language by Obama during the 2008 campaign and providing a linguistic analysis of the features being used. Another important aspect of this chapter is that it makes the strong case that language is central to viewing racial politics in the United States, and that it is understudied by scholars of race and ethnicity. There is a pervasive mainstream ideology of language, race, and politics behind Reid's infamous quote, namely that 'White America rewards Black Americans who don't sound "too Black", particularly in contexts that matter' (24), such as politics.

Ch. 2, 'A. W. B. (articulate while Black): Language and racial politics in the United States', centers around the use of the term 'articulate' in describing African Americans. The term has come to be racially loaded when characterizing African Americans because its use often assumes the opposite as an underlying expectation. Early in the 2008 campaign, Senator Joseph Biden said the following about Barack Obama: 'He's the first mainstream African American who is articulate and bright and a nice-looking guy'. By saying that Obama is the first mainstream African American who is articulate, Biden is implicitly contrasting Obama with other African American presidential candidates (e.g. Jesse Jackson in 1984) who may have sounded 'Black' when speaking to mainstream audiences. Biden's statement at the time received much publicity because of its underlying assumptions. With respect to language, it equates Black language with being not only inarticulate but also deficient, thus reflecting the pervasive US language ideology. As A&S note, 'being "complimented" as articulate evokes longstanding White discourses of Black Language (and people) as "deficient" ' (52). They show through a survey that the social meaning encoded in the term 'articulate' is far more salient for Black Americans. Obama himself is very aware of the loaded nature of the term 'articulate'. In his response to Senator Biden's comments, Obama said: 'I didn't take Sen. Biden's comments personally, but obviously they were historically inaccurate. African American presidential candidates like Jesse Jackson, Shirley Chisholm, Carol Moseley Braun, and Al Sharpton gave a voice to many important issues through their campaigns, and no one would call them inarticulate' (31).

Ch. 3, 'Makin a way outta no way: The "race speech" and Obama's rhetorical remix', constitutes a highly insightful linguistic/discourse analysis of Obama's 'race speech' in Philadelphia on March 18, 2008, the single most important speech of the Obama campaign. A&S remind us of the events that led up to this speech. In early 2008 sound bites emerged from various sermons by Reverend Dr. Jeremiah Wright—Obama's pastor for twenty years and someone who was close to his family and his campaign—that were taken as being anti-American and anti-White. As a consequence, Obama's numbers in the polls were dropping, and there was tremendous pressure on him to denounce Rev. Wright. Because of this, by mid-March the Obama campaign was on the verge of unraveling. Obama's speech on March 18 addressing the controversy became the most anticipated speech of his campaign. The 'race speech' was at the time considered by many to be ingenious, connecting with both Blacks and Whites; it is not an exaggeration to say that the speech saved his campaign. In their detailed analysis of the style and content of Obama's speech, A&S provide us with an understanding of why the speech was so effective. They describe a type of sermon style that goes back to the Puritans and is common in Black churches, referred to as the Jeremiadic sermon after the Biblical prophet Jeremiah with his particular mode of prophecy focused on social justice. The Jeremiadic sermon has a tripartite structure in which the speaker first intones America's promise, then castigates America for its misdeeds, and finally reaffirms that America will confirm its mission. This style, in which the rhetorical structure is simultaneously chastising and uplifting, is the one that Rev. Wright preached in. A&S show that Obama's race speech had the same rhetorical structure as the Jeremiadic sermon, but the language that Obama used departed completely from the fiery zeal and emotive style of a sermon that one might hear in a Black church. Rather, Obama proceeded in 'calm, deliberate reasoning, seeking to elicit rational, thoughtful understanding and action that will ultimately benefit the entire nation' (83). The speech did not have the rhythm of a Black sermon and was delivered in Standard English. As A&S show, the brilliance of the speech and its ability to connect with both Blacks and Whites comes from Obama's capability to combine the structure of a Black sermon with White speaking and rhetorical style. The speech put an end to the Rev. Wright controversy, and its effectiveness can be seen in the observation that many of us today have forgotten how critical the speech was at the time.

Ch. 4, ' "The fist bump heard 'round the world": How Black communication becomes controversial', revolves around the topic of Black communication styles. The particular event in the Obama campaign that A&S use to introduce the topic was the June 3, 2008, celebration of Obama's sealing the Democratic nomination. In celebration, Michelle Obama extended her fist and Barack Obama extended his to 'give a pound' (or what has been termed a fist bump). The pound was made famous by the July 2008 cover of the *New Yorker* magazine, which is reproduced in the book (95). After discussing the meaning of and the language used to describe a fist pound, A&S go into detail on the style of Black communication. This includes discussion on the uncensored mode in Black communication and crossover of both nonverbal and verbal communication to the White public sphere. This chapter is quite detailed and has important discussion on the use of the *N*-word and *mothafucka*.

Ch. 5, ' "My president's Black, my lambo's blue": Hip hop, race, and the culture wars', brings out Obama's awareness of hip hop, his view of it as an art form, and his knowledge of its culture. The chapter starts out with a 2008 quote from Obama in which he calls hip hop 'smart', 'insightful', and having the remarkable ability to 'communicate a complex message in a very short space' (130). The chapter also discusses Obama's relationship with various hip hop artists, labeling Obama as the first hip hop President. Obama's positive attitude toward hip hop was noted by various artists who became strong supporters of Obama in the 2008 campaign. In addition, A&S identify common themes of the discussion of race, language, and cultural hegemony that surrounds Obama's use of Black language and are also present when analyzing the use of hip hop language. The chapter contains a detailed and nuanced analysis of a hip hop record and video, 'My President', released by the artist Young Jeezy six months before the election. As in Ch. 3 on Obama's race speech, we see A&S at their best when they give a detailed analysis of a discourse style.

The final chapter of the book, 'Change the game: Language, education, and the cruel fallout of racism', is in one sense disconnected from the rest of the book in that it is not themed around an

event from the 2008 Obama campaign. Instead, the chapter focuses on the education issue, advocating a critical approach to language education as a means to challenge White linguistic hegemony. Given the legitimacy of Black language and the complexities of Black communication style and its vitality, as illustrated in the previous chapters of the book, how can we change especially teachers' attitudes toward Black language in a way that uses students' knowledge of and creativity in the language to foster learning? Part of achieving this necessarily involves challenging the linguistic hegemony of Standard English. A&S give an example of a curriculum in which African American students develop a sociolinguistic awareness that makes them more engaged in the learning process (though we do note that the specific curriculum being discussed is somewhat dated with respect to the type of technology it mentions). A&S conclude the chapter by suggesting that we can learn from international communities such as those in South Africa and Norway that recognize the legitimacy of multiple languages or multiple varieties of a language. While this chapter is different from the others, its goal is more perlocutionary in that its tacit aim is to make the reader aware of the consequences of the hegemony of standard English and to encourage readers to combat it.

In sum, A&S make a very compelling case that Obama's mastery of both White mainstream ways of speaking and Black culture's modes of discourse was a necessary combination for him to be elected president. It becomes clear that Obama's popularity among African American voters is not because he is Black but because he can connect with culturally African American voters as well as with the mainstream public. A&S remind us of the now largely forgotten events and comments of the 2008 campaign revolving around issues of language and race that had the potential of derailing the Obama campaign and how Obama was able to navigate them, in large part due to his conscious awareness of language-related matters that affect minority Americans. While the book is in some sense meant more for the general public than the linguist, there is still much that linguists can learn from it. Certainly, this book would be valuable for any class that deals with the Ebonics issue or language and race in America, especially since many of the endnotes for each chapter provide audio or visual links to the language samples being discussed.

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The Oxford handbook of sociolinguistics. Ed. by ROBERT BAYLEY, RICHARD CAMERON, and CEIL LUCAS. (Oxford handbooks.) Oxford: Oxford University Press, 2013. Pp. xxv, 884. ISBN 9780199744084. $150 (Hb).

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The editors of the *Oxford handbook of sociolinguistics* are mindful of other encyclopedias devoted to sociolinguistic inquiry. They describe four factors that distinguish this volume from

other comprehensive surveys of the field: new methodological developments, global inclusion of previously neglected speech communities, greater emphasis on bilingual and multilingual circumstances, and insights from innovative sign language research. Despite these new directions, the editors are keenly aware of classical studies in sociolinguistics, and their introduction begins with references to iconic research by William Labov, Dell Hymes, and John Gumperz, among others.

The first section is titled 'Disciplinary perspectives', and it begins after a brief account of the organization of this handbook, chapter by chapter, under the heading 'The study of language and society'. The editors outline the volume, which is substantial, consisting of nearly nine hundred pages, with laconic depictions of the entire text. These opening remarks are quite useful, and will allow the specialist to pinpoint alternative approaches to sociolinguistics—broadly defined—that may be of primary interest to different readers.

'Variationist sociolinguistics' is the first chapter of the book, and it provides an account that begins with Labov's groundbreaking study on Martha's Vineyard, and then moves on to describe an array of foundational sociolinguistic studies centered largely on research in the United States. The remaining sections of the chapter explore the case of null pronoun variation in Spanish, and the extension of the variationist paradigm within and beyond the United States. Readers who are familiar with the field will recognize references to some iconic sociolinguistic analyses, and the novice will be provided with a succinct depiction of some of the major global applications of variationist sociolinguistics that have helped to define the field.

'Linguistic anthropology' (Ch. 2) opens with a quotation from Michael Silverstein that affirms the intricate connections between language and culture. Indeed, the first sentence asks, 'Can we ever understand language without understanding the culture?' (31). As with the opening chapter, the authors describe major pioneering studies by Hymes and Gumperz before turning to 'language beyond linguistic form'. The chapter then explores a variety of relevant research that builds toward consideration of how linguistic anthropology will be encompassed within the future of sociolinguistic research.

Devoted to ways in which sociology is related to the study of language, Ch. 3, 'Doers and makers: The interwoven stories of sociology and the study of language', includes many references to classical sociological and philosophical figures, such as Jürgen Habermas, David Émile Durkheim, Immanuel Kant, and John Stuart Mill; I was struck, however, by the absence of any references to Joshua Fishman's formulation of 'the sociology of language' or Erving Goffman's influential analyses of 'talk'. Readers who are unfamiliar with early connections between sociology and studies of language will nevertheless find this chapter to be highly informative.

'Critical discourse analysis' (Ch. 4) contains several useful diagrams showing interconnections with highly complex topics related to the entire sociolinguistic enterprise, while conversation analysis (CA) is described in Ch. 5, including references to foundational formulations by Harvey Sacks, as well as the procedures and methods that are distinctive to CA research. The remaining chapters in this section explore language socialization, psycholinguistics, and interdisciplinary approaches; each of these three concluding chapters accounts for ways in which sociolinguistic inquiries overlap and intersect by drawing upon insights, methods, and analyses from diverse research practices.

Part 2, 'Methodologies and approaches', consists of Chs. 9–14, and the authors of each chapter devote concentrated attention to alternative sociolinguistic methods, including studies of communities and individuals in Ch. 9, and experimental methods to study the intelligibility of closely related language varieties in Ch. 10. Quantitative analysis is emphasized in Ch. 11, while qualitative methods utilized in multilingual circumstances are presented in Ch. 12. The remaining two chapters in Part 2 concentrate on longitudinal studies and methods for studying sign language respectively.

Each chapter in this section contains a wealth of evidence along with the corresponding procedures that gave rise to diverse results. In many respects the methodological discussions are complementary to several of the chapters in Part 1. For example, Ch. 9 presents a vast array of variationist findings that are derived from studies of communities and individuals in different

parts of the world; it shares some similarities with the opening chapter of this handbook, albeit with methodological intentions. Similarly, Ch. 13, which explores an array of longitudinal sociolinguistic studies, offers insights into the ways in which different scholars have evaluated language changes in real time in speech communities that are vastly different. As previously noted regarding the rationale for producing this handbook, Ch. 14, devoted to sign language research methods, serves to rectify the longstanding imbalance between sociolinguistic research in speech communities with emerging methods and findings that are pertinent to those who utilize sign language as well as the linguists who study sign language in use.

Graduate students will find all of these chapters to be of great value, especially because they help to clarify the circumstances under which alternative methods are appropriate. This is clearly the case regarding differences between quantitative and qualitative methods; both have considerable value, and the authors take care to emphasize the relative strengths and limitations of various methods without demeaning alternative procedures.

Part 3 is devoted to bilingualism and language contact. The five chapters that are included in this section begin with an extensive survey of pidgin and creole languages, followed by a chapter exploring language maintenance and language shift. Ch. 17 examines second language acquisition within a sociolinguistic paradigm, while Ch. 18 concentrates on code-switching. As was the case in Part 2, all but the last chapter within the section are devoted to various speaking circumstances. The birth of new spoken languages will be of interest to many sociolinguists, and the discussion of pidginization and creolization identifies many areas of the world where such languages have been formed, as well as some of the prevailing theoretical interpretations of how these newly created languages relate to universal grammar, with emphasis on the ways in which they develop tense, mood, and aspect. By contrast, the nature of language maintenance in established speech communities means that important attention is also devoted to an array of social considerations, including the formation of families and the circumstances under which they live and use language in their day-to-day lives.

Chs. 17 and 18, exploring second language acquisition and code-switching respectively, are very complementary to each other because the authors who evaluate second language acquisition do so by emphasizing the circumstances under which people are exposed to new languages in bilingual communities where more than one language thrives. In this instance many, but not all, of the pertinent illustrations are drawn from Canada, where French and English not only coexist but also share the status of official national languages. The circumstances, both formal and informal, under which second language acquisition takes place in Canada and elsewhere is complex, and the authors are mindful of the vast research on this topic, as well as the combination of linguistic, social, and stylistic factors that influence second language acquisition.

Code-switching is a form of bilingual speech production that varies greatly depending upon the languages in question. In addition, Ch. 18 identifies many of the characteristics of code-switching, such as interclausal code-switching or intrasentential code-switching. This chapter also evaluates the motivation behind code-switching, as well as some of the patterns of code-switching that exist for many bilingual and multilingual speakers living in highly diverse speech communities throughout the world. Indeed, the author notes that code-switching is quite pervasive and is of considerable communicative utility for those individuals who are fluent speakers of more than one language. The chapter also provides frequent references to leading research on this topic.

The last chapter of Part 3 is devoted to sign language contact, and it opens with the observation that 'Language contact is the norm in Deaf communities, and deaf people are typically multilingual' (379). In many instances the nature of language contact for those who are deaf intersects with alternative language modalities, such as speech or writing. However, the author takes care to illustrate instances of sign-to-sign language contact as well, that is, beyond the extensive interaction that many deaf people have with written forms of language. The author is keenly aware of the fact that deaf people are routinely surrounded by others who speak, and those who are deaf have, throughout history, been subjected to policies and practices that are frequently imposed on them by people who are not deaf. In this instance readers will be exposed to an array of circumstances

that are clearly beyond the control of the deaf community, but which nevertheless have direct impact on those who use sign languages, as well as the other modes of human language with which they have frequent contact.

Part 4 of the handbook is titled 'Variation', and the chapters in this section approach linguistic variability from different perspectives, beginning with Ch. 20, 'sociophonetics'. The author begins with acknowledging Labov, Yaeger, & Steiner 1972 as the seminal work that gave rise to a significant number of sociolinguistic studies that utilized detailed phonetic analyses. The chapter devotes considerable attention to the importance of precise measurements, and culminates with a survey of perceptual studies that have benefited from detailed phonetic insights. The next chapter, 'Phonology and sociolinguistics' (Ch. 21), begins with some reflective observations regarding Noam Chomsky's assertions about ideal speaker/hearers before introducing an array of phonological theoretical perspectives that, through time, have come to intersect with sociolinguistic studies of phonological variability. The author observes that a methodological rapprochement has been achieved in the twenty-first century as the fields of 'phonology' and 'sociolinguistics' have come to explore similar issues. A variety of languages as well as a broad survey of related studies from diverse theoretical perspectives are outlined in this chapter, which concludes with predictions of unified methodological approaches in the future.

Morphosyntactic variation is discussed in the ensuing chapter, Ch. 22, with foci on meaningful units of linguistic analysis and how they vary. Alternative opinions about the theoretical foundations of grammatical variability are presented prior to comments about the formulation of variable rules and the role of introspection. The grammatical competition model is critically reviewed prior to an exposé of recent generative approaches to morphosyntactic variability. As with the preceding chapter, the author concludes on a positive note by recognizing a methodological rapprochement.

In Ch. 23, 'Pragmatics and variationist sociolinguistics', the discussion begins with recognition of the early connection between semiotics and semantics that gave rise to contemporary research on pragmatics. Variability related to meaning encompasses several of the examples provided in this chapter, which strives to describe sociolinguistic meanings as they occur in speech. Unlike some of the other chapters that described methodological reconciliation between sociolinguistics and other branches of linguistic science, the authors in this instance conclude that methodological asymmetry prevails, along with an account of why this has occurred.

Ch. 24, 'Variation and change', begins with some reflections about the orderly linguistic heterogeneity described by Weinreich, Labov, and Herzog (1968). Although several linguistic variables are described, the author devotes considerable attention to the phrase *be like* and why it serves to illustrate the mechanism of linguistic change in progress. Part 4 concludes with a chapter devoted to the study of sociolinguistic variation and change in sign languages. The authors do an excellent job of identifying different sources of phonological, lexical, and grammatical changes in sign languages, but they are constrained by the written page, where still photographs and drawings make it difficult to determine the fluid nature of the sign language variation that is being described.

The remaining parts of the book have practical relevance; Part 5 is devoted to language policies, language ideology, and language attitudes, and the final part of the book concentrates on sociolinguistics as related to various professions and the public interest. Part 5 consists of eight chapters, and they describe language policies and ideologies in many different countries, including many English-speaking countries, China, South Asia, Latin America, western Europe, and many of the nations that were formerly associated with the Soviet Union. The eighth chapter in this section (Ch. 33) reflects upon language policies, ideologies, and attitudes toward sign languages.

Part 6, devoted to sociolinguistics and various professions, concludes this very substantial handbook, with the four opening chapters devoted to studies of language and the law, medical applications, advice for sign language interpreters, and the responsibility of sociolinguists to contribute to community welfare whenever possible. The final three chapters explore linguistic and ecological diversity as well as language revitalization, culminating with discussion of sociolinguistics and social activism.

The entire handbook benefits from the fact that all of the authors are outstanding scholars who are extremely well known in their respective areas of expertise. Readers who are already familiar with the field of sociolinguistics will recognize the names of most of the authors immediately because they are extremely prolific and well known for their independent scholarship that allowed them to provide authoritative commentaries on so many different sociolinguistic topics. Those who are new to the field of sociolinguistics will benefit from detailed insights from authors who are all exacting scientists. *The Oxford handbook of sociolinguistics* is highly technical throughout, and readers who come to this work without significant training in linguistics will be at a substantial disadvantage. Be that as it may, the diligent reader who knows little of linguistics will gain direct exposure to the rigorous scientific foundations of diverse sociolinguistic studies, including a wealth of research that is devoted centrally to studies of sign language, which are frequently overlooked or understated in other surveys of this kind.

As previously mentioned, graduate students who are interested in sociolinguistic studies are most likely to benefit from reading this handbook in its entirety, because the editors have taken great care to account for a combination of theoretical and practical insights regarding studies of language in social contexts. Such insights might otherwise be woefully misunderstood or inadvertently overlooked because of the exceptional growth of research disciplines that owe their existence to pioneering studies by Labov, Hymes, Gumperz, and a host of other linguists whose theoretical contributions have nurtured the maturation of sociolinguistic research during the past fifty years.

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Syntactic islands. By Cedric Boeckx. (Key topics in syntax.) Cambridge: Cambridge University Press, 2012. Pp. xv, 173. ISBN 9780521138789. $32.99.

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Syntactic islands (henceforth *SI*) opens with the bold statement that 'island effects are perhaps the most important empirical finding in modern theoretical linguistics' (ix). Indeed, it seems that hardly any linguist with an interest in clausal syntax would question the central importance of the study of locality. In Chomsky's (1980:194) informal definition, 'a phrase is an *island* if it is immune to the application of rules that relate its parts to a position outside of the island'. Given that we can turn 1a into 1b by replacing the object with a wh-phrase and moving it to the front, why does the same mechanical transformation fail when applied to 2a, yielding the decidedly odd 2b?

(1) a. John likes apples.
    b. What does John like?
(2) a.   John likes apples and oranges.
    b. *What does John like and oranges?

This is the problem of islands as standardly assumed: why do reorderings from some domains but not from others yield sentences we perceive as deviant? And how do we come to know this without ever having encountered direct evidence for it? Regrettably but understandably given the book's theoretical orientation, *SI* focuses almost exclusively on the first question; see Berwick et al. 2011 and Pearl & Sprouse 2013 for recent discussion pertaining to the second.

Boeckx pays ample tribute to Noam Chomsky and John Ross as pioneers of the study of syntactic locality. A concluding chapter rightly praises Ross for not merely compiling a catalog of island domains but also asking much harder WHY and WHERE questions: why do islands exist, and what is their locus—grammar itself or interfacing domains of cognition? *SI* surveys a variety of approaches to these questions, beginning with the origins of the study of locality: Chomsky's (1964) A-over-A condition and Ross's (1967) seminal study it inspired, which in turn informed groundbreaking works by Chomsky (1973, 1977). It was here that islands were first recognized as a diagnostics for movement and that a systematic attempt was made at formulating rules of some generality that would capture the impenetrability of certain domains across constructions, culminating in the theory of subjacency (restricting rule application to subjacent cycles, supplemented with provisos to permit 'long', successive-cyclic movement). B briefly reviews related notions such as weak islands, relativized minimality, and freezing, but the focus of the book is on strong islands and Huang's (1982) CONDITION ON EXTRACTION DOMAIN (CED). The background discussion in this opening chapter is helpful to understand the genesis of more contemporary notions such as BARRIERS and PHASES.

Ch. 2 (whose title is blatantly misspelled in the copy I reviewed) discusses 'reductionist' approaches to islands that seek to reduce locality effects to extragrammatical factors such as parsing, premised on the idea that dependencies straddling island boundaries exceed certain cognitive limitations (cf. Miller & Chomsky's 1963 classic discussion of multiple center-embedding). B rightly notes that this mode of explanation is a priori attractive in that it reduces UG-internal complexity, much in line with 'minimalist' ambitions (Chomsky 2007). At the same time, however, he makes it clear that he sees little hope for a comprehensive reduction to performance factors; he deplores the 'absence of a *theory* of cognitive constraints' (38, his emphasis) and points out that no such account has provided a satisfactory explanation of cases like 2b above. B cites two arguments against nongrammatical approaches but concedes that 'reductionist attempts … may be the best explanation we can hope for in at least some cases' (51).

This reconciliatory note notwithstanding, the tone remains pessimistic, and Ch. 3 is devoted to showing that grammatical accounts of island effects hardly fare any better. B pursues the right strategy to demonstrate this negative result: he discusses at length one of the most explicit formalist proposals to date, namely Müller's (2010) attempt to derive CED effects from a version of Chomsky's PHASES, supplemented with an intricate theory of 'edge features'. While misrepresenting some of the predictions of this analysis, B emphasizes that the sheer number of stipulations and resulting excess of arbitrary machinery testify to its failure to provide genuine insight into the nature of the CED. Since the most detailed subjacency-based analysis to date amounts to little more than a technical restatement of the facts, B concludes, it seems that this approach fails to carve the complex phenomenon along its natural joints.

As a reaction to these negative conclusions, B sketches an alternative proposal in Ch. 4, which seeks to shift the focus from narrow-syntactic constraints to the interfaces with interpretation and externalization. Unfortunately, the exposition suffers from a lack of clarity and formal precision; the approach bears a family resemblance to Uriagereka's (1999) and similar attempts to relate the opacity of certain domains to their 'completeness' and resultant cyclic transfer to the mapping components. Given the vagueness of the proposal (as well as its de facto limitation to subject islands, a crosslinguistically unstable effect; Stepanov 2007), it would have been beneficial to drop this chapter and instead address some of the neglected issues mentioned above and below.

SI is neither a systematic textbook nor a comprehensive history of research on islands, but an unashamedly subjective review of the state of the art. B's assessment of the situation is by and large negative. He is skeptical about essentially all extant approaches to islands, be they based on processing, subjacency, or even just the premise that transparency rather than opacity for extrac-

tion is the default (the majority position, questioned early on in work by Edwin Williams, Paul Postal, and others). While he provides arguments to support this skepticism, the discussion on the whole is slightly unbalanced; B presents few explicit arguments against extragrammatical accounts while arguing forcefully against the central role assigned to subjacency in the formalist tradition. What is sorely lacking from the book, however, is a systematic attempt at compartmentalizing the problem of islands into more tractable subproblems, despite B's proclaimed sympathy toward a 'pluralistic' approach.

SI treads interesting ground when his critique of Müller 2010 leads B to question the very idea of a DERIVATIONAL theory of islands, in which island domains directly preclude rule application. Approaches of this kind typically take island-violating sentences to be UNGRAMMATICAL in the technical sense: that is, not generated by the grammar. (Extending Ross's original metaphor in these terms, a domain X is an island because no phrase is admitted to the plane connecting X to Y, the mainland.) This general idea contrasts with representational accounts of islands, which seek to localize the relevant restrictions in OUTPUT CONDITIONS. That is, movement rules are free to apply across island boundaries (cf. Chomsky's 1981 Move-α or Chomsky's 2004 unconstrained Merge), but the resulting structures fail to conform to specifications imposed by interfacing systems (phrases are free to board the plane from X to Y but are turned away upon arrival at Y's airport). As B emphasizes, fleshing out the relevant output conditions is of paramount importance to any approach taking the latter route; to the extent that this can be done on principled grounds, their effects need not and should not be redundantly attributed to derivational constraints.

B's advocacy of representational (filtering) approaches to islands is based not only on the explanatory shortcomings of Müller-style analyses, but also on the putative existence of so-called island-repair effects, where nonlocal movement is 'amnestied' by subsequent syntactic operations (evidenced by the full acceptability of the resulting expression). B discusses two main contexts in which such repair effects have been argued to arise: resumption and deletion. Both phenomena are much more delicate and controversial than B's discussion suggests, however, and one cannot help but feel that a few more pages should have been devoted to the details (not least because of the book's length of a mere 134 substantial pages).

With regard to resumption, the situation is notoriously murky: on the one hand, the traditional claim that resumption obviates locality effects itself has been contested by experimental studies (Alexopoulou & Keller 2007, Heestand et al. 2011); on the other hand, it is not clear that the hypothesized repair effect rests on a valid premise, viz., that resumption involves movement. It is well known that resumption exhibits certain NONmovement properties, such as the absence of weak crossover effects (McCloskey 1990) and the systematic default case marking on resumptive binders (Merchant 2004), distinguishing resumption sharply from left dislocation (Ott 2014). With regard to island repair by deletion, too, the situation is much less clear than B's exposition suggests. Even the observation that certain elliptical constructions one might take to involve an island violation are fully acceptable is restricted to cases of simple sluicing with indefinite correlates and does not extend even to closely related constructions such as sprouting or fragment answers (van Craenenbroeck & Merchant 2013). Furthermore, a growing body of literature (see e.g. Merchant 2001 and Barros 2012) suggests strongly that the deleted structure in the relevant cases does not contain an island domain in the first place. 'Repair' by ellipsis thus furnishes no solid footing for arguments supporting a representational theory of islands. B is clearly aware of these qualifications and complications but relegates them to the footnotes (e.g. n. 20 of Ch. 4), resulting in a somewhat skewed discussion.

B cites an important corollary of representational (or nongrammatical) explanations of island effects: as noted by Ross, if such accounts prove correct, 'the relationship between grammaticality and acceptability must become much more abstract than has been assumed' (492). I think it would have been worthwhile for B to dwell more on this insight and the resulting question of how to interpret the * we customarily prefix to strings such as 2b. B adopts the standard view according to which * indicates a string's status as 'distinctly odd, … unacceptable' (ix), that is, an intuitive judgment of decreased acceptability. Derivational theories appear to largely rest on the

premise that such judgments of acceptability directly reflect grammaticality, echoing the characteristic style of early work in generative grammar inspired by formal-language theory. The implied correlation (or even equation) is highly dubious, however, given that acceptability is an entirely informal notion whereas grammaticality is a purely technical one (Newmeyer 2007) and, most significantly, that no independently given notion of 'well-formedness' exists for natural language (see e.g. Chomsky 1993:27, 44, n. 7 on this point).

   The issue is not just academic, and goes well beyond the problem of 'grammatical illusions' and the like. Consider again the simple case in 2b. Are such examples ungrammatical (not generated by the grammar)? The fact that many such cases have a rather transparent interpretation—in the case of 2b, something like 3—might be taken to caution against this conclusion.

   (3) which *x* : John likes *x* and oranges

Clearly, speakers can represent thoughts corresponding to 3; and equally clearly, there is nothing 'unspeakable' about the string in 2b. If we take 2b to be UNDERIVABLE by the grammar, where do logical forms such as 3 come from? On the alternative view that assigns grammaticality to 2b, the grammar does generate this sentence and its logical form, and the central question becomes why an externalized form corresponding to 2b cannot be reflexively associated with the thought in 3. Which approach is closer to the truth is an open question; the fact that speakers turn up their nose at 2b remains in either case, but it is plainly not a matter of grammaticality.

   Taking Ross's remark seriously forces us to factorize the problem of islands into mere observational phenomena and genuine explananda of the theory. As it stands, however, it must be admitted that an identification of the latter is pending, a problem that is easily obfuscated by the diligent distribution of asterisks. As a dedicated monograph, *SI* would have been the appropriate venue to reflect on these delicate but crucial matters, and B's thoroughly skeptical bird's-eye perspective would have provided for an ideal vantage point. That said, this short book will no doubt be a helpful resource for both researchers seeking to get the current lay of the land and students finding their way into this open wound of syntactic theorizing.

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Third language acquisition in adulthood. Ed. by JENNIFER CABRELLI AMARO, SUZANNE FLYNN, and JASON ROTHMAN. (Studies in bilingualism 46.) Amsterdam: John Benjamins, 2012. Pp. 312. ISBN 9789027241870. $135 (Hb).

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Over the past decade it has increasingly been argued that learning several languages is a different activity from learning two: beyond second language (L2) acquisition research lies third language (L3) acquisition, or indeed Ln acquisition. This book looks at some of the properties of L3/Ln acquisition primarily through three distinct models, presented in summary in the first chapter by the editors: the CUMULATIVE ENHANCEMENT MODEL (CEM), proposed by Flynn, which sees all previous language learning as contributing to L3/Ln learning; the TYPOLOGICAL PRIMACY MODEL (TPM), put forward by Rothman, which takes the contribution to depend on perceived or real typological closeness between the languages; and the L2 STATUS FACTOR, suggested by Camilla Bardel, which sees the L2 as contributing more to L3/Ln learning than the L1.

Part 1, 'Theory', mostly surveys swathes of existing L3/Ln research. The first chapter, by MARIA DEL PILAR GARCÍA MAYO and JASON ROTHMAN (unnumbered in the text like all of the chapters), 'L3 morphosyntax in the generative tradition', explains the models, looks at the issue of defining the initial state of L2 learning, and argues that 'generative L3/Ln acquisition' has general theoretical implications. The next chapter, 'L3 phonology' by JENNIFER CABRELLI AMARO, reviews research into L3 phonology, particularly transfer between the other languages and L3, the relationship between L3 and CEM, and methodology such as the lack of studies in L3 perception and intonation. Next comes the contribution by CAMILLA BARDEL and YLVA FALK, 'The status factor and the declarative/procedural distinction', relating the status factor to Michel Paradis's version of the declarative/procedural distinction and suggesting that future research might use L1s with different typological relationships to the L3. KEES DE BOT's chapter, 'Rethinking multilingual processing', introduces another orientation, DYNAMIC SYSTEMS THEORY (DST), in particular its flexibility over time, describes its main characteristics, and hopes to go beyond 'a purely metaphorical use of DST notions' (92) in multilingualism research. In 'Multilingual lexical oper-

ations', DAVID SINGLETON provides a history of crosslinguistic influence in L2 learning and sees the leakage between languages in L2 production as a sign of their close lexical integration. To conclude Part 1, 'L3/Ln acquisition: A view from outside', by ROUMYANA SLABAKOVA, measures four L2 hypotheses (interpretability, interface, feature reassembly, and bottleneck) against three studies of the syntax of L3 users, none of which accounts for the data fully, whereas a fifth hypothesis, modular transfer, introduced in the conclusions, may be better.

The first chapter of Part 2, 'Empirical studies', is 'Further evidence in support of the cumulative enhancement model', by ÉVA BERKES and SUZANNE FLYNN. This illustrates the CEM through L3 relative clause acquisition, demonstrating L3 facilitation based not on 'the last language learned' but on the L1. Next, 'Acquisition of L3 German', by CAROL JAENSCH, evaluates the three models against article acquisition in L2 learners of English learning L3 German, in which results favor the TPM and status models. VALERIA KULUNDARY and ALISON GABRIELE, in their chapter 'L2 syntactic development in L3 acquisition', find that the most influence on L3 relative clause acquisition comes from L2 Russian. JEAN-MARC DEWAELE explores via L3/Ln speakers nine hypotheses in 'Variation in two local and two foreign languages', revealing the many factors that contribute to self-perceived proficiency. Next, 'Advanced learners' word choices in L3 French', by CHRISTINA LINDQVIST, tests how lexical choice between equally valid L3 items may be affected by L1/L2 frequencies, showing that advanced learners use more general words and more words from the L1. Finally, in 'Foreign accentedness in third language acquisition: The case of L3 English', MAGDALENA WREMBEL finds more influence from L1 Polish than L2 French in the perception of foreign accent by L3 English learners.

The fields that research the acquisition and use of languages beyond the first are compartmentalized, not only into bilingualism research, second language acquisition (SLA) research, and multilingualism research, but also into competing theories within each of these. Most of the contributions here belong to what is now termed 'generative' second language acquisition. (It may be worth pointing out that the word 'generative' seems to mean 'syntax within the Chomskyan tradition', unlike its earlier meaning of 'formal and explicit' (Botha 1989).) Generative SLA forms one faction within SLA research that holds its own conferences and that is fairly impenetrable to other SLA researchers, not only because of the complexity of the syntax involved but also because of its short shelf life—on page 17 we learn that Chomsky's (1995) version of the minimalist program is now quite outdated as a basis for SLA models. But most of the book's contents also belong to trilingualism/multilingualism research, that is to say to another faction, mostly within the field of bilingualism research, which again has its own conferences and journals. The book represents then the intersection of two subsets of SLA research, that is, 'generative' plus L3/Ln research. In line with the generative SLA tradition, its arguments involve competition between SLA theories, hypotheses, and models—the terms seem interchangeable—rather than developing them in their own right or relating them to the rest of language acquisition research. Hence, the core of the book is the rivalry between the CEM, TPM, and status factor, amplified in later chapters by DST, multilingual processing, interpretability, interface, feature reassembly, bottleneck, distributed morphology, modular transfer, and probably more.

The chapters cumulatively impress by the range of the areas that are covered, from phonology (Cabrelli Amaro, Wrembel) through the lexicon (Singleton, Lindqvist) to diverse areas of syntax (most of the rest). The contributors represent several generations of researchers from the US and European countries and discuss a wide range of languages, mostly Indo-European, apart from Tuvan and Japanese. The methodology in the empirical section is rigorous but conservative: for example, accent and proficiency self-ratings, elicited imitation, gender assignment, multiple-choice comprehension tests. All in all, it is a useful collection of sound research that one will go back to for the surveys and detailed research when necessary. The less well-integrated contributions are from authors who sympathize with L3/Ln acquisition studies rather than are insiders in the generative tradition, that is, De Bot on DST and Singleton on lexical acquisition. They are not linked to the main models examined but do in a sense what it 'says on the box'—that is to say, these chapters apply their authors' well-known views to multilingualism.

So what? Why L3/L2 is distinct from L2 acquisition is not really described, presumably because it is felt that this point has been already been proven. It might nevertheless have been use-

ful to point the reader toward some authoritative arguments in its favor rather than simply proclaiming 'the authors all seem to agree that a departure in L3/Ln acquisition that embraces the unique properties that differentiate L2 from L3/Ln acquisition is essential' (3). The alternative theories apply to the relationship of three or more languages; there are brief accounts of implications for more general issues of acquisition, such as Slabokova's extrapolation of L2 hypotheses to L3/Ln, de Bot's program for all-embracing DST, and Garcia Mayo and Rothman's for overarching universal grammar. But there is little attempt to see how most of the research connects with L2 or indeed L1 acquisition, that is, how it can contribute to a unified theory explaining the human mind's potential for learning one or more than one language.

To a noncombatant, the three theories championed here are in a sense saying the obvious: the L1 contributes to L3 acquisition (CEM); the L2 perhaps contributes more (status factor); and the effects depend on the crosslinguistic relationship between the languages (TPM). All of these are perfectly plausible and can coexist quite happily without contradiction. In an overall model of the whole language system in the mind, it is a matter of how these relationships between L1, L2, and L3/Ln are weighted, not of whether they actually exist. It is not a matter of having to choose between three models in any absolute sense, just of judging their relative importance. Surprisingly, while the forward relationships of the L1 and L2 with the L3 are argued at length here, nothing is said about the backward relationships of the L2 and L3 with the L1. Does, for instance, the L3 have a greater or lesser effect on L1 syntax than the L2? The editors have not declared a winner out of the models, perhaps indeed because each reflects an integral aspect of multilingualism that varies according to the area of language involved and particular circumstances of acquisition.

An interesting methodological point is the typical assumption that L3/Ln learning takes place in classrooms. This contrasts with much multilingualism research, which looks at the L3 in real-life settings, or indeed some of the background papers surveyed in the earlier chapters. In the empirical papers here the learners are learning one or more of their languages in a school or university. Yet the teaching factor is not mentioned, except in as far as it is covered by the concept of input, though this, too, receives minimal attention. The generative model requires an initial state, an encounter with language input, and a measurable L2 output state. The snag with researching taught learners is that they have had skewed input in the classroom, for good or for bad. The explanation between contradictory findings—for example, one set of results with relative clauses favoring L1 influence (Berkes and Flynn), another L2 influence (Kulundary and Gabriele)—may, or may not, be the teaching the learners have had, whether the traditional grammatical explanation still used in many countries or the teaching to the Common European Framework (Council of Europe 2001) now prevalent in many countries. While the problems in dealing with taught learners were acknowledged in early SLA research, recently researchers seem to feel no need to justify their use of the artificial situation of classroom language learning or to present safeguards that can allow them to escape these limitations, such as an account of the relevant teaching the learners have had or a reliance on testing language elements that have definitely not been taught to the learners. Books like Whong et al. 2013 are indeed predicated on the idea that generative linguistics can affect language teaching, that is, that the input in a broader sense does make a difference. To take an extreme view, this could be classified as educational research—how students react to teaching—rather than L3/Ln research.

This book shows the maturity of research in L3/Ln acquisition, which has produced a new generation of models and research questions related to contemporary linguistics. Given the ephemerality of generative SLA research, its linguistic bases will doubtless be superseded by the time this review appears in print. But the book gives a useful snapshot of ideas and methods at a moment in time when multilingualism research is starting to take off.

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Native listening: Language experience and the recognition of spoken words. By Anne Cutler. Cambridge, MA: MIT Press, 2012. Pp. xvii, 555. ISBN 9780262017565. $50 (Hb).

Reviewed by Annie Tremblay, *University of Kansas*

Listening to one's native language (L1) seems effortless. Native listeners recognize words rapidly and efficiently using a wide range of linguistic information, from subsegmental (acoustic-phonetic, allophonic) cues to segmental (transitional, phonotactic) cues, rhythmic cues, suprasegmental (stress, prosodic) cues, and contextual (syntactic, semantic) cues. Native listeners are also adept at recognizing words under more difficult listening conditions. This efficiency, however, comes at a cost when listening to a second/foreign language (L2). The cues that make native listening efficient are often not useful for recognizing L2 words, and those that would be are typically not used by nonnative listeners.

In her book, Anne Cutler provides a comprehensive review of native and nonnative speech-processing research over the past four decades, much of which she has conducted. She argues, quite convincingly, that speech processing is shaped almost exclusively by native listening experience. Through studies that employ a variety of experimental paradigms, she demonstrates that native listeners use all information available in the signal to maximize efficiency and minimize interference. C argues that it is this efficiency that results in less-than-optimal nonnative listening. Nonnative listeners experience more lexical activation and competition than native listeners due to asymmetrical mappings between the L1 and L2 sound systems. C assumes that the processing system remains adaptive throughout life, as evidenced by native listeners' adaptation to regional- and foreign-accented speech and their adjustment of phonetic categories. It is thus the native listening experience, and not a biologically determined time-sensitive period for speech learning, that C holds responsible for nonnative listeners' inefficient processing.

Universal to native listeners is the ability to segment continuous speech into discrete units such as words and phonemes. By the end of the first year of life, infants have already tuned in to native phonemes and can locate words in speech. Although this ability is universal, the knowledge that results from it is language-specific. It is only by conducting crosslinguistic research that psycholinguists can specify what aspects of speech processing are universal and what aspects are language-specific. This argument, made explicit in Ch. 1, is central to C's book and to her extensive research, which has focused on no less than twelve languages (Cantonese, Dutch, English, Finnish, French, German, Italian, Japanese, Korean, Sesotho, Spanish, and Telugu).

Understanding language-specific aspects of speech processing begins with an examination of the types of information that distinguish words from one another in different languages. C exemplifies this in Ch. 2. She shows that languages do not have enough segments for words to be sufficiently distinct, in part because short words can be embedded segmentally within longer words (e.g. *can* in *candle*). However, with the addition of stress information, for example, the number of lexical embeddings decreases considerably. As C further illustrates, phonetic differences in how languages instantiate phonemic distinctions can also impact how listeners categorize speech, and so will the nature of the segment (consonant vs. vowel) that carries the distinguishing informa-

tion. Lexical characteristics that may also impact speech processing include morphological structure, word type (open vs. closed class), and frequency.

One universal aspect of speech processing is that words that completely or partially match the signal are activated and compete for selection. C discusses this in Ch. 3. She demonstrates how these lexical processes are modeled in auditory word-recognition models, including Norris's (1994) connectionist SHORTLIST A model and Norris and McQueen's (2008) Bayesian SHORTLIST B model. Based on some of her research, C provides evidence that phonological and conceptual representations are separate, with lexical competition involving only phonological representations but with lexical activation passing rapidly to conceptual representations. She further shows that lexical activation can be affected by suprasegmental information, morphological structure, gender, and word type (open vs. closed class).

Lexical activation and competition do not, on their own, provide a satisfactory explanation of how listeners recognize words in continuous speech, however. These two processes imply a lexicon, which infants do not yet have when they learn to segment speech. Furthermore, segmentation cues help adult listeners locate word boundaries. These cues, some of which are the focus of Ch. 4, are language-specific and thus must be learned. C provides substantial evidence that listeners with L1s that differ in rhythm (e.g. English vs. French vs. Japanese) use different rhythmic metrics (respectively, the foot vs. the syllable vs. the mora) for locating word boundaries in speech, also referred to as the METRICAL SEGMENTATION STRATEGY (Cutler 1990). She also synthesizes research that shows native listeners use phonotactic, transitional probability, and vowel harmony cues in the segmentation of real and artificial languages.

One recurring finding in C's research is that native listeners do not like segmenting words from speech if doing so leaves a single consonant as residue. This finding holds even if the word to segment is cross-spliced from a context where it instead leaves a syllable as residue. Norris and colleagues (1997) called this the POSSIBLE-WORD CONSTRAINT (PWC), discussed in Ch. 5. Implementing the PWC in English and Dutch words reduced lexical embeddings by more than half, and implementing it in shortlist A simplified the model while still approximating listening data. C argues that the PWC presents important advantages for speech-segmentation theories and models. Since it was attested in many languages (e.g. Cantonese, Dutch, English, French, German, Japanese, Sesotho), she proposes that the PWC is universal. Yet, in languages that allow single consonants as content words (e.g. Tarifit Berber), the PWC does not operate. C thus suggests that the PWC is inhibited if it would otherwise be counterproductive.

Another universal aspect of speech processing is that all native listeners can interpret speech despite the presence of fine-grained acoustic-phonetic variability in the signal. This variability, which is the focus of Ch. 6, can be studied only within the context of a particular language. Phonological processes can insert, delete, or transform sounds in certain phonetic environments in some languages but not others. Coarticulatory information further affects sounds in proximity. C effectively shows that native listeners can compensate for this predictable variability when interpreting the speech signal. She proposes that they do so at a prelexical level, but provides stronger evidence for this proposal in Ch. 11.

Languages all have prosody, but they differ in how prosody is realized and what role it serves in speech processing. In Ch. 7, C provides unequivocal evidence that distinct prosodic systems will result in listeners' different use of prosodic information in speech processing. If prominence within the word varies predictably (stress, pitch accents), native listeners will use it to rule out lexical competitors, though less so if it is correlated with segmental information, as is lexical stress in English (Cooper, Cutler, & Wales 2002). If prominence within the word or phrase tends to align with word edges, native listeners will use it to locate word boundaries in continuous speech. Native listeners also use sentence-level prominence (e.g. contrastive accents) to infer discourse structure, and they are sensitive to how segments are realized at the edges of vs. within prosodic domains. C concludes that despite its important role in word recognition, prosody has yet to be satisfactorily integrated into existing models of speech processing. This gap is indeed one that computational psycholinguists ought to fill.

Native listening does not develop without early and continuous exposure to the L1. This exposure, which begins in the womb, is critical for infants to become sensitive to native phonemes and

locate words in speech. In Ch. 8, C describes the process by which infants acquire this knowledge, focusing on the first year of life. In the first six months, infants develop sensitivity to the rhythmic structure of the L1, and they can distinguish among some native vowels. In the next six months, they develop sensitivity to native consonantal contrasts, and they become able to use segmentation cues such as transitional probabilities and prosody. C suggests that the differences in form and frequency between open- and closed-class words may also universally help infants locate words in speech.

The knowledge of native phonemes and cues to word boundaries that infants develop makes subsequent nonnative listening difficult. As C clearly demonstrates in Ch. 9, due to the asymmetric mapping between L1 and L2 phonemes, nonnative listeners may not be able to distinguish between certain minimal pairs (e.g. *light* and *write* for Japanese learners of English, *bat* and *bet* for Dutch learners of English), and they may experience activation from lexical embeddings that native listeners would not hear (e.g. *lock* in *rocket* for Japanese learners of English; *deaf* in *daffodil* for Dutch learners of English). Even if nonnative listeners were to perceive L2 phonemes accurately, they could still experience lexical activation from L1 words, unlike native listeners (at least those without substantial knowledge of another language).

The inefficiency of nonnative listening further extends to the use of rhythmic, phonotactic, and prosodic cues in word recognition. In Ch. 10, C provides a thorough discussion of nonnative listeners' use of L1 segmentation cues in L2 speech processing. In most cases, this results in suboptimal L2 word recognition (though, interestingly, Dutch listeners outperform English listeners in the use of suprasegmental cues to English stress, because these cues benefit word recognition in Dutch more than they do in English; Cooper et al. 2002). Nonnative listeners also experience difficulty in integrating contextual information, and their perception of speech is more adversely affected than that of native listeners.

One might conclude from Chs. 9–10 that adult speech perception is not adaptive. Yet, native listeners can easily adapt to regional and foreign accents and adjust their phonetic categories. C focuses on this compelling evidence in Ch. 11. She highlights that native listeners' adaptation to accents is talker-specific, but can be generalized to other talkers if listeners hear multiple talkers with the same dialect or L1. She further shows that native listeners adjust their phonetic categories based on phonetic context, phonotactic regularity, speech rate, and talker idiosyncrasies. For example, native listeners exposed to a sound acoustically ambiguous between /s/ and /f/ but lexically unambiguous retune their phonetic category such that they perceive the ambiguous sound in new words as the sound to which it corresponded in trained words (McQueen, Cutler, & Norris 2006). C thus concludes that L1 representations are 'more sharply defined' and adaptable than L2 representations (409).

The logic and empirical evidence through which C walks the reader in Chs. 1–11 culminates in Ch. 12, where she discusses the architecture of the processing system that enables native listeners to make optimal use of speech information. C argues, again persuasively, that abstract prelexical and abstract lexical representations must be involved in speech processing. Models in which auditory words are compared against thousands of stored lexical exemplars simply cannot explain native listeners' generalization of phonetic category adjustments to words for which these listeners have in fact no exemplars. At the same time, listeners do store some talker-specific information. C suggests that hybrid models representing both exemplar and abstract knowledge would best capture native listeners' speech-processing behavior. C also argues in favor of models where information cascades through processing levels strictly from the bottom up. She discusses Norris, McQueen, and Cutler's (2000) MERGE model, which can explain apparent lexical effects on phonemic categorization by attributing the locus of decisions in different tasks to prelexical vs. lexical processing levels.

What emerges from C's comprehensive appraisal of speech processing research is the view that native listeners' processing system is optimally efficient in its use of language-specific information. Therein lies its universality. The clarity with which C defines relevant theoretical concepts and experimental paradigms makes the content of this book accessible to students pursuing research in native and nonnative speech processing. The breadth and depth of its scope will nonetheless keep junior and senior scholars on their toes as they appreciate the different pieces of

the speech-processing puzzle that C coherently brings together. Ultimately, this book represents the rigorous research program that C has carried out over the past four decades, one that has made a tremendous impact on speech-processing research and shaped the field as we know it today.

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Towards a biolinguistic understanding of grammar: Essays on interfaces. Ed. by ANNA MARIA DI SCIULLO. (Linguistik aktuell/Linguistics today 194.) Philadelphia: John Benjamins, 2012. Pp. 367. ISBN 9789027255778. $158 (Hb).

Reviewed by LYLE JENKINS, *Biolinguistics Institute*

This collection of essays is a timely and important contribution to the field of biolinguistics, the study of the biology of language. The book provides an interdisciplinary look at language research in the areas central to biological inquiry: form and function, development, and evolution. Questions about the relative influence on the language faculty of genetic endowment, experience, and external factors are investigated. Anna Maria Di Sciullo has chosen as the unifying theme for the book the study of the interfaces mediating between the computational system of syntax/lexicon and the systems for sound and meaning.

In 'Single cycle syntax and a constraint on quantifier lowering', HOWARD LASNIK revisits an old problem, why the sentence *Nobody is (absolutely) certain to pass the test* cannot be paraphrased by *It is (absolutely) certain that nobody will pass the test*. This is one example of many where negation and certain quantifiers fail to have a 'lowered reading'. At the same time, indefinites do allow such readings. In order to reconcile these facts, Lasnik evaluates a number of alternative proposals, before settling on an interesting solution that uses a particular formulation of the abstract notion of a syntactic cycle ('single cycle syntax') to constrain the operation of scope and movement.

In 'A constraint on remnant movement', TIM HUNTER explores what for many decades has been a rich mine for investigating the structure of the language faculty, viz. constraints on syntactic movement. Here he reviews data on the phenomenon of 'remnant movement', where a sub-constituent such as an NP is moved out of a larger constituent, such as a verb phrase, after which the larger phrase is moved. This is illustrated by the German sentence *Gelesen hat das Buch*

keiner 'No one read the book' where the noun phrase *das Buch* 'book' is extracted from the verb phrase, leaving behind the 'remnant' verb phrase containing only the verb *gelesen* 'read', which is then fronted. Hunter formulates a locality constraint on remnant movement (the 'just outside constraint'), which has interesting implications for word order (SVO, SOV, VSO, verb-second).

In 'Language and conceptual reanalysis', PAUL M. PIETROSKI takes up the question of the role of semantic computations for human language, from a biolinguistic perspective in general, and in the 'spirit' of the minimalist program. In particular, he investigates the core notion of semantic composition and examines a number of traditional (e.g. Frege-Tarski) and modern (e.g. neo-Davidsonian) approaches. For Pietroski meanings are instructions for building concepts so the computations for semantic composition include accessing concepts via lexical items and conceptual composition. He examines a wide range of linguistic constructions, developing analyses that have bio-logical (rather than merely logical) plausibility. In one place, he even pointedly states that 'biochemistry can create concepts' (80). This recalls Noam Chomsky's observation that linguistic universals are principles based on biological, not logical, necessity.

In 'Decomposing force', DANIELA ISAC examines the semantics of imperative clauses. Traditionally, a syntactic Force feature had been proposed to distinguish declarative, interrogative, exclamative, and imperative clauses. Isac undertakes a cross-language comparison of the syntactic and semantic properties of imperative clauses (for which she assembles a number of useful diagnostic tests) to make the case that imperative force can be better understood if the Force feature is derived from two features: modality and second person. In support of her analysis, she presents an interesting discussion of the properties of root and nonroot modals to account for the fact that imperatives pattern with nonroot modals. Isac notes that this analysis may possibly extend to other clauses types—for example, exclamatives and interrogatives—but leaves this open for future research.

In 'Function without content: Evidence from Greek subjunctive *na*', CHRISTIANA CHRISTODOULOU and MARTINA WILTSCHKO provide evidence that in certain cases the function of functional categories (such as INFL) can be independent of their content. They propose that Greek subjunctive *na* spells out the 'anchoring' function of INFL (to encode a dependency). An implication of their analysis of *na* for interface architecture is that some functional elements may need to be inserted prior to spell-out. They provide an interesting application of their syntactic analysis to Down syndrome speech impairment, often attributed to problems with TENSE. They argue that the association of INFL with its content (not INFL itself) underlies the impairment, as the use of Greek (and Cypriot Greek) *na* is not affected in Down syndrome, which, in turn, is consistent with data from Dutch and German.

In 'The association of sound with meaning: The case of telicity', ATSUSHI FUJIMORI presents a previously unknown sound-meaning correspondence between vowel quality and verbal telicity in Yamato-Japanese. In particular, monosyllabic (and bisyllabic) verbs with the vowel /e/ or /u/ denote telic events (events with an endpoint), and monosyllabic (and bisyllabic) verbs with the vowel /i/ or /o/ denote atelic events (events with no endpoint). In addition, carefully constructed experiments with nonce verbs show that the distinction is still part of the speaker-hearer's competence. Fujimori notes that verbal telicity is also overtly marked in Arabic and Malagasy and, interestingly, in American Sign Language (see article below by Malaia and Wilbur). He proposes a central/peripheral distinction, supported by MRI data. He concludes with a discussion of phrasal telicity.

In 'Towards a bottom-up approach to phonological typology', CHARLES REISS examines alternative ways to define phonological variation with features. He compares a phonological system with segments (sets of features), inventories (sets of segments), and rules with underspecification (+F, –F, absence of F) to one without underspecification (+F, –F). A standard example of underspecification would be the Turkish plural morpheme unspecified for the [back] feature. He argues that although a system without underspecification grows as 2^n, whereas one with it grows as 3^n, the latter is more restrictive in the sense that the system does not overtly exclude the absence of a feature, similar in spirit to the minimalist argument that universal grammar (UG) should not ex-

clude the property of internal Merge. At the same time it allows for more possible languages with fewer features.

In 'The emergence of phonological forms', BRIDGET SAMUELS marshals evidence for prelinguistic evolutionary precursors and preadaptations that may have been recruited for the language faculty. These would help account for the rapid emergence of language. Such precursors include digital signal processing, categorical perception, for example, the voice onset time (VOT) boundary, to which many mammals are sensitive, as well as the sensitivity of the auditory cortex in ferrets to acoustic properties like formant transitions and frication that correlate with phonological features, as discovered in single-neuron recordings. As is well known, language (spoken and sign language) is modality-independent, and sign language also has phonological features. Samuels points to studies showing neurons sensitive to different handshapes and facial movements that may suggest another neural precursor for sign language, as in the ferret studies.

In 'Non-native acquisition and language design', CALIXTO AGUERO-BAUTISTA takes up the claim that language development is not subject to a critical period since UG appears to be available throughout life for learning multiple languages. He argues that before one can conclude this we need to ask what parts of the language system might be subject to such a critical period. Aguero-Bautista maintains that we need to distinguish built-in architectural properties of the faculty of language like the cycle, which is not learned and which helps account for principles like structure-dependence and the weak crossover principle, and, second, lexical learning, which takes place in the lexicon via parameter setting. If only lexical learning is subject to a critical period, this might explain the apparent paradox of language learning late in life.

In 'Interface ingredients of dialect design: Bi-*x*, socio-syntax of development, and the grammar of Cypriot Greek', KLEANTHES K. GROHMANN and EVELINA LEIVADA investigate the role of sociolinguistic variables in the development of Cypriot Greek, acquired at home, after which Standard Modern Greek is learned in school at age five to six. They consider various perspectives on what a dialect vs. a language is (recall Weinreich's dictum that 'a language is a dialect with an army and a navy') and on diglossia, bilingualism, bidialectism, and so on (for which they propose the cover term 'bi-*x*'). Grohmann and Leivada use picture-based elicitation tasks with Greek Cypriot children to show that variation in direct object clitic placement (enclisis vs. proclisis) is affected not solely by syntactic factors, but also by sociolinguistic variables such as prestige, here of Standard Modern Greek, an approach they term 'socio-syntax'.

In 'What sign languages show: Neurobiological bases of visual phonology', EVIE MALAIA and RONNIE B. WILBUR investigate the hypothesis that kinematic properties of hand articulator movement are phonologically relevant in sign language. They utilize recently available techniques of motion capture and neuroimaging to study this hypothesis. Motion capture of the location of the moving hand in three dimensions allowed them to compute such properties as velocity and acceleration, and show that telic (vs. atelic) American Sign Language signs have higher deceleration at the end, supporting the theory that they have a more complex phonological representation, which in turn was confirmed by fMRI studies of Deaf participants who viewed the motion video recordings. They conclude that sign language is 'perfectly adapted to the human visual system' and fine-tuned signed input is mapped into a visual phonology.

In 'Indeterminacy and coercion effects: Minimal representations with pragmatic enrichment', ROBERTO G. DE ALMEIDA and LEVI RIVEN investigate 'indeterminate' sentences such as *the man began a book*, which have both a semantic meaning and a pragmatic interpretation, depending on context—the man began doing something (reading, writing, etc. depending on context) with the book. Psycholinguistic experiments show that such sentences take longer to process than sentences like *the man read a book*. De Almeida and Riven reject traditional explanations of these 'coercion' effects—lexical-semantic decomposition and type-shifting—in favor of positing a 'structural gap' (empty V head), supported by linguistic evidence from middle verbs, compounds, and so on. This structural gap in turn triggers pragmatic inferences. This hypothesis is shown to be consistent with memory experiments and imaging studies (fMRI, MEG).

In 'Computation with doubling constituents: Pronouns and antecedents in phase theory', SANDIWAY FONG and JASON GINSBURG develop a computer model that implements parts of the

minimalist theory (including their own version of the operation of Last Resort) and a modification of Richard Kayne's doubling constituents theory to generate sentences with pronouns and their antecedents (traditional binding theory). They use the model to verify coverage of a variety of facts from (multi)clauses, possessive DPs, and picture DPs. They note that the theory underlying the computer implementation has the right properties for efficient computation, viz.: (i) the computational operations are bounded, and (ii) there are no unnecessary computational choice points. For example, (i) goal search (for the probe-goal mechanism) is phase-bounded, and (ii) Merge always takes precedence over Move.

In 'Concealed reference-set computation: How syntax escapes the parser's clutches', THOMAS GRAF poses the question of whether 'the shape of syntax is uniquely determined by interface requirements'. To answer this (in the negative), he considers reference-set constraints (or transderivational constraints, global economy conditions) in syntax, which have the property that the economy metric must pick the optimal tree from a set of competitors in a derivation. But then the requirement for efficient computability would not be satisfied for the parser. However, Graf derives a mathematical result to show that some reference-set constraints can be reformulated in the minimalist framework in such a way as to satisfy the parser, while the syntax can continue to use reference-set constraints. He demonstrates this with an implementation of Merge-over-Move as a linear bottom-up tree transducer.

This volume is an outstanding contribution to the field of biolinguistics. Di Sciullo has provided a well-balanced and integrated collection, with extensive bibliographies, so that every reader is certain to find much of interest in many areas of the biology of language.

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Interpreting motion: Grounded representations for spatial language. By INDERJEET MANI and JAMES PUSTEJOVSKY. (Explorations in language and space.) Oxford: Oxford University Press, 2012. Pp. 176. ISBN 9780199601240. $110 (Hb).

Reviewed by JOHN A. BATEMAN, *University of Bremen*

The treatment of space and spatial language has long been an area of philosophical, theoretical, and now also increasingly practical concern. Detailed studies of spatial language and its use have been pursued in the areas of language typology, formal semantics, psycholinguistics, child language development, language relativity, human-machine interaction, dialogue analysis, computational modeling, geographical information science, formal ontology, and many more. Interaction with others in, and about, space is a fundamental aspect of human intelligent behavior, and explicating the role of language in this capacity raises substantial challenges. Inderjeet Mani and James Pustejovsky's volume for the Oxford University Press series 'Explorations in language and space' offers a contribution to one component of this broad area of investigation by developing a treatment of spatial language expressions involving 'motion'.

The essential idea of M&P's approach is straightforward. A fairly standard syntactic analysis is used for the compositional construction of a denotational event-based semantics involving spatial categories. The lexical argument structure of verbs and other syntactic categories involving motion introduces semantic categories such as 'path', 'location', 'orientation', 'figure' (an object to be located, or 'locatum'), and 'ground' (a background or reference object against which or relative to the locating occurs, or 'relatum'). Further conditions involving the manner of movement, the medium through which the movement occurs, and the path over which the movement occurs are then specified as changes in the spatial relationships holding over the entities identified. A verb such as *bounce*, for example, is characterized as an activity where the figure is first in an ex-

ternally connected spatial relationship to some ground and subsequently in a spatial relationship of 'disconnection' to that ground repeatedly throughout the activity; similarly, the verb *leave* receives a semantics indicating that the figure is first 'in' some identified ground (e.g. a 'room') and at a later time is spatially disconnected with that ground.

The structure of the book and the authors' presentation of their material follow broadly their respective interests. P has been concerned with articulating formal semantic descriptions for selected areas of natural language for many years, while M has addressed the tasks and challenges of providing practical annotation schemes and corresponding tools for large-scale corpora. Previously, these interests were combined in a corpus markup scheme for temporal expressions, called TimeML, that took proposals for the semantics of natural language temporal expressions as the basis for semantically well-defined annotations. A move to include spatial language in the same spirit then appeared promising, and so the methodologies and tools developed for time were extended, first to the annotation of static spatial expressions (SpatialML) and, with this book, to motion expressions (now also presented as part of a proposed markup standard for spatial annotation of corpora called ISO-Space).

M&P build on two theoretical pillars. First, they import results from the area of qualitative spatial representation to provide the spatial relations they need and their formalizations (Ch. 3), and second, the resulting semantic expressions are couched in terms of a dynamic interval logic that allows for the definition of procedures of the kind just suggested for *bounce* and *leave* (Ch. 4). M&P then suggest that the representations developed are a sound basis for large-scale corpus annotation of motion events (Ch. 5) and offer some illustrative applications showing the value of both the formal framework and its provision of richly annotated linguistic data (Ch. 6).

This development draws primarily on work in two areas. On the one hand, there is substantial linguistic research from researchers such as Ray Jackendoff, Leonard Talmy, Ronald Langacker, Annette Herskovits, and many more addressing the linguistic expression of space, proposing linguistic semantics of space in a variety of frameworks, addressing consequences of compositionality, and so on. On the other hand, there is also extensive formal work exploring the qualitative representation of space by means of well-specified 'calculi' that allow specifications of the relationships between regions (based on connectivity of regions: the so-called RCC (region connection calculus) being the most well known), orientations (left-right, forward-backward, cardinal directions), trajectories, and many more. Significant results have been achieved concerning how such calculi can be used for formal inference and reasoning and employed in database systems. Moreover, much is now known about the formal consequences of combining distinct kinds of information, for example, combining region-based representations with metric information such as distance or size. The effects that such combinations have on tractability and usability are by no means obvious, and one has to be very careful to avoid blow-ups in computational complexity, although M&P do not address this.

On the surface it would appear obvious that the two areas of research—that of linguistic analysis and the other of qualitative spatial reasoning—have much to learn from one another. And yet, there is surprisingly little communication between them. Approaches to linguistic descriptions often do not make reference to qualitative spatial reasoning, and spatial reasoning has not traditionally been concerned with the issues that arise when space and spatial actions, movements, and so on are considered from the perspective of their expression in language. M&P seek to redress this imbalance in the particular domain of motion and its linguistic expression.

This is certainly a laudable aim and should be given far more attention, particularly by those working on natural language semantics. Combining insights from qualitative spatial representations and from linguistic treatments of natural language offers much that is necessary for further progress, both from the perspectives of qualitative spatial reasoning and language and, indeed, from any related fields where representation and inference concerning space and its expression in language are relevant, such as in robotics and human-machine interfaces for spatially embedded tasks. For this reason, then, M&P's contribution is a welcome addition to the literature. It provides an introduction to some of the problems of addressing spatial language, overviews the more central qualitative spatial calculi, and shows one way in which these can be brought together.

That all being said, there are a few things that the prospective reader needs nevertheless to be wary of. One of these is the book's rather selective references to the state of the art and related work. M&P take a very narrow view of just what to cite and what not. To be considered relevant by them, research needs to address linguistic issues AND qualitative calculi AND compositional semantics of motion terms. There is then, as the authors emphasize more than once, rather little literature left to consider—despite the existence of a considerable body of work addressing areas of central concern to the task as a whole. Such work includes approaches to compositional semantics involving nonmotion spatial terms, connections between natural language and qualitative calculi, uses of qualitative calculi for contextualized interpretation and reasoning, and much more. Much seminal work on spatial language and formalizations of space and, probably more importantly, the OPEN PROBLEMS currently facing such work, therefore, receive insufficient attention (for a critical review of a broader range of approaches and further references, see Bateman 2010).

Another area of difficulty is M&P's particular use of terms: for example, GROUNDING is taken in a way that is not immediately related to the general use of grounding within discussions of spatial language. This is unfortunate for a term that even appears in the book's title and could well prove misleading. Much work in the field now focuses on the embodied situated agent as a critical component for any 'adequate' spatial semantics (Regier & Carlson 2001), and it is this link to the perceived world and humans' embodied action in that world that is usually, at least since Harnad 1990, understood as grounding. M&P avoid any such considerations in their own account, however.

They also explicitly omit certain well-known areas of spatial language related to this, such as 'functional' spatial meanings where interpretations of linguistic terms are finely sensitive to the purpose for which objects are being used (Carlson & van der Zee 2005). The effects of functional, situation-specific configurations on language use are profound, and the adequacy of any denotational semantics ignoring this is therefore unclear (cf. Kelleher et al. 2011, Coventry et al. 2013). In one of several caveats, M&P note that they will not, for example, address 'proximity' because '[t]he contextual factors that are needed to interpret such expressions are many and need further empirical study using text corpora' (54). The implicit assumption that these issues will not affect the core semantics being developed is not argued, however.

There is, in fact, considerably less agreement over the question of how spatial information should be captured than there is about time. And this raises important concerns for the notions of empirical study and 'standardization' pursued throughout the book.

Whereas the analysis of corpus data is unquestionably an essential part of the linguist's toolset, the extent to which forcing a semantics of the kind that M&P propose on linguistic expressions constitutes a sound methodology for LINGUISTIC analysis is debatable. If the annotations on offer do not match the intended meanings of the spatial expressions found in corpora, it is unclear what is being achieved. Functional and embodied contextualizations are in fact so pervasive in spatial language use that annotations failing to respect this may well do violence to the data. Groups working on spatial language—including for example the well-known HCRC Map Task corpus, the CResT corpus (Eberhard et al. 2010), and efforts in my own group (Tenbrink et al. 2008)—therefore attempt to construct spatial corpora where both the intended communicative context AND the spatial situation are known. Only then can identification of the spatial semantics actually employed by speakers proceed. Thus, M&P's call to 'standardize' corpus spatial annotations on denotational grounds may be premature.

The book therefore presents some useful overviews of several areas that are important when addressing space and spatial language. It would have been valuable, however, to have considered alternatives and problems rather more openly. Readers are told neither that there are alternatives nor that many controversial issues are being skated over, without appropriate assessment of consequences. A more modest characterization of the scope and achievements of the book would then have been both welcome and appropriate. M&P's approach is a valuable addition to the field, but needs to be seen against this broader background to bring out its own particular contributions and limitations.

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