Biljana Čubrović, *Acoustic Investigations of Serbian and American English Vowel Inventories*, Belgrade: Faculty of Philology, 2016, str. 155[1].

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This cross-linguistic vowel study, as its title would suggest, explores the vowel inventories of two quite different languages: Standard Serbian (see below for the choice of informants) and American English. It relies on experimentally collected acoustic data, including both L1 and L2 productions. The initial trigger for undertaking this study was the author's Visiting Scholar appointment in the Department of Linguistics at Cornell University in 2013-2014. The book comprises four parts.

Part One includes general remarks on the typology of vowel systems. The author consults UPSID2 (UCLA Phonological Segment Inventory Database; see Maddieson, Precoda and Reetz 2014), points out some general facts (e.g. few languages with small vowel inventories use contrastive vowel length), and examines different possibilities in terms of the symmetry in vowel inventories (the number of short vs. long vowels), as well as whether the long-short pairs differ in quality. Crothers's (1978) finding is also pointed out, namely the proposed vowel universal that "there is a tendency for high and low vowels of a short vowel system to be more central than the corresponding long vowels" (p. 29). Čubrović then outlines the Dispersion Theory model, which assumes that inventories with more vowels should cover larger acoustic spaces, because their units are more dispersed so as to minimize perceptual confusion

Part Two provides an outline of the Serbian vocalic system. Čubrović points to the two main approaches to treating vowel length: the traditional one, according to which Serbian has 5 vowels and the length is treated as the property of different pitch-accents, and the one employed by e.g. Jakobson 1937 [1962], Browne and McCawley (1965) and Inkelas and Zec (1988), according to which the vowel length, pitch and stress are treated as distinct phonological properties; in this view Serbian has a 10 vowel system which incorporates a length contrast. The author then turns to the first of three experiments, describing the procedure and the results.

In Experiment 1 nine male speakers from Belgrade, mean age 39.7, were the informants (this is potentially very important when comparing the results to those of e.g. Ivić and Lehiste 1967). The experiment investigated labial and coronal environment effects, as well as long vs. short effects. The vowels, as in the remaining two experiments, are plotted, unnormalized, on F1-F2 graphs. The results include the following observations: "[T]he comparison of the acoustic production of five long

vowels of Serbian in two different phonetic environments draws our attention to a tendency of central and back vowels to be more centralized in the coronal context " (p. 57)."[T]he influence of the following consonant on the quality of Serbian short and long accented vowels is not statistically significant" (p. 59). "Serbian short and long vowels show statistically significant differences in vowel quality, regardless of the consonantal environment" (p. 66)."The finding that all 5 Serbian short and long vowel pairs differ in quality is striking. Lehiste and Ivić (1986) found this effect in three vowel pairs: /e/-/e;/, /o/-/o;/, and /a/-/a;/. That the two high vowel short/long pairs also differ is a new finding" (p. 67).The experiment also looked at short unstressed vowels in penultimate syllables of trisyllabic words with initial stress. It showed all short vowels exhibited at least some degree of centralization when unstressed, with a "statistically significant difference from its accented counterpart in at least one of the formants" (p. 71).

Part Three contains the descriptions of Experiment 2 and Experiment 3. The former examined nine monophthongs of American English (those found in words *beat, bit, bet, bat, but, boot, put, bought*, and *pot*) in the speech of nine male native speakers of American English (predominantly from the Northeast, all students at Cornell University). One interesting, if not entirely surprising finding of this experiment was that the Low Back Merger is well under way among the younger speakers who were participants in this study. Also cited are some of the previous relevant studies, such as Peterson and Barney (1952), Hilenbrand et al. (1995) and Bradlow (1993).

Experiment 3 investigated the realizations od American English vowels by the same 9 native speakers of Serbian who participated in Experiment 1, and the same set of words and methodology were used as in Experiment 2. The majority of the participants had overlapping realizations for /ɪ/ and /iː/, /ʊ/ and /uː/ and /æ/ and /ɛ/. Additionally, the Non-Native Speakers articulating/æ/ and /ɛ/ had fronter realizations compared to those of the Native Speaker cohort. Finally, a statistical analysis was run, and the mixed-effects model found statistically significant differences for the speaker group effect on F1 for all vowels except /ʌ/.

Part Four contains the concluding remarks and outlines some potential directions for future study, such as a comparison across the productions of Serbian and American English vowels in Experiments 1 and 3 respectively, but also conducting similar types of studies with more speakers, and a broader set of phonetic environments.

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