Janina Mołczanow. *Interactions of vowel quality and prosody in East Slavic*. Sheffield, UK: Equinox Publishing Ltd, 2022. xii + 203 pp. [Series: Advances in Optimality Theory.] ISBN-13 9781800502345 (hbk), ISBN 9781800502352 (ebk).

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Janina Mołczanow's book *Interactions of Vowel Quality and Prosody in East Slavic* develops an account of vowel reduction in East Slavic languages, such as standard Belarusian and standard Russian, as well as many dialects that exhibit many different patterns of vowel reduction.[1] Vowel reduction in East Slavic is extremely complex. Traditionally, one distinguishes moderate reduction, which applies in the syllable immediately preceding the stressed one (called "first pretonic" or just "pretonic" in the Slavic literature), and extreme reduction, which applies to vowels in other unstressed syllables in a word. While Mołczanow adopts an existing account of extreme reduction, she proposes a novel treatment of moderate reduction. The claim of the book is that all the different patterns of moderate vowel reduction attested in East Slavic can be unified because all vowel alternations that are the result of this type of reduction are due to the presence of High tone in the head foot. Mołczanow states that "different patterns of reduction in pretonic syllables arise due to the interaction of phonological tone with segmental quality" (p. 2), thus making an assumption about the presence of phonological tone in East Slavic.

The book consists of seven chapters (and the concluding remarks). Chapter 1 presents the theoretical basis of the book, which is the standard Optimality Theory (OT) model as applied to vowel reduction. Mołczanow argues that OT is the best theoretical apparatus to account for the East Slavic vowel reduction since OT is a typologically oriented theory that allows for an analysis of many related, distinct, but slightly varying patterns of alternations. The OT account proposed in the book relies on universally fixed constraint hierarchies with respect to the sonority hierarchy and the syllable peak and margin prominence scales, and harmonic alignment is used for scale combination. All the OT mechanisms employed in the analysis are general and developed by other researchers.

Chapter 2 outlines the basic generalizations with respect to vocalic neutralizations in East Slavic and provides a summary of the types of reduction

[1] Ukrainian does not have phonological vowel reduction.

present in East Slavic dialects. Mołczanow takes into consideration several types of dissimilative reduction, paying attention to the data not only from the most well-known Žizdra, Obojan', and Don dialects, but also to the compound dissimilative reduction (backness harmony) types, such as those attested in Ščigry, Sudža, Mosal'sk, and Dmitrov dialects, as well as to the assimilative-dissimilative (height harmony) types, such as those in Novoselki, Kidusovo, Orexovo, Kultuki, and Bel'sk dialects. The chapter illustrates the types of non-dissimilative and dissimilative vowel reduction on the basis of the data from the existing descriptions, such as Avanesov (1974); Kasatkin (2005); Kasatkina (2000, 2005); Knjazev (2000); Požarickaja (2005); Vajtovič (1968); and Vysotskij (1984), among others.

Chapter 3 addresses the East Slavic metrical system, mostly on the basis of the facts of Russian morphologically-governed stress. Following Halle and Vergnaud (1987), Mołczanow assumes the presence of right-headed (iambic) feet in Russian (contra a later amendment to the proposed model by Idsardi 1992 and Halle and Idsardi 1995, among others, who assume left-headed (trochaic) feet in Russian). Mołczanow points out that while the phonetic and phonological data are not sufficient to argue for a type of foot in Russian, language games appear to provide enough evidence for an iambic foot.[2] Foot is thus the key domain in the proposed model of East Slavic stress. The main assumption is that there is a High tone associated to the head foot (due to HDFT = H constraint). The head foot carries both metrical prominence, as it is the site of stress, and tonal prominence due to the presence of High tone. Metrical and tonal prominence may or may not coincide, depending on the dialect. In the former situation, High tone is linked to the head syllable, and the resulting foot is unary. The latter situation happens when High tone shifts one syllable to the left of the stressed syllable, creating a disyllabic iambic foot. This allows for an account of moderate reduction in standard Russian and of dissimilative reduction in many East Slavic dialects. To illustrate, (1) shows that in the dialects with dissimilative reduction, the presence of H in the head foot is dependent on the quality of the stressed vowel. High tone is linked to the non-high stressed vowel in (1a) and surfaces on the immediately pre-stress vowel if the stressed vowel is high.

[2] Since the language game data are only available for standard Russian, it is unclear how the argument would develop for standard Belarusian or the dialects of either Russian or Belarusian.

(1) Distribution of H tone in the dissimilative dialects (p. 67)

a. H
|
σ ' σ
|
[-high]

b. H
|
σ ' σ
|
[+high]

Chapter 4 presents an account of the extreme reduction of vowels in non-pretonic positions, which is driven by the absence of stress. Following Crosswhite (2001) and De Lacy (2006), the extreme reduction is accounted for as prominence reduction in prosodically weak positions. There are environments that are exempt from the extreme reduction in Russian, specifically, vowels in absolute phrase-initial positions (as in /ogo'rod/ 'vegetable garden', pronounced as [aga'rot] or [ɐga'rot], but not *[əga'rot]) and in hiatus positions (as in /sootno'ʃenʲije/ 'proportion', pronounced as [saatnɐ'ʃenʲɪə] or [sɐɐtnɐ'ʃenʲɪə], but not [səətnɐ'ʃenʲɪə]). These exceptions are treated as gaps in the distribution of schwa. Following Anderson (1982) and Oostendorp (1995), among others, Mołczanow assumes that schwa "is devoid of a melodic content" (p. 75) and that an empty vowel cannot occur in an onsetless syllable. The quality of the resulting vowel in such positions is identical to the outcome of moderate reduction but cannot be attributed to the presence of High tone. An additional constraint is needed to derive the quality of the vowels in these positions, which, admittedly, makes the analysis seem a bit disjointed.

Chapter 5 presents the main point of the book, an account of tone-driven moderate vowel reduction in the first pretonic position. Mołczanow's analysis of pretonic reduction in East Slavic is built on the analytical assumptions made by Bethin (2006) and Dubina (2012). Bethin (2006) proposes that the High tone, which is associated with contrastive stress, is assigned to the immediately pretonic syllable. The accommodation of the pitch rise from the pre-stress to stress syllable is responsible for the pretonic lengthening in some dialects of East Slavic. Dubina (2012) goes on to extend Bethin's analysis to standard Belarusian and to propose that the increased prominence of pretonic vowels is due to the anticipatory spreading of High tone from the stressed syllable to the preceding one.

Mołczanow makes a further assumption, extending Bethin's tonal analysis to all East Slavic dialects. Under the present analysis, the phonological High tone can be correlated with segmental properties (vowel quality) and suprasegmental properties (vowel duration). An OT account is then developed for moderate non-dissimilative and dissimilative types of reduction.

Non-dissimilative reduction is illustrated on the basis of standard Russian, where the pretonic vowel is argued to be a host for High tone. The facts of standard Russian non-dissimilative reduction are derived by "conflating

the sonority scale with the tonal prominence scale" (p. 89), which results in markedness constraints of the type **H/i, *H/i;ə, *H/i;ə;i,u, *H/i;ə;i,u;e,o,* etc. The interaction of these markedness constraints with metrical structure constraints, as well as with faithfulness constraints on vowel quality, is responsible for the outcome of moderate vowel reduction, which reduces /o/ to an [a]-type vowel in non-palatalized contexts—the simplest case at hand. Lowering of /o/ to [a] makes the vowel longer and thus a better tone-bearing unit, while the higher ranked faithfulness to [+high] prohibits lowering of high vowels in the same environment.

Dissimilative vowel reduction refers to vowel reduction in which the quality of the reduced vowel depends on the quality of the vowel in the following stressed syllable. The patterns of dissimilative vowel reduction are derived by the ranking permutations between the sonority/tonal prominence constraints and HEAD=H constraint that requires the stressed (head) syllable to be associated with High tone.

Chapter 5 also presents an analysis of the dialects with pretonic vowel length. These are the dialects in which the lengthening was attributed to the presence of phonological tone by Bethin (2006). However, even in the pretonic length dialects, the presence of the phonetic correlate of the tone is inconsistent. Following Bethin (2006), Mołczanow assumes the presence of phonological High tone, adopts Bethin's analysis that links the immediately pretonic syllables in the lengthening dialects to the LH contour (LH=LONG), and introduces additional constraints that require head feet to be associated with a contour tone (HDFT=LH).

In the interim conclusion, Mołczanow acknowledges that the proposed analysis cannot resolve a long-standing debate about the origin of vowel reduction. The prediction of OT is that both patterns (dissimilative and non-dissimilative) are equally possible as an earlier stage given the proposed constraint and their possible re-rankings.

Chapter 6 turns to the harmony patterns in vowel reduction where in addition to dissimilation, there exists some feature harmony between the vowel in the pretonic position and the stressed vowel. After reviewing the facts of backness harmony (compound dissimilative patterns) and height harmony (assimilative-dissimilative patterns) presented in Chapter 2, Mołczanow proceeds to account for the dialects with these types of reduction in sections 6.2 and 6.3, respectively.

The difference between dissimilative and compound dissimilative patterns lies in the behavior of the reduced vowels before the stressed mid vowels. Compound dissimilative patterns of reduction only occur in the environment of palatalized consonants. Mołczanow points out that the five attested systems of compound dissimilative reduction can be viewed as "a combination of dissimilative reduction with assimilation in backness between vowels in two neighboring syllables" (pp. 121–22). The assimilative-dissimilative

patterns exhibit "reduction to [a] after palatalized consonants if the following tonic syllable contains high and low vowels. Before mid vowels, either [i] or [a] is attested, depending on a dialect" (p. 137). To account for the harmony, Mołczanow adopts Alignment constraints (such as Align-L([back], Ft) for compound dissimilative reduction and Align-L([low], Ft) for assimilative-dissimilative reduction) that operate within a foot, once again making the foot a crucial prosodic domain for the application of reduction and harmony.

Certain compound dissimilative patterns are opaque and thus present a problem for a standard OT model. In order to account for these patterns (e.g., the difference between the surface realizations of the pretonic vowels in the examples like [vʲiˈdʲɔm] 'lead.ɪPL.PRES' and [mʲidʲvʲaˈdʲɔm] 'bear.INSTR.SG' in Sudža and Ščigry dialects, where the stressed vowels are phonetically identical but come from different historical sources), Mołczanow needs to adopt a version of serial OT that allows for multiple levels (Bermúdez-Otero 1999 and Kiparsky 2000, among others).

Chapter 7 looks at a pattern where the presence of High tone fails to trigger vowel lowering in the pretonic position, which goes against the main argument of the book that High tone is best accommodated by more sonorous vowels. The lowering is blocked in the environment of palatalized consonants as well as after non-palatalized stridents [ʃ], [ʒ], and [ts]. The former case is attested in standard Russian as well as in several southern Russian and Belarusian dialects. The latter case is in effect in most East Slavic dialects.

Mołczanow treats the blocking of vowel lowering in the environment of palatalized consonants as assimilation, or agreement in backness with palatalized consonants in the cases where non-high back vowels /a/ and /ɔ/ surface as [e], and agreement in height in the cases where the non-high vowels surface as [i]. A further complication is required to account for the dialects such as Čuxloma, where [i] only surfaces if both preceding and following consonants are palatalized. To account for such alternations, a further Agree constraint is proposed, specifically referring to the environment (AGREE-C^{j}VC^{j}[+high]), which assigns a violation for every non-high vowel that occurs between two palatalized consonants. As this appears to be a case of *phonological teamwork*, an analysis along the lines of the one proposed by Lionnet (2016, 2017) would probably prove more insightful than a direct stipulation.

Finally, the inconsistency of reduction after non-palatalized stridents—cf. [ˈʃar] 'ball', [ʃaˈrɨ] 'ball.NOM.PL'; [ˈʃɛstʲ] 'six' (also pronounced [ˈʃesʲtʲ], e.g., by the present reviewer), [ʃɨˈstʲi] 'six.GEN'—is accounted for by the proposed constraint Hard-C that stipulates that anterior affricates and non-anterior coronal constituents cannot be [-back] (*tsʲ, *ʃʲ, *ʒʲ). This constraint is low ranked at Level 1, which allows for the palatalization of stridents, and high ranked at Level 2, which chooses unpalatalized stridents as the optimal output (/ʃɛstʲ-ˈi/ → *Level 1 output* ʃʲiHˈstʲi → *Level 2 output* ʃiHˈstʲi).

To summarize, the book argues that in East Slavic dialects, tone (i) is phonological, which amounts to saying that it is synchronically present and (ii) directly interacts with vowel quality, which implies that there is some interaction of the phonological tone with the properties of vowels that are phonetically realized.

However, while the analysis hinges on the assumption that High tone is present in all the relevant dialects, the phonetic realization of tone is not uniform throughout East Slavic: LHL contour is indeed attested in some dialects but not in others. An important fact that Mołczanow is well aware of is that only the "pretonic length" East Slavic dialects, such as the Vladimir-Volga Basin and the Malyja Aucjuki/Upper Snov dialect types (Bethin 2006), exhibit non-contrastive tonal contours over the pretonic vowel, while in others, such as standard Belarusian, "tone is employed as a phonological construct not translatable into phonetic pitch" (Mołczanow, p. 88). Thus, while it is quite plausible that High tone was present historically in East Slavic, the analysis that argues that High tone is the phonological reality of the dialects in question is rather abstract in those dialects where it is not present phonetically. The assumption of the phonological High tone unifies all the instances of moderate vowel reduction, and the remaining question is how much discrepancy between the phonological analysis and the phonetic substance are we willing to bring into a phonological analysis.

A completely different approach to the problem is developed by Iosad (2012), who posits that the difference between "moderate" and "radical" vowel reduction stems from the difference in duration between the vowels in the syllables that participate in reduction, and that the apparent sonority-driven effects are epiphenomenal (Iosad 2012: 521). This account is incompatible with Mołczanow's account and does not rely on abstract assumptions about tone in Russian. While Mołczanow acknowledges the existence of Iosad's "no substance" analysis, she does not address it in any substantial detail.

The book provides an internally consistent working analysis of complex patterns of East Slavic vowel reduction, covering the data from many dialects described in the literature. OT is used to derive the typology of vowel reduction, without under- or over-generating the patterns, employing the generally accepted OT constraints and using universally fixed rankings to express implicational universals. The book develops a type of study that Optimality Theory was designed to do and is particularly good at: an account of a phenomenon attested in closely related dialects that differ in certain parameters.

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