dents even at undergraduate levels. It is characteristic of the book that it is not just concerned with linguistic modeling and theory, but also draws on a wide variety of sources, from genetics, psycholinguistics, neurobiology, anthropology, archeology, art, music, language acquisition, paleoanthropology, comparative biology, research into animal call systems, and experiments of teaching language to apes.

One of B's definitive strengths is that he expresses himself so eloquently; another is that he is very knowledgeable about the generative theory and that he can refer to the relevant statements by Chomsky or any other proponent of the generative enterprise at any point to underpin his criticism. His overview of the theoretical developments is impressive, making the criticism so much more effective than it would have been otherwise. It is one of the framework's own experts who here raises his voice. Many readers will benefit from the historical overviews on crucial constructs of the generative theory, whether one agrees with B's approach or not. And the issues he raises go right to the heart of the theory.

His own accounts of the chosen phenomena come across as a bit more sketchy, in my opinion. Although the arguments and data concerning long-distance dependencies may be convincing enough, there is clearly much more to be said about things like the left branch condition and the function of tense and deixis in human language. One may also—somewhat rightfully—accuse B of using certain notions that are poorly defined and explained; for example, his portmanteau effect (308) is used to explain certain differences between English and French, but is not in itself sufficiently explained, and it is also not clear that it derives from anything else—except maybe the arbitrariness of signs. But this principle is described in too hasty a manner to have much explanatory value as it stands in this context. Nevertheless, these minor objections do not subtract from the pleasure of reading this thought-provoking book.

Although B is critical, he is in no way dismissive about what the generative enterprise has contributed to the field of linguistics, as he clearly acknowledges that the observations he discusses are in great part, 'if not entirely, due to the remarkable work of generativists' (318). However, 'putting the emphasis on the computational system made [the framework] discover important properties, but this overly formal bias is what prevents it from moving beyond repeatedly listing the facts by means of novel forms of diacritics, as we see in its culmination in cartography' (318). B clearly sees his own research program, the STL, as the natural continuance of the generative enterprise: 'The way out of this cycle is to appeal to the properties of the substances that underlie language. The STL program makes essential use of the perceptual and conceptual substances of language to motivate its theoretical primitives. The result is that the observations make sense and follow from undisputable primitives' (318).

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Mouth actions in sign languages: An empirical study of Irish Sign Language. By Susanne Mohr. (Sign languages and Deaf communities 3.) Boston: De Gruyter Mouton, 2014. Pp. xviii, 231. ISBN 9781614514978. $140 (Hb).

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While the hands are the most important articulators in signed languages, there is a lot of mouth activity when deaf signers sign among each other. This has been shown and studied for many sign

languages (e.g. contributions to Boyes Braem & Sutton-Spence 2001), but this book is the first to explore mouth actions in Irish Sign Language (ISL). Mouth actions can be roughly divided into two groups: mouthings and mouth gestures. The former are borrowings from the surrounding spoken languages in the form of (silently) articulated words from those languages; the latter are usually analyzed as language-inherent mouth actions that can fulfill, for instance, adverbial functions, or serve to make a sign well formed.

Susanne Mohr's *Mouth actions in sign languages* provides a detailed background of mouth actions in general, and analyzes many specific instances in ISL. The book focuses on how mouth actions correlate with gender, age, and word class in ISL. After a short introductory chapter, the book takes off with a description of the sociolinguistic situation of the deaf in Ireland. Since the great majority of deaf children are born into hearing (i.e. nonsigning) families, the greater part of sign language acquisition takes place at deaf schools. Education of the Irish deaf has been strictly segregated for boys and girls in the past, to the extent that two different variants of ISL evolved that were not mutually intelligible. Moreover, after the introduction of oral education (resulting in the strict exclusion of sign language) at deaf schools across Europe in 1880 (see also Lane 1984), oralism was introduced fairly late in Ireland, in 1946 to the girls' school and in 1957 to the boys' school. Ch. 2 further provides an adequate description (although not necessarily relevant for the discussion of mouthings) of some of the modality-specific features of sign languages in general, intended for readers less familiar with sign languages: use of space, iconicity, simultaneity, and nonmanual features.

These nonmanual features of sign languages in general, including mouth actions, are put into theoretical perspective in Ch. 3. The first part of the chapter discusses eye gaze, head movements, and in particular facial expressions in relation to lexicon, syntax, and prosody. Although the discussion is generally informative, its function in the book is not clear: these nonmanuals are not returned to later on, nor are they specific to ISL. The second part of Ch. 3 discusses mouth actions in their usual subdivision of mouth gestures and mouthings. Regarding mouth gestures, M adopts the four-partite division proposed by Crasborn and colleagues (2008), which subdivides mouth gestures into adverbial mouth gestures, semantically empty mouth gestures, enacting mouth gestures, and mouth gestures as part of an overall facial expression. M does not further consider the latter type because its meaning is often more affective rather than grammatical (cf. Johnston et al. 2015, which considers this type as the most gestural of all mouth actions). Regarding mouthings, several theories on their linguistic status are discussed, such as mouthings as a form of on-line code-blending, or the multichannel nature of signs and mouthings and how they form composite utterances. M rejects or at least questions all theories for their applicability to ISL.

Ch. 4 introduces a typology of mouthings in ISL, based on M's own research on the Signs of Ireland corpus. Twelve participants were selected from the corpus, evenly grouped into three age categories, each category containing two male signers and two female signers. The signers vary greatly in their age of sign language acquisition (for instance, age of acquisition in the youngest group (aged eighteen to thirty-five) varied between birth and twenty-five years of age), and also the language of communication with family shows great variation (English, ISL, gestures, or a mixture). This is something to be kept in mind for the discussion of the results in Ch. 5. There is little information on how this corpus was annotated, for instance, on how consistency in glossing was achieved (cf. Johnston 2008 on ID glossing). Having said that, M analyzed her data to offer the most detailed classification of mouthings to date. She discerns nine different (sub)types of mouthings as they cooccur with signs (presented in my own words here with examples from the book).

Type 1:   mouthings matching one-to-one with the cooccurring sign (e.g. the mouthing 'learn' cooccurring with the sign LEARN)

Type 2:   mouthings semantically related to the denotation of the sign (e.g. the mouthing 'scooter' with the sign MOTORBIKE)

Type 3a: mouthed verbs accompanying signs glossed as prepositional verbs (e.g. 'throw' with THROW-OUT)

Type 3b: mouthed verbs accompanying classifier constructions (e.g. 'jump' with JUMP-OVER-OBJECT)

Type 4: mouthed inflected verbs or plural forms (e.g. 'thought' with THINK, or 'photos' with PHOTOGRAPH)

Type 5: reduced mouthings (e.g. 'brill' with BRILLIANT)

Type 6a: simultaneous compounds or modifiers (e.g. 'didn't' with KNOW)

Type 6b: spread mouthings that originate in the previous or next sign

Type 6c: mouthings unrelated to a sign but related to the overall story (e.g. 'whatever' with CONDUCTOR)

While I applaud the fine-grainedness of M's typology, I have some reservations about it. One of my main concerns is with the split between types 1, 4, and 5. Take, for example, the combination of the mouthing 'learn' with the sign LEARN. This is classified as a type 1 mouthing, because the mouthing and the manual sign have the same form. There is a potential confusion here because M uses 'manual sign' where she actually means 'gloss' (n. 46, p. 207). The written forms of a mouthing and a gloss can indeed be identical, while the orally articulated mouthing and the manually articulated sign obviously have radically different forms. The problem is, how does M know that 'learn' is not a reduction of the past tense 'learned'? In connected signing, the added '-ed' suffix is very difficult to discern on the mouth of a signer, but it would cause the mouthing to be classified as type 4. It is also possible that 'learn' is a reduced pronunciation of 'learned', which would make this a combination of types 4 and 5. Annotation was carried out by native deaf researchers, and M relied on their judgments while having doubts about some of their annotations (76). Frequency counts on the basis of this typology should therefore be taken with a grain of salt, in my opinion. Ch. 4 concludes with an analysis of mouth gestures, adopting three of the four categories from Crasborn et al. 2008, as already mentioned.

Ch. 5 provides a detailed analysis of mouth actions in ISL related to the sociolinguistic factors gender and age. First, men and women are compared in their use of mouth actions, and M finds that women overall use more mouthings than men. When looking at the interaction with age, it becomes clear that the gender difference is solely caused by the oldest signers in the sample. While gender plays no role in the two youngest age groups, it does in the oldest group: the oldest men produce hardly any mouthings ('no mouth action' instead), but the oldest women use numerous mouthings. This is a remarkable result, which M ascribes to the different times of introduction of oral education in boys' and girls' schools. In other words, she shows the influence of oral education on language competence. Recall, however, that the introduction of oralism differed by only eleven years between the two schools. Moreover, it should be noted that the data set was not very large, and this could possibly have influenced results. In a study of mouthings in Sign Language of the Netherlands (NGT), for instance, large differences between individuals were found, but no significant differences could be established when comparing groups of signers (Bank 2015, Bank et al. 2015b). Another noteworthy finding is the spreading behavior: M found that almost half of the mouthings in the corpus spread leftward (mouthings anticipating the next sign), while rightward spreading (mouthings persevering over the next sign) is normally found more often in sign languages (e.g. Bank et al. 2015a for NGT).

The first part of Ch. 6 takes a step back from mouth actions. M goes to some lengths to describe semantic, syntactic, and morphosyntactic approaches to word-class distinctions, both in spoken and in signed languages. She concludes that no single linguistic level is sufficient as the basis for word-class categorization, but different levels should be combined to attain this. M continues with a discussion of syntactic categories (predicates, bare predicates, modifiers, and referential phrases) and lexical classes (full verbs, Aktionsart verbs (M's term for verbs that can be marked for aspect), nouns, and multifunctional signs) found in the ISL corpus, and shows that they do not correlate: most syntactic categories can be fulfilled by multiple lexical classes. Next, the occurrence of mouth actions with syntactic categories is compared with their occurrence with lexical classes. The results lead M to conclude that mouth actions cannot be used to establish word classes; however, they can serve to indicate morphological complexity of the cooccurring

sign: morphologically complex signs are more likely to cooccur with mouth gestures than with mouthings.

In conclusion, I find this book somewhat of a mixed bag. Overall, the text would be improved with some better editing, and some references are missing. Regarding the content, the typology of mouthings is a bit shaky, in my opinion, and is not assigned any specific theoretical interpretation in the spirit of Johnston et al. 2015 or Sandler 2009. That no attempt was made to discuss the theories on mouthings in the light of the results of Ch. 5 is a missed opportunity. The results of the study, however, are interesting in themselves as they partly deviate from findings in studies on other sign languages. The findings on ISL thus help us to establish how sign languages may differ in their use of mouth actions. Moreover, the analysis of word classes in ISL is audacious and interesting.

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Micro-syntactic variation in North American English. Ed. by RAFFAELLA ZANUTTINI and LAURENCE R. HORN. New York: Oxford University Press, 2014. Pp. 365. ISBN 9780199367214. $39.95.

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This excellent and timely volume, published in the 'Oxford studies in comparative syntax' series, is a collection of papers on various morphosyntactic phenomena in North American English dialects. The contributions come from scholars representing many institutions, but the impetus behind the book stems broadly from the Yale Grammatical Diversity Project, and specifically from the symposium on 'Micro-syntactic variation in North American English: Aspects of negation and polarity', held at the 85th annual meeting of the Linguistic Society of America in Pittsburgh in 2011.