Eva Liina A s u, Pärtel L i p p u s, Karl P a j u s a l u, Pire T e r a s, Eesti keele hääldus, Tartu: Tartu Ülikooli Kirjastus, 2016 (Eesti keele varamu II). 288 pp.

The goal of "Eesti keele hääldus" ("The Pronunciation of Estonian"), written by the leading phoneticians of the University of Tartu, is to give a general overview of Estonian pronunciation for a wide audience, including university teaching and methodological purposes. The authors focus rather on phonetics than on phonology and aim to avoid too specialized data. The book, which consists of six chapters, supplemented with a thorough bibliography and an index of keywords, sums up the achievements of Estonian phonetics and main phonological discoveries. New pieces of data and interpretations related to the latest discoveries from the Phonetic corpus of Estonian spontaneous speech and L2 phonetic studies are also introduced. The author of the introductory chapter 1 is Karl Pajusalu, chapters 2 and 3 on Estonian vowels and consonants are both written by Pire Teras, chapter 4 on Estonian word prosody by Pärtel Lippus, and chapter 5 on intonation by Eva Liina Asu. The last chapter, 6, on the history of Estonian phonetics and phonology is co-authored by Pire Teras (providing a phonetic overview) and Karl Pajusalu (contributing an overview on phonology).

A certain stylistic heterogeneity can be perceived in the book, as it has four authors without an editor-in-chief. Some chapters (e.g. 1, or 5) contain well-shaped teaching material, introducing main concepts, questions, and results in a clear and concise way. In others (e.g. 2 and 3), though, it can become challenging to filter the main statements out from the details, references, and masses of quantitative data (sometimes given inside the text, cf. pp. 21, 79—86). Some incongruence between chapters can be perceived from similar information being repeated without cross-references necessarily provided (as e.g. on Kullo Vende on pp. 163, 174—180, 224, 244).

For a book written in Estonian and meant primarily for Estonian students and specialists in Finno-Ugric languages, the choice of the IPA transcription rather than the FUT is not undisputed. For example, IPA is not adapted to depict half-voiced consonants. The authors chose to depict short stops and fricatives in phonetic transcription as voiceless. This, however, is not in perfect agreement with a typically voiced realization of these sounds in certain phonetic contexts (cf. 54—94% of fully plus partially voiced intervocalic stops and *h* in spontaneous speech on pp. 111, 113). If phonetic transcription in the book is meant in most cases to illustrate average, normalized Estonian pronunciation, then here the picture will not be correct for those contexts where a voiced realization is typical as e.g. in *saade* [sɑːte] 'sending, programme, escort' — [sɑːːte] id. (genitive) on p. 67, as well as before sonorants like in *kobras* [kopɾɑs] 'beaver' etc. on p. 103). As phonological transcription /sɑːte/ or /kopras/ would be completely justified, but hardly as a normalized phonetic one. Still in compliance with the FUT tradition, long vowels are written as [ɑː], while fortis consonants as [tt/tːt] at the syllable boundary and as [tː] elsewhere.

The authors explicitly claim their abstinence from deepened phonological discourse (pp. 5, 119), but phonetics cannot be done without any phonological model at all (also recently discussed in Hint 2015a; 2015b; 2016; Pajusalu 2015). This model can be partially extracted from the text; for example, long Estonian monophthongs are rather treated as long phonemes than as vocalic sequences (see pp. 21—22, 148—150). The phonological interpretation of fortis consonants is less obvious, and statements on them are more controversial. Throughout the chapter, it is hard to grasp the exact meaning in which the term "fortis" is used, as well as the dependency hierarchy between the related phonetic features of voicing and length. The former appears in the table of consonants (p. 65), while the

latter does not. However, if "voiceless" consonants are voiced in many contexts, voicing cannot be a primary distinctive feature. The notion of fortis is at some point associated with voicing, e.g. both geminates and initial consonants are called "fortis", obviously based on orthography (p. 66, cf. also p. 103). Later it is claimed, though, that "sibilants, like stops, are lenis if they are short and fortis if they are long" (p. 75), i.e. fortis is associated with length. Initial consonants are both short and voiceless, so without a clear phonological model it is impossible to define their phonological status in a coherent way. The same is valid for stops in certain cluster types. The representation of clusters in an otherwise interesting data piece on their frequency in spontaneous corpus (pp. 103—104), indeed, is not clear enough, e.g. some cluster types with a different phonemic content (*lt* /lt/ vs. *ltt* /lt:/ etc.) are united into one type. By applying the classical phonological notion of fortis/lenis by Trubetzkoy, we end up with a phonological fortis/lenis contrast for all Estonian consonants. Its primary phonetic exponent is length, while secondary phonetic features are voicing, tenseness of articulation, intensity of burst for stops (see Кузнецова 2005).

There are other instances of controversy resulting from the lack of explicit differentiation between phonetics and phonology. In chapter 4, which claims to focus on phonetics "leaving aside pure phonological prosodic interpretations" (p. 119), a separate section is dedicated to the mora. The mora in its classical meaning is a purely phonological notion created to describe different functional properties of "light" vs. "heavy" syllables (Hyman 1985 : 10). Syllable weight is a sum of phonetic, phonotactic and prosodic properties of a syllable rather than a directly phonetically measurable entity. Syllables with similar phonetic properties can be treated as light or heavy depending on the language. The definition of the syllable itself is based on "sonority" (p. 121), but the latter is also sought to be explained purely phonetically. Again, phonological factors have to be accounted for, as languages can have nearly no vowels but still syllables (cf. Ridouane 2008). From the data given in the book, it was impossible to understand exactly on which phonetic or phonological grounds it is claimed that a "voiced consonant can occasionally make a separate syllable" in cases like *lehm* [leh:.m̩] 'cow' (p. 124).

Word prosody is defined as "including phenomena higher than single sounds and lower than phrases" (p. 119), but such phenomena can, in fact, belong to two levels: the foot and the word. The existing theory of Estonian stress does not distinguish clearly, first, between these two levels, and second, between lexical and postlexical levels (Kuznetsova, in press). Symptomatically, the same phenomena of pitch movement, intensity and duration are mentioned both in chapter 4 on word prosody (pp. 140—143) and in chapter 5 on intonation (pp. 161, 169—170), and no explicit definition of the stress is provided in section 4.2. An extremely interesting piece of new phonetic data on pitch movement in simplex and complex words and free two-word combinations is given on p. 157—159. A phonologist would wonder if we are talking about lexical or postlexical rules in each case. The problems in the current phonological theory of Estonian stress are aggravated by the lack of a clear phonetic picture on the latter (cf. p. 127). This is reflected also in the otherwise coherent and well-written chapter 5 on intonation. The intonational phrase is stated to "be composed of a one- or multi-word phrase or a simple sentence" (p. 161), without specifying if its domain can be just a part of a long lexical word. One could wonder about the exact phonetic reality behind "lexical stresses" in a description of reproach intonation, where these stresses "are left [−−−]in the same places, while it is tone that changes" (p. 185). Also, are we talking about foot or word stresses here?

Some particular notes on chapters will be briefly given in the end. In chapter 1, which puts Estonian pronunciation in the context of Baltic and Finnic

languages, there is a curious typological conclusion that "Estonian is a typical Circum-Baltic language by its pronunciation and is getting even closer to its Indo-European neighbors" (p. 12). At the same time, it is hard to agree that the distinction between "long and overlong grade" is typical for all of the South Finnic language group (p. 11). Three degrees of length are not an original feature of Votic, having appeared in some dialects under a later Ingrian influence (see Viitso 1964; Кузнецова 2015 : 236—239).

Chapter 2 on Estonian vowels covers matters similar to those in Eek 2008, but with a broader range of phonological views by other authors and entirely new sections on L2 pronunciation and speech variability of vowels. The best point of comparison for chapter 3 on Estonian consonants would be the second part of Eek's phonetic work, but the latter still remains unpublished. The Estonian consonantal inventory is evaluated as relatively small against the typological background (p. 65), but its actual size can vary greatly depending on the phonological framework (cf. p. 248). In this chapter, we find new corpus data on speech variability of consonants and a conclusion that "the consonantal system of Estonian is losing typical Circum-Baltic isoglosses, at the same time coming closer to currently dominating European languages" (p. 117).

Chapters 4 and 5 on Estonian word prosody and intonation are better adapted for student reading than the two previous ones, with a limitation of aforementioned terminological questions. Even if the authors refrain from taking their own stance on phonological interpretation of Estonian quantity, it is important to find the notion of suprasegmental accents (p. 133) and Eek's proportions characteristic of quantity types (p. 138) to be mentioned. Of much interest are the summaries of various phonetic measurements of syllable proportions in each quantity (p. 136) and on microprosody (p. 140), the data on L2 pronunciation of quantities, frequencies of words of different length (p. 155), and pitch movement on long words. Some particular statements, e.g. that French has fixed stress on the last syllable (p. 126), could be contested though (French does not have lexical stress at all, viz. Himmelmann 2010; Kuznetsova, in press). In Ariste's minimal pair, which is typically used to show the distinctive function of Estonian stress (*tra·ktorist* 'from the tractor' vs. *traktori·st* 'tractor driver', p. 127), the two words differ also phonemically (/s/ in the first vs. /ś/ in the second), the pair given in Вийтсо 1979 : 144 (*lombardi*) being better in this respect.

In the phonetic part of chapter 6, which covers the history of phonetic and phonological studies on Estonian, there is a helpful and systematically organized review on the earliest period of studies with a resume of major discoveries (pp. 202—204). A summary on the newest research, which includes the data of unpublished Bachelor and Master theses, is also very useful. The phonological part of the chapter is much shorter, yet allows the reader to trace the main stages of scientific development well. The authors emphasize a link to the Prague structural paradigm at the early stages of Estonian phonology, as well as the importance of morphology for the phonological description promoted in the works of 1960—1980s, which have laid the basis for the current phonological understanding of Estonian (p. 238). It is concluded that Estonian phonology was developed in the best compliance with the international linguistic evolution only in 1960—1970s (p. 246). At present, phonological typology in Estonia is represented in applications of OT theory, and cognitive phonology has not yet found its way here (p. 249). A final consensus on some central phonological questions (phonemic inventory, interpretation of quantity and stress) is also still to be found (p. 248).

To sum up, this book is undoubtedly a significant achievement of the phonetic laboratory at the University of Tartu and will serve as a new reference point for anyone reading in Estonian and interested in advances of Estonian phonetics and phonology throughout their history.

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