

## The Phonology and Phonetics of Ambiguity: A Case Study of /v/

The behaviour of /v/ which, in languages as diverse as Hebrew, Hungarian and Russian, patterns with both sonorants and obstruents, is a puzzle for phonological theory (Jakobson, 1978; Barkai and Horvath, 1978; Hayes, 1984; Kiparsky, 1985; Padgett, 2002; Kiss and B ark anyi, 2006). In this paper I situate such cases in the broader typology of /v/'s patterning and distribution. A database of over 500 segment inventories was analysed (Mielke, 2007) in order to determine how inventory structure correlates with the patterning and distribution of /v/. Of the 200 languages that have /v/ (36.49%), 167 also contain /f/; only 44 of these lack /w/, the subset that we focus on here. A frequent, if tacit, assumption is that when an inventory contains both /v/ and /f/, they form a voiced-voiceless obstruent pair. This is indeed the case for Greek, in which /v/ distributes as the voiced counterpart of voiceless /f/: both occur in fricative-fricative clusters (1), or as the first member of a fricative-sonorant cluster (2). Moreover, both /v/ and /f/ are subject to the general requirement on obstruents to agree in voicing (3). In Serbian, however, /v/ has the distribution of a sonorant, in that it can follow both voiced and voiceless obstruents (4). While obstruents trigger regressive voicing assimilation, (5-a), (5-b), sonorants do not (5-c), and nor does /v/ (5-d). Moreover, [ovca] ‘sheep’ illustrates that /v/ does not devoice before a voiceless obstruent. By contrast, /f/ participates fully in obstruent voicing processes. The most striking case is Russian, in which /v/ shares the distribution of sonorants as in Serbian (6) but patterns ambiguously with respect to voicing processes. While the rightmost obstruent of a cluster determines its voicing, (7-a), (7-b), sonorants are inert with respect to this process (7-c), as is /v/ (7-d). However, /v/ undergoes devoicing before a voiceless obstruent (8), and word-finally (9). Again, this contrasts with /f/, which participates in obstruent voicing processes as both a target and trigger. Because none of these inventories contain /w/, differences in patterning cannot be attributed to a contrast with another labial sonorant.

To summarize, the three cases we have encountered give us three types of patterning of /v/. In Greek /v/ is an obstruent, both in terms of its distribution and phonological patterning, and in Serbian, it is a sonorant on both counts. In Russian, /v/ has the distribution of a sonorant and patterns in some processes as a sonorant and in others as an obstruent. A fourth possible case that we have not encountered would be of /v/ having the distribution of an obstruent but ambiguous patterning, and it is still to be determined whether this is an accidental or systematic gap.

A crucial question is whether there are any phonetic differences in the various realizations of [v] across languages. This is what we address in a study that looks at Greek, Serbian and Russian, seeking a correlation between the phonological patterning on the one hand, and the phonetic realization on the other. Previous studies have only examined the acoustics of [v] in a single language (Lulich (2004) for Russian, Kiss and B ark anyi (2006) for Hungarian). Preliminary results measuring relative amplitude (Parker, 2002) and spectral moments (Jongman et al., 2000) show no significant difference in the acoustics of [v] in the three languages. Nevertheless, [v] in each language exhibits intermediate values in relative amplitude and spectral moments when compared to canonical sonorants and obstruents, with a potential for some phonetic ambiguity with respect to the sonorant-obstruent divide. These results suggest that such phonetic ambiguity could be interpreted differently in different languages.

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|-----|----|---------------------------|--------------------------|-----|----|----------|-----------------------|
| (1) | a. | [fxaristo]                | ‘thank you’              | (2) | a. | [floya]  | ‘flute’               |
|     | b. | [vyazo]                   | ‘I remove’               |     | b. | [vlakas] | ‘idiot’               |
| (3) | a. | [evylotos]                | ‘eloquent’               | (4) | a. | [tvoj]   | ‘your’                |
|     | b. | [efstaθia]                | ‘steadiness’             |     | b. | [dva]    | ‘two’                 |
| (5) | a. | /s-paziti/                | [spaziti]                |     |    |          | ‘observe’             |
|     | b. | /s-gaziti/                | [zgaziti]                |     |    |          | ‘trample’             |
|     | c. | /s-ložiti/                | [složiti]                |     |    |          | ‘put together’        |
|     | d. | /s-variti/                | [svariti]                |     |    |          | ‘digest’              |
| (6) | a. | [tver <sup>j</sup> ]      | ‘Tver’                   |     |    |          |                       |
|     | b. | [dver <sup>j</sup> ]      | ‘door’                   |     |    |          |                       |
| (7) | a. | /ot-pustit <sup>j</sup> / | [otpustit <sup>j</sup> ] |     |    |          | ‘release’             |
|     | b. | /ot-brosit <sup>j</sup> / | [odbrosit <sup>j</sup> ] |     |    |          | ‘throw aside’         |
|     | c. | /ot-nesti/                | [otnesti]                |     |    |          | ‘carry away’          |
|     | d. | /ot-vesti/                | [otvesti]                |     |    |          | ‘lead away’           |
| (8) | a. | /v ruke/                  | [v ruke]                 |     |    |          | ‘in one’s hand’       |
|     | b. | /v gorode/                | [v gorode]               |     |    |          | ‘in the city’         |
|     | c. | /v supe/                  | [f supe]                 |     |    |          | ‘in the soup’         |
| (9) | a. | [sled-a]                  | [slet]                   |     |    |          | ‘track (gen./nom.sg)’ |
|     | b. | [mil]                     | *[mil]                   |     |    |          | ‘dear’                |
|     | c. | [prav-a]                  | [praf]                   |     |    |          | ‘right (fem./masc.)’  |

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