C. L. Alan Yu, *A natural history of infixation* (Oxford Studies in Theoretical Linguistics 15). Oxford: Oxford University Press, 2007. Pp. x+264.

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One of the key contributions of Optimality Theory (OT, Prince & Smolensky 1993/2004) lies in the area of prosodic morphology (McCarthy & Prince 1993a, b, 1995), which investigates morphological processes that are determined by prosodic factors, such as, for example, stress and syllabification. Unlike previous approaches, OT provides a framework where the interaction between phonology and morphology is evaluated in parallel by a language-particular constraint ranking. Constraints referring to morphological and to prosodic categories interact in the same grammar. In addition, a single constraint – for example, Generalized Alignment (McCarthy & Prince 1993a) – may refer to both morphological and prosodic categories in its definition. Thus, phonology and morphology are no longer separate components of the grammar but interact with each other directly in the form of rankable and violable constraints.

One of the phenomena studied in prosodic morphology is the process of infixation. A central question is how to account for the location of the infix in the output form. In OT, infixes are understood as either prefixes or suffixes that are minimally displaced from their edge position for prosodic reasons (cf. McCarthy & Prince 1993a, b). Formally, the location of an infix in the output results from the competition between prosodic constraints and morphological constraints on affix placement. Infixation is argued to occur when prosodic constraints outrank morphological constraints.

Alan C. L. Yu's *A natural history of infixation* examines a broad range of infixation patterns from over a hundred languages in light of their diachronic origin and the processes by which they are acquired in child language acquisition. Based on those findings, the author proposes an alternative view of infix placement. Contrary to classic OT, he suggests that infixation is the result of phonological subcategorization frames. As will be explained in greater detail below, phonological subcategorization frames are formulated

as inviolable alignment constraints that define the location of an affix by positioning it with respect to a phonological pivot point. Once the inviolable alignment constraints have determined the location of the affix, other constraints come into play and determine the size and the phonological composition of the affix, if it is not already specified in the input. Unlike alignment, the remaining constraints are violable and thus interact in a language-particular constraint ranking. In this model, phonology does not determine or alter the location of an infix. This is a significant departure from the unified model of phonology and morphology offered by OT, and it is important to consider what implications this proposal has for the study of infixes. Before discussing this further, I will provide a brief overview of each chapter.

The book has six chapters. The 'Introduction' (chapter 1) formulates the aims of the manuscript and outlines Yu's proposal. Chapter 2, 'What is infixation?', defines infixation and discusses two approaches to this phenomenon. The first is phonological readjustment (McCarthy & Prince 1993a, b), where the infix was originally a prefix or a suffix and becomes an infix for prosodic reasons. The second is phonological subcategorization (Orgun 1999; Orgun & Inkelas 2002), where infixation is epiphenomenal and is determined by an underlying distributional restriction. Yu criticizes the phonological readjustment approach, claiming that it has limited empirical coverage, and sets the stage for his use of phonological subcategorization in the remainder of the book.

Chapter 3, 'Subcategorization in context', develops the theory of phonological subcategorization. Phonological subcategorization is stated here in terms of alignment constraints. The alignment constraints used in this analysis are different from Generalized Alignment (McCarthy & Prince 1993a): not only are they inviolable but they also take both prosodic and segmental units as their arguments, which Yu refers to as pivot points. Phonological subcategorization determines when a designated edge of a morphological constituent (an affix) will coincide with a designated edge of a phonological pivot or vice versa. Yu's analysis is couched in the framework of Sign-Based Morphology (Orgun 1999, Orgun & Inkelas 2002). In this theory, a sign is a linguistic unit that is a pairing between the PHON (phonological) component and morphosyntactic and semantic features. The PHON component consists of a language-particular constraint ranking. Yu's innovation is the addition of the feature SUBCAT (subcategorization requirement) to the sign. SUBCAT specifies the position of the affix in relation to a phonological pivot. This requirement is inviolable. Thus, unlike previous approaches to infixation in OT, affix positioning is not determined by rankable and violable constraints but by an inviolable SUBCAT requirement. The SUBCAT requirement regulates the set of candidates that is fed to the phonological component PHON. Only candidates that satisfy the prescribed SUBCAT requirement are fed to PHON.

The next two chapters, 'Pivot theory and the typology' (chapter 4) and 'The secret history of infixes' (chapter 5), develop and motivate the analysis further, providing synchronic and diachronic typological evidence. Chapter 4 gives a synchronic typology of infixes in terms of the infix's location in relation to the pivot points. The pivot points include edge pivots (first consonant, first vowel, final syllable, and final vowel) and prominence pivots (stressed syllable, stressed foot, and stressed vowel). The chapter also discusses the idea that certain pivot points are more salient than others and that learners are more likely to select salient pivot points in the acquisition process. This argument is used to justify the set of pivots used by the author in his phonological subcategorization approach.

Chapter 5 develops a diachronic typology of infixes. It discusses the processes by which infixes originate, such as phonetic metathesis, morphological metathesis, and morphological entrapment, where the prefix fuses with the root 'trapping' the infix. The author also mentions cases where infixes have no historical antecedent. The main observation in this chapter is that a number of infixes originate at the periphery, which accounts for their synchronic edge-oriented profile.

Finally, chapter 6, 'Beyond infixation', extends the subcategorization analysis to phenomena such as true infixation, which precludes an adpositional realization of the affix, infixing language games, cases of endoclisis (where clitics disrupt the contiguity of the lexical item), and feature-sensitive infixal allomorphy. Among other cases, Yu provides an analysis of Homeric infixation in English and iterative infixation in Hausa.

This book will be of interest to anyone who studies infixation. It discusses a vast number of infixation patterns across diverse languages from Europe, Asia, Africa, New Guinea and South America. The range of infixation patterns is presented in a well-organized manner and the book will thus provide an invaluable reference for the reader. In addition to standard infixation patterns, Yu also discusses more exotic cases of infixation, such as language games, multiple infixation and syntactic infixation. All examples are accompanied by detailed references for further study, which will be immensely useful to scholars and students alike. Another valuable aspect of this book is the thorough description of the diachronic development of infixation in chapter 5 and its relation to synchronic patterns. The author gives examples of various pathways for the origins of infixes and makes the important observation that many infixes originate from adpositional affixes and that this results in the edge-oriented profile of infixes in synchronic typology. In short, the empirical coverage of this book is very impressive and makes a significant contribution to the field.

However, a more in-depth discussion of the predictions made by the theoretical proposal would have been desirable. As described above, Yu proposes to account for infixation in terms of phonological subcategorization frames. He formulates subcategorization frames as

inviolable alignment constraints that position an infix with respect to a phonological pivot point and apply before phonological constraints. Consequently, morphology, which determines the location of the infix in this study, precedes phonology, which determines the size and shape of an infix. In other words, the author separates phonology and morphology into different components of the grammar, which raises a number of questions.

One implication of this approach, which is acknowledged by the author, is that phonology will never determine or alter the location of an affix. As Yu mentions, there are cases discussed in the literature which illustrate that an affix can alternate between an infix and a prefix/suffix depending on the prosodic structure of the output (see, for example, McCarthy & Prince 1995, Buckley 2000 and Crowhurst 2001). The alternation seems to be motivated by positioning an affix in a prosodically desirable location and thereby improving prosody. As the author explains, in the subcategorization approach, alternations between an infix and a prefix/suffix would have to be dealt with by proposing multiple subcategorization frames and cannot be a result of prosodic improvement. But unless there are further restrictions on what constitutes a possible subcategorization frame, it seems that the subcategorization approach predicts that there will be cases where the infix is positioned in a way that leads to a prosodically undesirable output. For example, Yu's approach allows a scenario where infixation creates onsetless syllables or adds codas to the output form. In classic OT, where the location of an affix is determined by universal constraints on prosody in conjunction with alignment constraints, such outcomes are not predicted.

Furthermore, the subcategorization approach fails to account for cases where the position of an affix is determined by the phonotactics of the output (McCarthy & Prince 1995, Łubowicz to appear), given that the framework assumes that the position of an affix is determined before phonotactics are considered. While it may be possible to derive these cases by postulating different subcategorization frames for phonotactically different roots, this raises the question how it can be determined which root takes which subcategorization frame.

In summary, this book makes an important contribution to the study of infixes. One attractive aspect of the book is the wealth of examples discussed by the author, which will be useful to students and scholars in the field. Another valuable aspect of the book lies in its careful and useful description of the historical development of infixation and its relation to the synchronic typology of infixes. However, the central proposal could have been worked out in greater detail, and more careful argumentation is necessary, especially as Yu's theory makes predictions different from those of standard OT by separating phonology and morphology into different components of the grammar.

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