[Рец. на: / Review of:] ***M. Baerman* (ed.). The Oxford handbook of inflection.** Oxford: Oxford University Press, 2015. 688 p. ISBN: 978-0-19-959142-8.

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Recent years have witnessed a steady stream of linguistics handbooks. The 688-page volume under review is part of a large series published by Oxford University Press involving handbooks on particular theories (e. g. Construction Grammar), subfields (e. g. sociolinguistics), and linguistic phenomena (e. g. compounding and derivational morphology). Matthew Baerman's volume is a very valuable addition to the series; with its twenty-four informative chapters written by an impressive range of authorities in the field, the handbook is likely to become an important resource for years to come — both for experts and for newcomers to inflectional morphology. Baerman's volume complements Lieber and Štekauer's [2009; 2014] handbooks of compounding and derivational morphology and has a narrower focus than Spencer and Zwicky's [2001] and Hippisley and Stump's [2016] handbooks of morphology in general.

As explained in the introductory chapter, Baerman has adopted an "ecumenical" approach and has structured the handbook around linguistic phenomena, rather than theoretical approaches (p. 5). Thus, there are no chapters on theories such as Distributed Morphology or Construction Morphology, but instead chapters on features, paradigms, and inflection classes. This is a good decision. Since linguistic theories tend to be short-lived, while fundamental issues may remain relevant for generations, the ecumenical approach is likely to prevent the handbook from becoming outdated soon. If anything, I would have wished for an even more consistent application of the ecumenical principle. A couple of chapters (in particular, Chapter 4 on exponence and Chapter 8 on phonology) are couched in particular theoretical approaches, and in these chapters, to some extent, technical details overshadow the bigger picture. I cannot help wondering how valuable these chapters will be as sources of information in, say, ten years.

The twenty-four chapters of the handbook are organized in six parts. After the first part devoted to "building blocks", the handbook contains an extensive part on paradigms and their variants, which is followed by parts on language change, computational approaches to inflections, and psycholinguistics. The final part, which occupies nearly two hundred pages, consists of sketches of the inflectional morphology of eight different languages from around the world. In general, most topics one would expect to find in a handbook are covered, but at least two could have merited more extensive treatment. A chapter about allomorphy [Carstairs 1987] would have been a welcome addition to the handbook, as would a chapter on frequency effects (see e. g. [Baayen et al. 2003; Bybee 1995; Haspelmath 2008]).

The obvious counterargument against adding chapters to the book is the fact that the book already comprises nearly 700 pages, so it would have not been realistic to add anything without excluding some of the existing chapters. Are there any likely candidates? Although all the sketches of individual languages are well-written and informative, they do not appear to be sufficiently integrated in the handbook. They could potentially serve as examples of the various topics treated in earlier chapters, but cross-references between the language sketches and the rest of the handbook are few and far between. As a result, they are not well integrated in the book as a whole, and I would have preferred a slimmer volume without the language sketches, especially since that would have enabled the editor to add chapters on important topics such as allomorphy and frequency effects.

An implicit bias deserves mention. While, as I noted earlier, the editor has adopted an "ecumenical" theory-neutral approach, the handbook nevertheless almost exclusively explores contributions from the western world (Western Europe, North America, and Australia), despite the fact that the editor and a number of the contributors have a background in Slavic linguistics and/or are speakers of Slavic languages. Rare but important exceptions include brief discussions of Zaliznjak's [1967] work on case (p. 38) and Mel'čuk's [1995] "Meaning — Text" Theory (p. 346).

Part I on "building blocks" starts with an informative chapter on the key notion of morpheme, where Stephen R. Anderson takes a historical approach and explores the changing definitions and differences in the practical use of this term over time. This overview takes us from pre-structuralist approaches via European and American structuralism to contemporary frameworks, such as Distributed Morphology. On the way, Anderson provides informative discussions of issues that represent challenges for morpheme-based approaches to morphology, e. g. zero morphs, portmanteau morphs, and apophony (umlaut, ablaut, and similar phenomena). Given Anderson's historical approach, one would have expected references to Matthews' [1993] monograph on the historical development of the morpheme in North America, but this book is not on the list of references.

Greville G. Corbett's chapter on features is a paragon of clarity and explores examples from Russian extensively. Corbett draws a distinction between purely morphological features and interface features, where the latter is a cover term for morphosyntactic and morphophonological features. I would have liked to see a discussion of the status of features: are they part of language users' grammars or linguists' grammars, i. e. are they psychologically realistic? It would also have been helpful to have some discussion of the possible values of features. Are features binary? Can features have zero values? However, the absence of discussion of these questions does not diminish the overall value of the chapter as a source of information about features in inflection.

The chapter on features is followed by a chapter on exponence by Jochen Trommer and Eva Zimmermann. The authors consider in detail a number of recent theoretical approaches, almost all of which are "at home in Generative Phonology" (p. 48). As mentioned earlier, this to some extent goes against the "ecumenical" approach that underlies the handbook as a whole, but the chapter nevertheless provides valuable information, also for readers of other theoretical persuasions. Trommer and Zimmermann point out that "a central goal of linguistic research on exponence in the last decades has been to reduce non-additive exponence as far as possible to phonological processes and/or principles" (p. 61). Simply put, only affixation tends to be considered part of morphology proper, while stem modifications through umlaut and similar processes are relegated to (abstract) phonology. A longer discussion of this fundamental assumption that sets generative grammar apart from many other approaches to inflectional morphology would have been very interesting. In their conclusion, Trommer and Zimmermann argue that "work on inflectional exponence is at a critical point" (p. 83) with regard to testing of hypotheses. While a number of theoretical approaches with clear empirical predictions have been formulated, testing the relevant hypotheses require more data concerning unusual morphological phenomena, i. e. data that are not easily available today. It is not difficult to agree with the authors that more empirical focus on understudied languages would be most welcome.

Part II on paradigms and their variants starts with James P. Blevins' chapter on inflectional paradigms. Blevins first explores various positions ranging from theories where inflectional paradigms are considered epiphenomenal to theories where they play a central role in morphology. Belonging to the latter camp, Blevins attempts "to present the strongest case for a classic WP [Word and Paradigm] perspective by adopting the most informative conception of paradigms, one in which they are structured sets of form-cell pairs" (p. 90). He goes on to explore evidence for paradigms involving "constraints or generalizations that apply to paradigms" (p. 94). The general idea is that if there are linguistically significant generalizations that presuppose the notion of paradigm, then we have empirical evidence that paradigms exist. Blevins considers two such arguments in considerable detail, both of which are based on implicational relations among the cells in a paradigm. The first argument concerns the Paradigm Economy Principle (where Blevins

focuses on the original version from [Carstairs 1983] rather than later amendments), while the second involves a rather technical discussion of uncertainty reduction in paradigms.

In the following somewhat reader-unfriendly chapter, Gregory Stump gives a wealth of information about inflection classes. Stump (pp. 158–159) maintains that inflection classes are "morphomic", i. e. purely morphological; although in some languages they may correlate with distinctions in phonology, syntax, or semantics (or combinations of these), according to Stump such correlations are frequently incomplete. Stump considers a number of deviations from the canonical ideal described by Corbett [2009]. He furthermore considers a number of possible markers (including affixes and stem alternations) and shows how inflection classes may change over time due to sound change, analogy, and reanalysis.

In Matthew Baerman's own chapter on paradigmatic deviations, the reader is acquainted with a number of approaches to syncretism, deponency, and defectiveness. With regard to syncretism, the phenomenon where two or more paradigm cells have identical forms, Baerman explores three possible analyses (pp. 145–146): morphosyntacic identity (where syncretic forms realize the same morphosyntactic features), underspecification (where syncretic forms are underspecified for a certain feature), and morphological stipulation (where we are dealing with disjunctive sets of morphosyntactic features, as in Skou where the verb 'work' has the form *lóe* in 1st person singular, 3rd person singular masculine, and 2nd person plural). For deponency, the phenomenon where the same markers have opposite values (e. g. active instead of passive) in different paradigms, Baerman discusses both syntactic and morphological interpretations (p. 151). Finally, with regard to defectiveness (where one or more paradigm cells are empty), the chapter outlines a typology taking syntactic, morphological, and morphophonological factors into account. I found the discussion of Albright's [2003] idea of "lack of confidence" as an explanation for defectiveness particularly valuable.

Gunnar Ólafur Hansson's chapter entitled "Phonology" gives a thorough overview of phenomena relating to the morphology-phonology interface. Hansson's discussion is couched in Optimality Theory (OT), and readers not committed to this theory might have wanted a more general chapter on morphophonology, which might have been of more lasting value. In particular, a general and theory-neutral discussion of the division of labor between phonology and morphology would have been a welcome addition to the handbook. However, Hansson's chapter offers a thorough and very readable overview of relevant approaches in OT, including stratal OT (where the phonological processes first applies to stems, then to words, and then to phrases), co-phonologies (where different morphological constructions have different phonologies), and morphologically indexed constraints (which target specific morphological constructions). Hansson's chapter furthermore includes a valuable section on phonologically conditioned allomorphy — an otherwise underrepresented topic in the handbook.

Are multi-word constructions such as Russian *буду писать* '(I) will write' and English *have written* part of the respective inflectional morphologies? In a somewhat verbose and loosely structured chapter on periphrasis, Andrew Spencer and Gergana Popova explore a number of potential criteria and approaches and discuss numerous examples from many languages, based inter alia on work by Haspelmath, Spencer, and Ackerman and Stump. Periphrasis represents a challenging topic since "periphrastic constructions lie in the territory between ordinary syntax and ordinary morphology and represent different stages of grammaticalization" (p. 230). Under a restrictive definition, periphrasis involves situations where a "multi-word construction that is clearly syntactic in form" has the function of realizing "features that are otherwise realized morphologically". As shown in the chapter, however, a restrictive definition of this kind is problematic, since it excludes a number of cases that are traditionally considered periphrastic, such as the English perfect (which is not otherwise expressed morphologically). An interesting borderline case is the Russian future (e. g. *буду писать*). One verb has a clearly morphological future, namely *быть* 'be' with the synthetic forms *буду*, *будешь*, *будет*, etc. that are opposed to the synthetic present tense *есть*. But is one verb enough to grant all other imperfective verbs the status of periphrasis? One swallow does not make a summer, as is well known, and Spencer and Popova (pp. 206–207) argue

that the morphological future of *быть* is an example of overdifferentiation, which is a possible argument against analyzing *буду писать* '(I) will write' as an example of periphrasis. Either way, examples like this illustrate the difficulty in drawing clear-cut boundaries between morphology and syntax, and readers invested in Construction Grammar or grammaticalization theory might argue that the quest for a clear-cut boundary between periphrases and other phenomena might not be a particularly fruitful endeavour in the first place. However, readers of all theoretical persuasions will find much food for thought in Spencer and Popova's chapter.

Claire Bowern's chapter "Diachrony" introduces the handbook's Part III, which is devoted to language change. The chapter is relatively short but provides a valuable typology of changes affecting morphology (p. 236) including (a) changes in the formal realization of morphemes (allomorphy), (b) changes concerning the placement of morpheme boundaries, (c) creation, loss and change of morphological categories, (d) changes in morpheme ordering, and (e) changes concerning content, meaning, or function of morphemes. Bowern also explores various sources of change in inflectional morphology, including morphological cycles and grammaticalization. Especially grammaticalization is a topic that might have merited a more in-depth treatment. An interesting question is whether change in inflectional morphology can be purely morphological. Bowern concludes that "on close examination, many of the case studies which explain change through morphological autonomy are also explicable through other processes; there appears to be very little evidence for change which operates on morphology alone" (p. 249).

The second and last chapter in the part on language change is devoted to contact-induced change. The scope of this chapter is relatively narrow, since Maarten Kossmann limits himself to a discussion of borrowing. However, his typology based on the distinction between "concomitant" (whereby inflection is borrowed together with other material, mostly lexical) and "non-concomitant" borrowing (whereby isolated material is borrowed) is of considerable interest. This typology makes it possible to draw an important conclusion, namely that "in the case of concomitant borrowing, most examples show parallelism with native structures, while in the case of the borrowing of isolated inflections, the great majority of cases can be explained as the introduction of new categories" (p. 271). An interesting and highly uncommon case that Kossmann considers at some length is that of Copper Island Aleut, where a number of inflectional markers borrowed from Russian are attached to native Aleut words (pp. 261–262). Importantly, some native Aleut inflections are retained, so we appear not to be dealing with relexification, i. e. a situation where the native inflection has been completely replaced by Russian grammatical markers.

Part IV on computation starts with Dunstan Brown's reader-friendly introduction to computational modeling of inflectional structure — an excellent introduction for non-experts (like me). Brown explains the differences between finite-state methods and inheritance-based methods, which, although different, "need not be seen as polar opposites" (p. 283). Brown goes on to describe the modeling of important morphological phenomena, such as inflection classes, stem classes, deponency, and syncretism, mostly from an inheritance-based perspective. It is argued that inheritance-based approaches straightforwardly capture the insight that irregularity is a matter of degree, and likewise that inheritance networks are good ways of representing generalizations that vary in their coverage (p. 283). Readers of "Voprosy jazykoznanija" may find the discussion of stem classes particularly instructive, since it is based on the familiar but complex data of Russian verbs — both a good illustration of the relevant computational issues and an interesting analysis in its own right (based on [Brown 1998]). In this section, Brown also considers the modeling of morphophonological alternations, such as the consonant alternations in Russian verbs (e. g. *сплю* '(I) sleep' vs. *спать* '(to) sleep', p. 290). He argues that these alternations must be "described in phonological terms" although "the environments in which they occur cannot be described in terms of pure phonological features". This situation is contrasted with the intervocal /j/ in Russian non-past verb forms such as *делаю* '(I) do' (/dʲela-j-u/), which Brown treats as an automatic phonological rule (p. 289). Brown's discussion of syncretism emphasizes three options that can all be modeled: underspecification (when the two items form a natural class, for which a Jakobsonian "Gesamtbedeutung" can be stated), referral (when a directional relationship

holds between two forms that do not constitute a natural class), and "morphomic indexing" (for other cases). Brown concludes by emphasizing the usefulness of morphological modeling which makes it possible to check that proposed analyses make the correct predictions and do not have undesirable consequences for other parts of the morphological system under analysis (p. 295).

"How can any intelligent system go beyond the available data to make correct predictions about the future?" (p. 320) This is the ambitious question that Katya Pertsova's chapter on machine learning of inflection aims to shed light on. The chapter addresses a number of foundational issues in a non-technical way but might have been more reader-friendly with more consideration of concrete examples. After brief discussions of the general goals of computational learning theory, Pertsova turns to issues specific for inflection. On the one hand, inflection is simpler to tackle than syntax, since inflectional morphology is not recursive, but on the other hand, inflection involves a number of challenges for machine learning. Pertsova (p. 308) points out that relatively simple computational models such as finite-state automata have been quite successful, but also notes that a number of challenges remain, in particular "inflectional mismatches" that encompass important phenomena such as zero morphemes, syncretism, allomorphy, portmanteau morphemes, variable affix ordering, deponency, and heteroclisis (p. 310). After a brief discussion of these issues, Pertsova turns to the implementation of more general learning biases: simplicity, locality, and the conjunctive bias — the fact that language users tend to prefer generalizations based on conjunctions (e. g. singular a n d nominative) over generalizations based on disjunctions (e. g. singular o r nominative). Of particular interest for many readers of "Voprosy jazykoznanija" is the discussion of the so-called dual vs. single route learning models for inflectional morphology. The issue concerns whether regular and irregular morphology should be accounted for in terms of two different kinds of generalizations, or whether the same kinds of generalizations accommodate both regular and irregular inflection. As is well known, studies of Russian verb inflection have contributed to this debate (see [Gor, Chernigovskaya 2001; 2003]), although the Russian literature is not mentioned in the handbook under review.

Ondřej Bojar's chapter on machine translation concludes the part on computation. The chapter gives an overview of machine translation, with particular focus on issues related to inflection. The take-home message is that the "inflection and morphological richness of source and/or target languages introduce extra complexity to almost every processing step of machine translation systems" (p. 347). Bojar ends his chapter with a plea for "fine-grained models of inflection" as a much "needed component" of general-purpose machine translation systems. An important distinction in the field is between statistical and rule-based methods in machine translation, but Bojar makes the point that they are in a process of converging. However, he does not mention that statistical methods are only viable for languages with large text corpora available. In the foreseeable future, such corpus resources will only be available for a small minority of the world's languages. After a brief overview of the problems caused by rich morphology, Bojar discusses a number of possible solutions. These involve shallow approaches for closely related languages. Here, the source and target languages have nearly identical grammars, and direct mappings are possible. For languages that are more different from each other, Bojar explores approaches involving the creation of intermediate steps. For instance, when the source language is richer than the target, an intermediate step involves reducing the complexity of the source system (p. 341), while augmenting the poor source side with additional morphosyntactic tagging is an option when the source language has less rich morphology compared to the target (p. 342). A final take-home message concerns the fact that the machine translation literature is very biased towards English, which means that the challenges of rich morphology have not received due attention (p. 325). Increased focus on Russian and other Slavic languages would clearly be beneficial for the field.

We now turn to Part V of the handbook, which consists of two chapters devoted to psycholinguistics. Of particular interest in Sabine Stoll's chapter on language acquisition is her discussion of the tension between "universalist approaches" that tend to favor rule-based learning ("dual-mechanism models") and the single-mechanism "constructionist approaches" ("emergenist" or "usage-based" approaches, p. 353). This debate arguably illustrates the negative consequences

of the strong emphasis on English in theoretical linguistics. English is typologically an outlier and morphologically impoverished, so drawing far-reaching conclusions on languages in general based on data from English is therefore problematic. It has been shown that a dual-mechanism model can account for the acquisition of English verbal inflection, because English makes a distinction between one regular and a number of irregular patterns. However, once we consider other languages, where the relationship between regular and irregular verb inflection is more complex, the picture becomes very different. Stoll refers to studies of a number of languages including Italian, Icelandic, and Norwegian (p. 368), but unfortunately not to the relevant literature on Russian (e. g. [Gor, Chernigovskaya 2001; 2003]). Stoll's general conclusion is that children show sensitivity to a number of factors including input frequency, functional needs, and context of occurrence and the use of morphological markers in specific constructions and that children imitate patterns in their caretakers' speech and rely on small-scale generalizations about productive patterns and irregular forms (p. 372). These findings are arguably more easily accommodated in a single-mechanism approach.

Matthew Walenski's chapter "Disorders" provides a thorough overview of the relationship between neurocognitive disorders and inflectional morphology, with particular focus on the distinction between regular and irregular inflection, where the tension between single-mechanism and dual-mechanism models is at center stage. Walenski considers three groups of disorders: (a) disorders affecting the temporal lobe and semantic memory (e. g. Alzheimer's disease), (b) disorders affecting frontal / basal-ganglia circuits and motor function (e. g. Parkinson's disease), and (c) additional disorders (e. g. Williams syndrome and schizophrenia). As opposed to Stoll in the previous chapter, Walenski argues that the available evidence supports the dual-mechanism (p. 400 and elsewhere). It is interesting that the chapters on language acquisition and language disorders come to different conclusions. While it is of course possible that evidence from different domains point in different directions, one wonders whether part of the reason can be differences in the understanding of the two competing models and of the concept of regularity in inflection. In any case, from a reader's perspective both chapters would have been more valuable if the authors had engaged in a dialogue instead of presenting two monologues on related topics.

About a third of the text in the handbook is devoted to sketches of individual inflectional systems (Part VI). The inflectional morphology of eight languages is described: Iha (Western New Guinea, Mark Donohue), Pulaar (the westernmost dialect of Fula in West Africa, Fiona McLaughlin), Lithuanian (Axel Holvoet), Chamorro (Micronesia, Thomas Stolz), Murrinh-Patha (Northern Australia, Rachel Nordlinger), Aymara (Bolivia and Peru, Matt Coler), Nen (Southern New Guinea, Nicholas Evans), and Shilluk (East Africa, Bert Remijsen, Cynthia L. Miller-Naudé, Leoma G. Gilley). All these chapters present valuable information about the inflectional morphology in a diverse set of languages, but the sketches are not sufficiently integrated in the handbook as a whole, as I argued in the beginning of this review article.

The handbook ends with a sixty-page bibliography, which is a treasure chest for anybody interested in inflectional morphology. There are also three indexes for authors, languages, and subjects that make the handbook useful as a reference tool, although I would have wished for a more extensive subject index. However, this and other reservations I have considered pertain to details. In general, the handbook under review is an extremely valuable contribution to morphology — a resource that deserves to be widely used for many years to come.

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