THE FEATURE [voice] AND BOUNDARIES IN BULGARIAN

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1. Introduction

Bulgarian is the national language of Bulgaria. It has about 8 million speakers. Like Russian and Serbian, Bulgarian is written in the Cyrillic alphabet. Bulgarian is a member of the Slavic group of languages. More specifically, it is a South Slavic language, very closely related to Macedonian and slightly more distantly related to Serbo-Croatian (Ruhlen 1991). Bulgarian, along with Macedonian, Rumanian, Albanian, and Greek, is part of the Balkan Sprachbund or “linguistic area”. Languages of this area share a number of features not found in related languages outside the area. For example, both Bulgarian (a Slavic language) and Rumanian (a Romance language) have suffixed definite articles, but Slavic languages and Romance languages outside the Balkan area either prefix their articles or have no articles at all.

This paper will focus on how the specification of the feature [voice] varies for obstruents that occur at the ends of morphemes. As in perhaps all Slavic languages, the voicing of obstruents at the ends of morphemes is often conditioned by environment. There are two basic processes. First, two obstruents that come together cannot disagree in voicing. If a morphological or syntactic process brings obstruents together, the first always assimilates to the voicing specification of the second. Second, obstruents are always voiceless at the end of a word, leading to the neutralization of the [±voice] distinction in this environment. A word boundary is crucial for devoicing to take place since devoicing does not take place at morpheme or clitic boundaries.
My interest in Bulgarian was stimulated by playing and singing over several years in the Balkan Performance class of the UCLA Ethnomusicology Department. I have never studied the language, and my knowledge of Bulgarian structure is very limited. From having studied Russian, I can read the Cyrillic alphabet, an ability that has proven useful because Cyrillic as used to write Bulgarian comes close to being a true phonemic alphabet, i.e. one can essentially read underlying phonemic forms directly from the written form of the language. Data for the paper comes primarily from Aronson (1968), Hodge et al. (1961), Lord (1962), and Papantchev (1994). I would like to thank Georgi Sarandev for verifying some of the data.

2. Phonological Sketch

Following are tables of the consonant and vowel phonemes of Bulgarian:

(1) Bulgarian consonants

<table>
<thead>
<tr>
<th></th>
<th>Labial</th>
<th>Alveolar</th>
<th>Alveopalatal</th>
<th>Velar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops</td>
<td>p, b</td>
<td>t, d</td>
<td></td>
<td>k, g</td>
</tr>
<tr>
<td>Affricates</td>
<td>ts</td>
<td>tf, dз</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricatives</td>
<td>f, v</td>
<td>s, z</td>
<td>f, 3</td>
<td>x</td>
</tr>
<tr>
<td>Nasals</td>
<td>m, n</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tap</td>
<td>r</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lateral</td>
<td>l</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glide</td>
<td></td>
<td></td>
<td>j</td>
<td></td>
</tr>
</tbody>
</table>

(2) Bulgarian vowels

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Central</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>i</td>
<td></td>
<td>u</td>
</tr>
<tr>
<td>Mid</td>
<td>e, æ</td>
<td></td>
<td>o</td>
</tr>
<tr>
<td>Low</td>
<td>a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Under one analysis, all the non-alveopalatal consonants have both plain counterparts (those in the table) and palatal counterparts, e.g. /pʲ, tʲ, kʲ, sʲ, etc./. It seems to me that treating these as sequence of consonant followed by glide (pj, tj, etc.) works just as well,
and indeed, Aronson (1968:33, fn.9) says, “Sequences of consonant plus /j/ may replace the palatalized consonants in the speech of Bulgarians from the West …”. I will therefore follow this practice in transcription.

Bulgarian has a number of phonological processes that affect underlying consonants. Two such processes affecting the voicing of obstruents are the focus of this paper. As in all Slavic languages, the velars participate in rather extensive affrication and spirantization processes before front vowels, e.g. /válk/ ‘wolf’  $\rightarrow$ [válk] singular, [váltši] plural; /bélig/ ‘scar’  $\rightarrow$ [bélik] singular, [bélizi] plural; /kužúx/ ‘fur’  $\rightarrow$ [kužúx] singular, [kužúsi] plural; [az peká] ‘I bake’ vs. [ti petʃef] ‘you (sg.) bake’ from root /pek-/.

In spoken Bulgarian, the full vowel inventory in the table appears only among phonetically stressed vowels. The following raising neutralizations take place when vowels are not stressed:

(3) Neutralization of /e, o, a/ and /i, u, å/ when not stressed

/e/  $\rightarrow$ [i] when not stressed, neutralizing with /i/:  [fiv-å] ‘the seam’ (cf. [féf] ‘seam’)  
   cf. [fiʃ] ‘thorn’
/o/  $\rightarrow$ [u] when not stressed, neutralizing with /u/:  [rug-å] ‘horns’ (cf. [rók] ‘horn’)  
   cf. [rús] ‘blond’
/a/  $\rightarrow$ [å] when not stressed, neutralizing with /å/:  [gråd-å] ‘the city’ (cf. [grát] ‘city’)  
   cf. [gråt] ‘breast’

In this paper I will write all vowels in their underlying forms. Vowels play no role in the alternations on which this paper focuses and marking vowel alternations in addition to the consonant alternations would be distracting. Moreover, speakers are aware of what the underlying vowels are, and in careful speech, they tend not to make the raising neutralizations listed above.
Stress is phonemic in Bulgarian, or, perhaps better, stress is, for many words, an unpredictable part of the pronunciation. Thus, for the words in (3) that show raising of unstressed vowels, the suffix bears stress, but for other words, the stem always bears stress, e.g. лев/лъв-а ‘Lev/the Lev’ (LEV is the Bulgarian unit of currency), кон/кън-а ‘horse/the horse’, брат/бръж-я ‘brother/brothers’. I mark stress with an acute accent, the method of marking stress for all Slavic languages in both Cyrillic and Roman orthographies.

3. Voicing Assimilation

Bulgarian has a general rule that assimilates the first of two obstruents to the voicing feature of the second. We can formulate this rule as follows:

\[
\text{Voicing Assimilation: } [-\text{sonorant}] \rightarrow [\alpha \text{ voice}] /_{\text{-sonorant}}^{\text{\alpha voice}}
\]

This rule does not assimilate a consonant to the voicing of a following vowel nor to the voicing of the sonorant consonants /m, n, r, l, j/. Examples of non-assimilation will appear in examples below. Voiceless consonants also do not assimilate to the voicing of [v]. This sound seems to pair phonologically with the glide /j/ rather than with the voiceless fricative [f]. Bulgarian has no phonetic [w]. Moreover, [f] appears almost exclusively in loanwords, e.g. фасуł ‘beans’ (< Turkish), кafe ‘coffee’, картоф ‘potato’ (< German). It thus makes sense to have an underlying system with glides /j, w/ but no underlying labial fricatives other than /f/ in loanwords. A general rule would change /w/ to phonetic [v]. This rule would apply after the voicing assimilation rule.

The voicing assimilation rule applies whenever two obstruents come together, whether within a word or across morpheme and even word boundaries.
(5)  

a. **Within a word**

[-voice] $\rightarrow$ [+voice]  
svádba  ‘wedding’
 cf. svát, svátove  ‘matchmaker(s)’

gožba  ‘meal’
 cf. gostjá  ‘offering food to guests’

[+voice] $\rightarrow$ [-voice]  
slátka  ‘sweet (f)’
 cf. sládak  ‘sweet (m)’

b. **Prefix + Root**

[-voice] $\rightarrow$ [+voice]  
ód-govor  ‘answer’
 cf. ot-ída  ‘go, depart’

[+voice] $\rightarrow$ [-voice]  
ras-káza  ‘recount’
 cf. raz-óra  ‘plough completely’

op-sídžam  ‘discuss’
 cf. ob-javjávam  ‘announce’

c. **Preposition + Root**

[-voice] $\rightarrow$ [+voice]  
z bóška  ‘with pain’
 cf. s nóti  ‘with notes’

od bára  ‘from the bar’
 cf. ot naišálo  ‘from the beginning’

[+voice] $\rightarrow$ [-voice]  
f sófija  ‘in Sofia’
 cf. v edna kantóra  ‘in an office’

pot kástata  ‘under the house’
 cf. pod ígoto  ‘Under the Yoke’

d. **Across word boundaries**

[-voice] $\rightarrow$ [+voice]  
visóg báir  ‘high hill’
 cf. visóko  ‘loudly’

pób da ...  ‘priest to …’
 cf. póp, popóvé  ‘priest(s)’

[+voice] $\rightarrow$ [-voice]  
grát sófija  ‘the city of Sofia’
 cf. gradóvé  ‘cities’

xúbař pénţjo  ‘handsome Pencho’
 cf. xúbavi plural

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1 This is the name of a well-known book by Ivan Vazov (1850-1921) about subjugation of Bulgaria by the Ottoman Empire.
As we will see in the next section, the word final voiceless consonants in the [+voice] \rightarrow [-voice] examples of (5d) just above, are more likely to the result of Word Final Devoicing than of Voicing Assimilation, but the phonetic outcome of either rule would be the same.

4. Word Final Devoicing

Bulgarian has a second rule affecting the voicing of obstruents. This rule devoices a voiced obstruent at the end of a word. The rule applies if the obstruent is at the end of a phrase and also if the following word begins in a vowel, a sonorant consonant, or [v]. As seen from the beginning of §3, this is the same class of segments that fails to condition voicing assimilation of a preceding consonant within a word or across morpheme boundaries.

(6) **Word Final Devoicing**: [-sonorant] \rightarrow [-voice] / ___"]word

In the following examples, the form in parentheses shows that the final obstruent is voiced in its underlying form. Note that although /v/ does not condition voicing (cf. graf vëdin ‘the city of Vidin’), it does undergo Word Final Devoicing, as in (8).

(7) graf (gradovë ‘cities’) ‘city’
graf oxrit ‘the city of Oxrit’
graf rúse ‘the city of Ruse’
graf vidin ‘the city of Vidin’
cf. grád burgás ‘the city of Burgas’

(8) xúbaf (xúbavi plural) ‘beautiful, handsome’
xúbaf énjo ‘handsome Enyo’
xúbaf nikóla ‘handsome Nicola’
cf. xúbav delčio ‘handsome Delcho’

(9) dálak (dálagi plural) ‘long’
dálak ánšunk ‘long sports outfit’
dálak nós ‘long nose’
cf. dálag brják ‘long beach’
There is an ordering relation between **Word Final Devoicing** and **Voicing Assimilation**. We must first apply **Word Final Devoicing**, followed by **Voicing Assimilation**. Applied in the opposite order, **Word Final Devoicing** would devoice the final consonants in the last lines of the examples in (7-9).

<table>
<thead>
<tr>
<th>(10)</th>
<th>Underlying</th>
<th>/gránd burgas/</th>
<th>Underlying</th>
<th>/gránd burgas/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Final Devoicing</td>
<td>grát burgas</td>
<td>Voicing Assimilation</td>
<td>(gránd burgas)</td>
<td></td>
</tr>
<tr>
<td>Voicing Assimilation</td>
<td>gránd burgas</td>
<td>Word Final Devoicing</td>
<td>grát burgas</td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>[gránd burgas]</td>
<td>Output</td>
<td>*[grát burgas]</td>
<td></td>
</tr>
</tbody>
</table>

Under this analysis, the voiced final obstruent in [gránd burgas] is not the underlying /d/ of /gránd/, but rather an assimilated consonant which had earlier been devoiced! The same comment holds for the [v] of xúbav and the [g] of dág in the last lines of (8) and (9) respectively. As an alternative, one could formulate **Word Final Devoicing** to be blocked when the word final obstruent was followed by a voiced obstruent. With an analysis formulated this way, no ordering would be required.

5. Rules Involving [voice] and Boundaries

**Word Final Devoicing** differs from **Voicing Assimilation** in that the latter applies whenever the phonological conditions are met, whether the relevant consonants are within a word or are separated by some kind of boundary. **Word Final Devoicing** applies only if the affected consonant falls at a word boundary. Thus, in the [+voice] → [-voice] sections of (5b, c) the prefixes and prepositions, respectively, retain final voicing of obstruents even though a boundary intervenes. This is not surprising in the case of the prefixes, which are “part of the word”, but the failure of final obstruents to devoice in prepositions suggests that although prepositions are written as separate words in Bulgarian (as are their counterparts in English), the boundary separating them from the
following word is not a WORD boundary. Words such as prepositions, which typically are
unstressed and must always be part of a larger phrase, are referred to as CLITICS. At the
level of syntax, prefixes and prepositions are treated differently. For example, a prefix
must be attached to a word root and nothing can intervene, whereas a preposition
precedes an entire phrase, regardless of what begins the phrase.

(11)  a. Prefix: \[\text{ot-lít\acute{e}n}\] ‘excellent’ (related to \[\text{lít\acute{e}n}\] ‘eminent’)
     \[\text{*ot-mnógo-lít\acute{e}n}\] “very excellent”

     b. Preposition: \[\text{od bár-\lambda}\] ‘from the bar’
       \[\text{ot edín bár}\] ‘from a bar’
       \[\text{ot tózi bár}\] ‘from that bar’
       \[\text{ot stárij\acute{a} bár}\] ‘from the old bar’

The behavior of obstruent voicing shows that for purposes of phonology, however,
the same type of boundary intervenes between prefixes and roots and between clitics and
phrases they are attached to. We might thus represent the underlying forms in (11a, b) as
\[/\text{ot+lít\acute{e}n}/\] and \[/\text{ot+bár+\lambda}/\] respectively.

The observation that prepositions are phonological clitics suggests that there might be
other items in Bulgarian that we should classify as clitics, even though in some sense,
they are words. These items would be unstressed morphemes with somewhat freer
syntactic occurrence than prefixes but which are always phonologically bound to the
following word. The evidence for this binding would be the failure of Word Final
Devoicing to apply. At this time, I have not been able to pursue this question in detail,
but one candidate is the first person singular pronoun \[\text{az}\] ‘I’. In fact, I believe that in
phrases such as those in (12), the final \[z\] of \[\text{az}\] remains voiced, confirming its clitic status.

(12)  \[\text{az íman}\] ‘I have’
     \[\text{az ne sám}\] ‘I am not’
     cf. \[\text{as sám}\] ‘I am’, with Voicing Assimilation applied
5. Conclusion

This paper has looked at two rules that affect the feature [voice] in Bulgarian obstruents when those obstruents come at the end of a morpheme. One rule, Voicing Assimilation (4), assimilates an obstruent to the voicing specification of a following obstruent (see (5) for examples). This rule does not assimilate voiceless obstruents to the [+voice] feature of the following sound if that sound is a vowel, a sonorant consonant, or [v]. We provided evidence that [v] should be viewed as underlying /w/, i.e. a sonorant consonant. The other rule, Word Final Devoicing (6), devoices obstruents at the end of a word (see (7-9) for examples). This rule requires the presence of a word boundary. Because this rule does not apply to either prefixes or prepositions, we argued that phonologically, an AFFIX or CLITIC boundary, rather than a word boundary, follows these items. When a word final obstruent precedes a voiced obstruent, as in the last lines of (7-9), the word final obstruent is voiced, but we argued that this is not a result of the appearance of underlying voicing, but rather of the application of Voicing Assimilation.

REFERENCES

Aronson, Howard I. 1968. *Bulgarian Inflectional Morphophonology*, Mouton


