Book Review

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This slim volume – a little under 200 pages – offers, to use the author's metaphor, "a tour of the morphological workshop" (p. 161): it surveys fifteen morphological theories and tests them on three datasets. This unique approach makes it a valuable addition to any morphological library.

In the first of four chapters Thomas W. Stewart lays the groundwork by discussing the fundamental notions of morphology, starting with the definition and delimitation of the discipline itself. Notoriously, there is no agreement amongst linguists about what the study of word structure should entail precisely. There is not even agreement about whether it should exist as a separate discipline, or whether issues of word structure could be parcelled out between its neighbours, syntax and phonology. As Stewart points out, the notion of word itself is problematic, with tensions, on the one hand, in defining words as phonological and/or grammatical units – the author summarises some of the difficulties of definition here and refers to the typological work of Dixon and Aikhenvald (2002) – and, on other hand, in paying attention to both the internal structure of words and to the manner in which they help build larger units. In addition, Stewart reminds us that linguists need to pay attention to the interrelatedness between words. He introduces the notion of paradigm, and mentions the related notion of lexeme, usually deployed in inflection, and the partially analogous notion of co-derivatives in derivation. In the second half of this densely-packed chapter, the author moves from illuminating the complexity of the phenomena that could fall under the purview of morphology to the different ways in which theoretical choices made in different theoretical frameworks shape and constrain their analyses. In other words, the author prepares the ground for meeting the main purpose of the volume, namely to "lay out for consideration some of the major metatheoretical options relevant to morphology" (p. 4). These metatheoretical choices are conceptualised as five continua, each presented here as a five-point scale between two opposites. The intention behind adopting the format of a continuum is to avoid binarity and show more clearly areas of convergence and divergence between the different frameworks in the interests of future theory building. That sometimes the middle point in the continuum is set

aside for a 'third option' – for instance, the middle of the 'in-grammar' versus 'in-lexicon' continuum is set aside for theories that opt for the Split Morphology Hypothesis – reflects the complexity of operating in a two-dimensional space.

The first of the five continua classifies a theory according to whether it assumes the existence of morphemes, or is word/lexeme-based. Theories that organise themselves around morphemes, defined as the atomic meaningful units of form, presuppose that words can be fully segmented into them and are entirely built up from them. In an ideal world each morpheme would be matched to one and only one element of meaning/function. However, this ideal encounters empirical challenges: sometimes meaning cannot be matched to any form (zero morphs), sometimes a form seems to match to more than one unit of meaning (fusional or portmanteau morphs) and sometimes an element of form seems not to have any meaning (empty morphs). Theories that build up words from morphemes have to find ways to deal with such deviations. Theories that are based around words/lexemes do not assume the existence of morphemes as meaningful sub-word units and do not have to commit to exhaustive segmentation of words into constituents.

The second continuum along which morphological theories are characterised relates to whether they adopt a formalist or a functionalist stance. As Stewart points out, functionalist theories take language to be a cognitively and socially grounded system. They assume that the objects of description can have variable salience, or be evaluated in terms of frequency, productivity and/or regularity, and so adopt mechanisms that can account for gradient behaviour. Formalist theories, on the other hand, are said to aim to capture generalisations relevant to language competence and focus more on rules and constraints and units particular to language structure. The criticism levelled at functionalists is that they are fuzzy or vague or indeterminate. Formalists are, in turn, sometimes accused of ignoring inconvenient data and the role of the language user.

The third dimension used to distinguish different morphological theories is whether morphology is positioned in the grammar or in the lexicon. On the one hand are theories that assume that the lexicon is merely a repository for the idiosyncratic units and that morphology is done in the grammar, either in an independent module or as part of syntax and phonology. On the other hand are theories that position morphology in the lexicon, that is, all morphological patterns are part of the lexical entries. The trade-off here is said to be between redundancy in the lexicon but streamlined grammar, or alternatively losing some lexical generalisations in a very slimmed down lexicon. The author points out that along this dimension there is a 'third way': proponents of the Split Morphology Hypothesis, that is, of the position that inflection and derivation are done differently, may place them in different domains.

The fourth dimension along which theories are characterised relates to whether they adopt a phonological or a syntactic formalism. Especially where morphology is placed in the grammar there is a theoretical advantage in developing morphological rules that are maximally similar to others in the grammar, for example, to those used in syntax or to those used for purely phonological generalisations. In this dimension too there is a 'third way', namely devising rules that are unique to the morphological component.

The last dimension builds on the discussion of morphological theories in Stump (2001). It places theories on a continuum from those that are incremental to those that are realisational. In incremental theories information associated with the word (e.g. morphosyntactic features) is added to the root gradually, whether by the concatenation of morphemes or via morphological rules. In realisational theories the information associated with the word is available *a priori* and is used to determine or license its phonological shape – starting with some lexical base, for example a root or a stem. Incremental theories are best suited to morphological systems with one-to-one relationships between meaning/function and form; realisational theories cope better with systems where we find deviations from this ideal.

In the second chapter of the book the author provides brief descriptions of fifteen current theories with relevance to morphology: A-Morphous Morphology, Autolexical Syntax/Automodular Grammar, Categorial Morphology, Construction Morphology, Distributed Morphology (DM), Lexeme-Morpheme Base Morphology, Lexical Morphology and Phonology/Stratal Optimality Theory, Minimalist Morphology, Natural Morphology, the Network Model, Network Morphology, Paradigm Function Morphology (PFM), Prosodic Morphology, Word-based Morphology, and Word Syntax. This chapter takes just under half the volume of the book and is its most substantial part. Given that fifteen theories are surveyed within about 80 pages, the review of each one is by necessity quite dense. Each description starts with a table that positions the theory along each of the five continua, and at the end of the chapter the position of each theory along the five continua is summarised in a single table. So, for instance, we find DM at the morpheme-based end of the morpheme- versus word/lexeme-based continuum, at the in-grammar end of the in-grammar versus in-lexicon continuum, and at the formalist end of the formalist versus functionalist continuum. In terms of the latter it is similar to PFM, but PFM is at the opposite end of the morpheme- versus word/lexeme-based continuum, as well as the in-grammar versus in-lexicon continuum. In terms of their position on the incremental versus realisational continuum, the two theories are not too distant from each other, occupying the extreme point on the realisational end of the continuum in the case of PFM, and one space before the end point in case of DM. The two theories are also neighbours on the

phonological versus syntactic formalism. However, PFM occupies the middle space, suggesting that it adopts a formalism unique to morphology, whereas DM is one space along in the direction of a syntactic formalism, suggesting that at least in part morphology tends to be integrated into the syntactic component. This positioning of the theories along the five continua is useful and thought-provoking. However, the summaries of each theory themselves do not consistently refer to it and do not always explain why the theory is categorised the way it is – e.g. why DM is somewhat less realisational than PFM – or what it means for a theory to be along the morpheme- versus word/lexeme-based continuum but not at the extreme points of it – e.g. why Construction Morphology is one point less than fully word/lexeme-based, despite its description suggesting that it is "firmly word-based" (p. 27). This is not to say that the reader may not be able to work this out independently, but the description of each theory seems to be more on its own terms, following the exposition of basic tenets in its foundational publications. Each section finishes with a very useful list of recommended reading, which contains works laying the basic tenets of each theory, as well as sources that offer important extensions and/or revisions. It would be impossible to summarise here the description of each theory. In fact, it is difficult to imagine that a summary could be provided in a space even more compact than afforded in this volume. The clarity of the exposition the author achieves, given the brevity of each section, is remarkable. On occasion, the reader may wish for some more explanation – e.g. on p. 13 it would be useful to be told what 'Georgian inversion' is; on p. 20 some readers could benefit from an explanation of 'Item and Process versus Item and Arrangement' approaches to morphology; and on p. 29 the reader might wish for a visual representation as an Attribute-Value Matrix to complement the explanations of Riehemann's approach to non-concatenative morphology. Having said this, this is not a book aimed at beginners. To my mind, it is also a book the reader should dip in and out of, reading some of the sources listed at the end of sections to complement the discussion. On these terms, the summaries in Chapter 2 are very useful and illuminating.

Equally remarkable is the achievement of Chapter 3. The author offers compact descriptions of three different datasets, each accompanied by fifteen accounts, one for each of the theories covered. The first dataset is devoted to the initial consonant mutation of Scottish Gaelic nouns. Scottish Gaelic nouns exhibit alternation patterns with initial lenition for some forms in the paradigm linked to phonological rules which lack a synchronic phonetic motivation. The second dataset comes from agreement data in Georgian. Georgian verbs show both subject and object agreement. In underived Georgian verbs subject agreement can be marked by a prefix, by a suffix or by a circumfix, whereas object agreement can be marked by a prefix or a circumfix, depending on the person/

number values. When verbs are expected to exhibit agreement markers of both categories, however, some expected combinations of two prefixes or two suffixes do not surface, even though there are no phonotactic restrictions to rule out the combination of exponents (apart from the impossibility of geminates, which accounts for a small portion of the data). The third dataset presents an interesting case of interaction between morphs: the Sanskrit gerund. The gerundial form of an unprefixed Sanskrit verb is derived with the suffix *-tvā*. When a verb is prefixed with one of the preverbs characteristic for the language, the gerundial suffix is *-ya* instead. The shift from *-tvā* to *-ya* thus shows interaction with a certain class of prefix (namely the preverbs). The shift does not depend on which particular preverb is present on the verb stem, or indeed whether there is more than one preverb; other prefixes (e.g. negation) do not induce the change from *-tvā* to *-ya*. In all other respects, a verb with a preverb appears to have the same paradigm as a verb without. The brief presentation of each dataset is followed by fifteen analyses adopting each of the frameworks reviewed in the book. Each set of analyses is followed by a brief discussion of the conceptual problem that the respective dataset poses for any morphological theory: widespread and productive non-concatenative morphology with a morphomic distribution in the case of the Scottish Gaelic nouns lenition, missing exponents whose non-appearance in contexts where they are warranted cannot be accounted for phonologically in the case of Georgian agreement patterns, and one class of exponents being a conditioning environment for a non-adjacent different exponent in the case of Sanskrit gerunds. A reader who comes to these accounts with background knowledge drawn solely from the theory descriptions in the previous section may struggle at times, as additional details appear here. Readers who put in the time and effort to make sure they possess a good grounding in each theory, however, will be rewarded by this collection of analyses. Some of the metatheoretical choices outlined earlier become clearer at this point – what distinguishes a more functionalist theory like Natural Morphology, what the consequences of modularity could be, for example, for the account of lenition in Autolexical Syntax/Automodular Grammar, etc.

The last chapter splits into two parts, each offering a different extension to the preceding discussion. The first part comprises two topics, both of which in some sense loop back to the issues raised in the first chapter. The first topic is what morphological systems there are out there, that is, what we know about morphological typology. This section covers both traditional descriptions of language types in terms of isolating, agglutinating, fusional or polysynthetic, as well as more contemporary explorations of the typological space under the banner of 'canonical typology' (Corbett 2009, Corbett 2010). The second topic is productivity and includes concerns around defining and measuring it, an area of

particular significance to derivational morphology. In the second part Stewart extends the central theme of the book, addressing the question of what constitutes a fair comparison. This section rightly puts forward two related issues: how do we ensure a fair cross-linguistic comparison, that is, how do we determine that we are comparing like with like when we compare languages and, related to that, whether and how a language can be examined in a theory-neutral way.

As this summary of the book hopefully suggests, the reach and the ambition of this volume are impressive. It sets out to answer for morphologists the question of what theoretical assumptions come with the tools they are using and where the strengths and weaknesses of these tools lie. Though not explicitly collated in a separate discussion, along the way the author suggests some parameters according to which any theory should be evaluated: whether a particular phenomenon can be accounted for without ad-hoc stipulations; which phenomena are predicted and which are ruled out; whether theories make clear and falsifiable predictions, etc. These, as well as the cross-references between different theories that appear in the various descriptions and analyses, are of great value. The volume provides a welcome impetus and basis for a dialogue between the proponents of different frameworks. I am not aware of many similar initiatives, although one notable exception can be found in Bond et al. (2016), where LFG, HPSG and Minimalism are tested against complex agreement data. More recently, a range of morphological theories is discussed under a single cover in Audring and Masini (2019).

Perhaps inevitably, given how much is achieved within a small space, any reader is likely to come up with a wish list of additions and elaborations reflecting their background and experience. On mine was a wish to see more explicit discussion of the distinction between inflection and derivation. For instance, the notion of paradigm is central to lexeme-based approaches to inflectional morphology like PFM but is a less firmly established notion for derivation (though see Bauer 1997; Štekauer 2014; Spencer forthcoming, amongst others, for further discussion). Notably, the datasets against which the theories are tested do not include straightforward derivation, although the interaction of the Sanskrit gerund, assumed to be inflectional here, with derivation brought to the surface some interesting issues. Another topic I felt could usefully be discussed is the nature of the lexicon. Although one of the dimensions of comparison placed theories along a continuum with 'in-grammar' at one end and 'in-lexicon' at the other, it would have been useful to see more of a discussion throughout of what each theory assumes is in the lexicon and what lexical entries (if any) are meant to look like within it. Another dimension that could be discussed in more detail is the functionalist versus formalist one. This dimension raises interesting issues around

the compatibility of theories with what we know about language change and the psychological reality of language.

Other readers might come away from reading this volume with different ideas of how what it offers could be enriched and extended. But this is not to criticise the book. Rather, it is a testament to the complexity of the task it sets itself and its success in promoting an important conversation about which properties of morphological systems are central to their characterisation and how existing theories model such properties. Towards the conclusion of the book the author appeals to those studying word structure to get to know the whole range of available tools well. It is a laudable goal and working through this book should help the reader make very good progress towards achieving it.

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