The Double Nature of the Velar /g/ in Serbian*

Milica Radišić
University of Toronto

Two phonetically similar sounds can pattern differently in two different languages. As well, one and the same sound can pattern in two different ways in one language. In this paper, I focus on the velar /g/ in Serbian, which patterns with stops in Regressive Voicing Assimilation, but with continuants in two assimilation in place of articulation processes, First Palatalization and Second Palatalization. The main research question that I address is the following: How can we explain what seems to be “the double nature” of the velar /g/? I propose that the patterning of /g/ stems from an asymmetry in the Serbian consonant inventory which leaves /g/ unspecified for manner.

1. The Data

Two phonetically similar sounds can pattern differently in two different languages. As well, one and the same sound can pattern in two different ways in one language. For instance, extensive research has been done on the status of the Russian /v/, which patterns with sonorants as well as with obstruents (e.g. Blaho 2004; Padgett 2002).

In this paper, I focus on the velar /g/ in Serbian, which patterns with stops in Regressive Voicing Assimilation, but with continuants in two assimilation in place of articulation processes, First Palatalization and Second Palatalization. The main research question that I address is the following: How can we explain what seems to be “the double nature” of the velar /g/?

I propose that the patterning of /g/ stems from an asymmetry in the Serbian consonant inventory which leaves /g/ unspecified for manner. The analysis is couched in the Contrastive Hierarchy model (e.g. Dresher 2003a, 2003b; Dresher, Piggott and Rice 1994) and Modified Contrastive Specification (e.g. Avery and Rice 1989; Rice and Avery 1993).

1.1 Serbian Consonant and Vowel Inventories

The Serbian consonant inventory is shown in Table 1 and the vowel inventory in Table 2.

---

* I am very grateful to Keren Rice for her help and support. Also, I wish to thank Elan Dresher, Alexei Kochetov and the audience of the Coronals Workshop for their helpful comments.
Table 1: Serbian consonant inventory

<table>
<thead>
<tr>
<th></th>
<th>labial</th>
<th>coronal</th>
<th>velar</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>anterior</td>
<td>posterior</td>
<td></td>
</tr>
<tr>
<td></td>
<td>front</td>
<td>back</td>
<td>front</td>
</tr>
<tr>
<td>stop</td>
<td>p</td>
<td>b</td>
<td>t</td>
</tr>
<tr>
<td>fricative</td>
<td>f</td>
<td>s</td>
<td>z</td>
</tr>
<tr>
<td>nasal</td>
<td>m</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>lateral</td>
<td>l</td>
<td>ʎ</td>
<td></td>
</tr>
<tr>
<td>rhotic</td>
<td>r</td>
<td>ɾ</td>
<td></td>
</tr>
<tr>
<td>glide</td>
<td>u</td>
<td>舄</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Serbian vowel inventory

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>u</td>
</tr>
<tr>
<td>ɛ</td>
<td>ɔ</td>
</tr>
<tr>
<td>a</td>
<td></td>
</tr>
</tbody>
</table>

While the Serbian vowel inventory is not elaborate, the consonant inventory shows a comparatively large number of coronal obstruents. Among coronal obstruents, Serbian has a rare phonological contrast between two sets of posterior coronals /tʃ dʒ/ and /tš dž/. Therefore, features are required to subclassify coronals into two broader groups, labeled [anterior] and [posterior] in Table 1. In addition, each of these groups must be subdivided. I use the features [front/back] as convenient labels, which, as we shall see later, clearly compartmentalize coronals into appropriate groups based on their patterning in phonological processes. [front/back] refer to the fact that in First and Second Palatalization only one subset of anterior and one subset of posterior coronals take part, [back] coronals.

Table 1 also shows gaps in the consonantal inventory. One, which I argue is a systematic gap, refers to the fact that Serbian voiced labials, voiced velars and front coronals do not contrast for manner. Two, a gap that I argue to be accidental refers to the fact that, although all back coronals come in stop-fricative counterparts, /z/ is missing its stop counterpart /dz/. The asymmetries in the consonantal inventory play a major role in determining the behavior of /g/.

1.2 Relevant Processes<sup>3</sup>

1.2.1 First Palatalization

First Palatalization (FP) is a place of assimilation process, where the three velars /k ɡ x/ become posterior back coronals [tʃ dʒ ʃ]. This is illustrated in (1).

---

<sup>1</sup> Affricates are argued to be stops by Clements 1999, Kehrein 2002 and Rubach 1994, for instance.

<sup>2</sup> The symbols for coronal affricates /tš dž/ are taken from Miller-Ockhuizen and Zec (2002). Symbols /tʃ/ and /dʒ/ could equally be used.

<sup>3</sup> Data on processes is compiled from Simić (2002) and Stevanović (1964).
(1) \[ /k\ g\ x/ \rightarrow [\text{tf} \ d_3 \ \text{ʃ}] / \_\_\_ /\varepsilon/ \]

Some examples are given below.

(2) a. diminutive
   ruk\text{a} + itsa \qquad \text{rutʃ}itsa \quad \text{‘hand’}

b. augmentative
   kni\text{g}a + e\text{tina} \qquad \text{kniʒe\text{tina}} \quad \text{‘book’}

c. \text{N}$\rightarrow$\text{V}
   prax\text{x} + iti \qquad \text{praʃiti} \quad \text{‘dust’}

As we can see, the stop \(/k/\) becomes a coronal affricate, and the fricative \(/x/\) becomes a fricative; consequently, we would expect the phonetic stop \(/g/\) to become the affricate \([d_3] \), which is certainly available. Instead, \(/g/\) becomes the fricative \([ʃ] \).

This process does not occur across-the-board, but in a specific environment, before certain suffixes. According to the Lexical Phonology (Kiparsky 1982, 1985), this suggests that FP is a lexical process, occurring at the lexical level, where, according to Modified Contrastive Specification, phonemes are specified only for contrastive, marked features.

1.2.2 Second Palatalization

Second Palatalization (SP) is a place of assimilation process, where the three velars \(/k\ g\ x/\) become anterior back coronals \([ts z s] \). It is illustrated in (3).

(3) \[ /k\ g\ x/ \rightarrow [ts z s] / \_\_\_ /i/ \]

Some examples are given below.

\text{Miletić (1933).}
Again, while the stop /k/ becomes an affricate, and the fricative /x/ remains a fricative, the stop /g/ becomes the fricative [z]. Note that there is no corresponding affricate /dz/ in the Serbian phoneme inventory.

Like FP, SP process does not occur across-the-board, but in a specific environment, before certain suffixes. Again, according to the Lexical Phonology (Kiparsky 1982, 1985), this suggests that SP is a lexical process, occurring at the lexical level, where phonemes are specified only for contrastive, marked features.

1.2.3 Regressive Voicing Assimilation

A third relevant process in Regressive Voicing Assimilation (RVA), where the preceding obstruent agrees in voicing with the following one.

(5) obstruent → [α voice] / __ obstruent [α voice]

<table>
<thead>
<tr>
<th>input/output</th>
<th>p</th>
<th>t</th>
<th>s</th>
<th>f</th>
<th>tf</th>
<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>output/input</td>
<td>b</td>
<td>d</td>
<td>z</td>
<td>ʒ</td>
<td>dʒ</td>
<td>g</td>
</tr>
</tbody>
</table>

Some examples of RVA are given below.

(6) (i) /b/ ↔ /p/
   a. vrabats + a vraptsa ‘sparrow’ GEN.SG. stem+suffix
   b. təp + dʒija təbdʒija ‘canon operator’ stem+suffix
   (ii) /d/ ↔ /t/
   c. kəd + kutšə kətkutšə ‘at home’ clitic+word
   d. svat + ba svadbə ‘wedding’ stem+suffix
   (iii) /z/ ↔ /s/
   e. iz + terati isterati ‘to chase out’ prefix+stem
   f. s + batsiti zbatsiti ‘to throw off’ prefix+stem
   (iv) /ʒ/ ↔ /ʃ/
   g. leʒ + kariti leʃkariti ‘to nap’ stem+suffix
   h. veʃ + ba vəbə ‘to practice’ stem+suffix
   (v) /dʒ/ ↔ /tʃ/
   i. dəbrudʒ + ki dəbrutʃi ‘that belongs to Dobrudža’ stem+suffix
   j. vratʃ + bina vradʒbina ‘spell’ stem+suffix
   (vi) /g/ ↔ /k/
   k. drug + tʃije dрукtʃije ‘different’ stem+suffix
   l. nadʒak + baba nadʒagbaba ‘witch’ word+word
Here, the stop /k/ becomes the stop [g], the fricative /x/ becomes the fricative [ɣ], and the stop /g/ becomes the stop [k]. This process occurs across-the-board, including the word/clitic boundary (ii c.) and the word/word boundary (vi l.). Such a distribution shows that RVA is a post-lexical process, where, according to the Lexical Phonology (Kiparsky 1982, 1985), phonemes are fully specified via default rules (e.g. Rice and Avery 1989).

1.2.4 Summary

In sum, /g/ patterns with fricatives in lexical processes (FP and SP), and with stops in the post-lexical process (RVA), as shown in Table 3.

<table>
<thead>
<tr>
<th>process</th>
<th>rule</th>
<th>domain</th>
<th>/g/ patterns with</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP</td>
<td>/k g x/ → [tʃ dʒ ʃ] / __ /i e/</td>
<td>lexical</td>
<td>fricatives</td>
</tr>
<tr>
<td>SP</td>
<td>/k g x/ → [ts z s] / __ /i/</td>
<td>lexical</td>
<td>fricatives</td>
</tr>
<tr>
<td>RVA</td>
<td>obstruent → [α voice] / __ obstruent [α voice]</td>
<td>post-lexical</td>
<td>stops</td>
</tr>
</tbody>
</table>

On one hand, in the two place of assimilation lexical processes, /k x/ change only their place of articulation, while /g/ seems to change its place and manner as well. On the other hand, in the voicing assimilation post-lexical process, /k g x/ change only their voice settings. This then is the problem: Why does /g/ pattern with both stops and fricatives, while in other phonological processes only place and voicing are affected? There are no comprehensive accounts on the behaviour of /g/ that deal specifically with Serbian.5

2. The Proposal

I propose that the “double nature” of the velar /g/ in Serbian is attributable to the asymmetry in the consonant inventory which leaves /g/ unspecified for manner. The voiced fricatives /z ʒ/ are also unspecified for manner, while /dʒ/ is specified for manner as a stop. Since the palatalizations are assimilations in place of articulation and not in manner of articulation, /g/ changes into /z ʒ/. If /g/ were to change into /dʒ/, /g/ would also change its manner of articulation. In the remainder of this paper, I lay out this proposal in detail.6

2.1 Determining Underlying Feature Specifications

I begin by arguing for the underlying features of the Serbian consonants. To do this, I employ the Contrastive Hierarchy model (e.g. Dresher 2003a, 2003b; Dresher, Piggott and Rice 1994) and Modified Contrastive Specification (e.g. Avery and Rice 1989; Rice and Avery 1993).

---

5 For an overview of the behaviour of /g/ in some other Slavic languages see Rudišić (2007).
6 See Morén (2006) and Jurgec and Morén (2008) for a similar account. They do not discuss the patterning of /g/, but as well assume that /g/ is specified only as [voice].

95
The Contrastive Hierarchy model determines phonemic contrasts based on the patterning of phonemes in phonological processes, and on the status of the phonemic inventory. The relevant processes are listed here, and the inventory is given in section 1.

Table 4: Processes involving consonants

<table>
<thead>
<tr>
<th>process</th>
<th>rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Palatalization</td>
<td>/k g x/ → [tʃ dʒ ʃ] / ____ /i e/</td>
</tr>
<tr>
<td>Second Palatalization</td>
<td>/k g x/ → [ts z s] / ____ /i/</td>
</tr>
<tr>
<td>Iotation: Coronal</td>
<td></td>
</tr>
<tr>
<td>Labial</td>
<td>a. /t d ts s z l n/ → [tʃ dʒ tʃ dʒ ʃ ʒ ʒ n] / ____ [ʃ]</td>
</tr>
<tr>
<td></td>
<td>b. /pj bj fj vj mj/ → [pʎ bʎ fʎ vʎ mʎ]</td>
</tr>
<tr>
<td>Mid Vowel Fronting(^7)</td>
<td>/ɔ/ → [e] / ____ [tʃ dʒ tʃ dʒ ʃ ʒ ʒ n j]</td>
</tr>
<tr>
<td>Regressive Voicing</td>
<td></td>
</tr>
<tr>
<td>Assimilation</td>
<td>obstruent → [a voice] / ____ obstruent [a voice]</td>
</tr>
</tbody>
</table>

In this paper, I will deal only with obstruents. According to the Contrastive Hierarchy, we start by assuming that consonants do not contrast and have no features. The first feature contrast is made between two groups of sounds that differ in a feature. For example, all obstruents can be divided into [voiced] and [voiceless]. We can also make another feature contrast first, major place: [coronal] vs. [peripheral], where [peripheral] includes velars and labials (e.g. Rice 1994). Velars and labials pattern as targets in FP/SP and Labial Iotation while coronals never pattern as targets. It is irrelevant here which contrast we choose to be the first.

We continue with determining feature contrasts with smaller and smaller number of already contrasting sounds, until we reach the single sounds, the level where we can no more make contrasts. The complete Contrastive Hierarchy of Serbian obstruents is given in Figure 1. The reasons for the particular specifications that are proposed will become evident as I discuss the phonological processes in Serbian; see also Radišić 2007 for more detail.

---

\(^7\) The term is taken from Morén (2005).
The Contrastive Hierarchy for a language shows how sounds are classified in that language. In addition, within each contrast, one feature can be identified as active, or marked, and the other as inactive, or unmarked. Markedness in this sense is determined primarily based on the phonological processes in a language, and only in case where no such evidence is available, is it based on universal frequency. For example, I argue that [stop] is marked in Serbian based on its patterning. For the [voiced/voiceless] contrast, on the other hand, there is no language specific evidence for which feature is marked, since in RVA voiced consonants change into voiceless and vice versa. Therefore, we turn to cross-linguistic evidence, according to which [voiced] is the marked feature (e.g. Lombardi 1991; Mester and Itô 1989). The complete Contrastive Hierarchy and Modified Contrastive Specification of Serbian obstruents is given in Figure 2.

---

Figure 1: *Contrastive Hierarchy of Serbian obstruents.*

---

8 Abbreviations used in Figures 1-6: vce=voice; cor=coronal; per=peripheral; ant=anterior; post=posterior; lab=labial; vel=velar; cont=continuant
Table 5 shows the specifications for all obstruents.

Table 5: Feature specifications for obstruents

<table>
<thead>
<tr>
<th></th>
<th>coronal</th>
<th>labial</th>
<th>posterior</th>
<th>back</th>
<th>voice</th>
<th>stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>/p/</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/b/</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>/f/</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>/it/</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/d/</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>/ts/</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>/s/</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>/z/</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>/ts/</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>/dš/</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>/dž/</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>/tš/</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>/š/</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>/t/</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>/ž/</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>/c/</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/g/</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>/x/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Only these features are available in the lexical phonology of Serbian. It is important to note here that there are two types of underspecification, illustrated in Figures 1 and 2. On the one hand, a sound can be unspecified for a feature if the feature contrast that feature belongs to is not present at that level of hierarchy. For example, /d/ is not specified for manner, because the manner contrast is not present at that level of hierarchy. On the other hand, a sound may be unspecified for a feature if that feature is an unmarked setting for the particular feature contrast. For example, /d/ is unspecified for the coronal subplace [front/back] because the feature [front] is unspecified.

I now provide an account of the unusual patterning of the Serbian /g/.

2.2 The Velar /g/, FP, SP and RVA

According to the specifications outlined above, /g/ is underlingly unspecified for manner, as are the outcomes of FP and SP /ʒ z/. Since FP/SP refer to the assimilation only in place of articulation, /g/ becomes [ʒ z], and not [dʒ], which is specified for manner as [stop]. FP is shown in (7) and SP in (8).

(7) First palatalization

a. k triggerFP \[Rt \rightarrow tʃ \[Rt

\[\text{stop} \rightarrow \text{cor} \rightarrow \text{post} \rightarrow \text{back} \]

b. x triggerFP \[Rt \rightarrow f \[Rt

\[\text{post} \rightarrow \text{cor} \rightarrow \text{post} \rightarrow \text{back} \]

c. g triggerFP \[Rt \rightarrow ʒ \[Rt

\[\text{vce} \rightarrow \text{cor} \rightarrow \text{post} \rightarrow \text{back} \]
The diagrams in (7) show that, in FP, only place features spread from the FP trigger [coronal, posterior, back] to the targets /k x g/. If the place features spread to /g/, we could not get the [dʒ] outcome, because the manner feature [stop] that would appear on the outcome [dʒ] is contained neither in the trigger nor in the target. The feature [stop] would have to be added, and this would lose the /dʒ-ʒ/ contrast.

As the triggers of FP/SP are not the main focus of the paper, I do not elaborate on them, but assume them to be floating bundles of features that dock onto velars in the appropriate environment, and not the actual vowels /i v/, as the palatalizations do not occur unrestrainedly. See Morén (2006) for a different and a more detailed account on the triggers.

(8) Second palatalization

\begin{figure}[h]
\centering
\begin{tikzpicture}
  \node (k) at (0,0) {$k$};
  \draw[->] (k) -- node[above] {triggerSP} (k);
  \node (r1) at (1,-1) {$Rt$};
  \draw[<->] (r1) -- node[above] {cor} (k);
  \node (stop) at (2,-2) {stop};
  \node (back) at (2,-3) {back};
  \draw[->] (r1) -- (stop);
  \draw[->] (r1) -- (back);
  \node (ts) at (3,-0) {$ts$};
  \draw[->] (ts) -- node[above] {Rt} (r1);
  \node (cor) at (4,-1) {cor};
  \node (stop) at (4,-2) {stop};
  \draw[<->] (r1) -- (cor);
  \draw[->] (r1) -- (stop);
  \node (back) at (4,-3) {back};
  \draw[->] (r1) -- (back);

  \node (x) at (5,-0) {$x$};
  \draw[->] (x) -- node[above] {triggerSP} (x);
  \node (r2) at (6,-1) {$Rt$};
  \draw[<->] (r2) -- node[above] {cor} (x);
  \node (back) at (7,-2) {back};
  \draw[->] (r2) -- (back);
  \node (s) at (8,-0) {$s$};
  \draw[->] (s) -- node[above] {Rt} (r2);
  \node (cor) at (9,-1) {cor};
  \draw[<->] (r2) -- (cor);
  \node (back) at (9,-2) {back};
  \draw[->] (r2) -- (back);

  \node (g) at (10,-0) {$g$};
  \draw[->] (g) -- node[above] {triggerSP} (g);
  \node (r3) at (11,-1) {$Rt$};
  \draw[<->] (r3) -- node[above] {cor} (g);
  \node (vce) at (12,-2) {vce};
  \node (back) at (12,-3) {back};
  \draw[->] (r3) -- (vce);
  \draw[->] (r3) -- (back);
  \node (z) at (13,-0) {$z$};
  \draw[->] (z) -- node[above] {Rt} (r3);
  \node (vce) at (14,-1) {vce};
  \node (cor) at (14,-2) {cor};
  \draw[<->] (r2) -- (vce);
  \draw[->] (r2) -- (cor);
  \node (back) at (14,-3) {back};
  \draw[->] (r2) -- (back);

  \node (g) at (15,-0) {$g$};
  \draw[->] (g) -- node[above] {triggerFP} (g);
  \node (r4) at (16,-1) {$Rt$};
  \draw[<->] (r4) -- node[above] {cor} (g);
  \node (vce) at (17,-2) {vce};
  \node (post) at (17,-3) {post};
  \draw[->] (r4) -- (vce);
  \draw[->] (r4) -- (post);
  \node (d3) at (18,-0) {$dʒ$};
  \draw[->] (d3) -- node[above] {Rt} (r4);
  \node (vce) at (19,-1) {vce};
  \node (cor) at (19,-2) {cor};
  \node (stop) at (19,-3) {stop};
  \draw[->] (r4) -- (vce);
  \draw[->] (r4) -- (cor);
  \draw[->] (r4) -- (stop);
\end{tikzpicture}
\caption{Second palatalization diagrams}
\end{figure}
THE DOUBLE NATURE OF THE VELAR /g/ IN SERBIAN

The diagrams in (8) show that, in SP, only place features spread from the SP trigger [coronal, back] to the targets /k x g/.

/g/ patterns like a fricative with respect to the palatalizations since it, like a fricative, is not marked for the feature continuant/stop lexically. Why, then, does it alternate with [k] rather than [x] in the post-lexical RVA? I assume that the difference lies in the post-lexical nature of RVA. At this level, features are specified differently from FP and SP, which are lexical processes. These specifications are provided by default rules, which supply redundant features, necessary for the articulation purposes (Rice and Avery 1989). The default rules for manner are given in Table 6 and the mechanism of assigning these features is provided in (9).

Table 6: Default rules for manner features

<table>
<thead>
<tr>
<th>rule</th>
<th>condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Ø → [continuant] if back</td>
</tr>
<tr>
<td>b.</td>
<td>Ø → [continuant] if neutralization of a contrast would otherwise result</td>
</tr>
<tr>
<td>c.</td>
<td>Ø → [stop]</td>
</tr>
</tbody>
</table>

(9) Application of the default rules

a. back → [cont]

\[
\begin{array}{c}
/\text{g}/ \\

\text{vce} \quad \text{cor} \\
\text{back} \\
\end{array}
\quad \rightarrow \quad
\begin{array}{c}
/\text{g}/ \\

\text{vce} \quad \text{cor} \quad \text{cont} \\
\text{back} \\
\end{array}
\]

b. Ø → [cont], if contrasts neutralized

\[
\begin{array}{c}
/\text{x}/ \\

\text{vce-less} \quad \text{per} \quad \text{cont} \\
\text{vel} \\
\end{array}
\quad \rightarrow \quad
\begin{array}{c}
/\text{x}/ \\

\text{vce-less} \quad \text{per} \quad \text{cont} \\
\text{vel} \\
\end{array}
\]

c. Ø → [stop]

\[
\begin{array}{c}
/\text{g}/ \\

\text{vce} \\
\text{per} \quad \text{stop} \\
\text{vel} \\
\end{array}
\quad \rightarrow \quad
\begin{array}{c}
/\text{g}/ \\

\text{vce} \\
\text{per} \quad \text{stop} \\
\text{vel} \\
\end{array}
\]

101
Here is how the default rules assign redundant manner features. First, as in (9a), the only back obstruent not specified for manner, /z/, gets specified post-lexically as [continuant]. Second, obstruents that are not back, /x/ /f/, get specified as [continuant], if otherwise the manner contrast would be neutralized (9b). Third, all other segments are specified as [stop], including /g/ (9c).

The diagrams in (10) show that in RVA /g/ patterns as [stop].

(10) Regressive voicing assimilation

<table>
<thead>
<tr>
<th>a.</th>
<th>g</th>
<th>s</th>
<th>→</th>
<th>k</th>
<th>s</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>vce</td>
<td>per</td>
<td>stop</td>
<td>vce-less</td>
<td>cor</td>
</tr>
<tr>
<td></td>
<td>vel</td>
<td>post</td>
<td>back</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>k</td>
<td>z</td>
<td>→</td>
<td>g</td>
<td>z</td>
</tr>
<tr>
<td></td>
<td>vce-less</td>
<td>per</td>
<td>stop</td>
<td>vce</td>
<td>cor</td>
</tr>
<tr>
<td></td>
<td>vel</td>
<td>back</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The diagrams in (10) show the stop [g] at a post-lexical level alternating with another stop, [k].

3. Conclusion

In this paper, I focused on the “double nature” of the Serbian /g/, which patterns with fricatives in First and Second Palatalization, and with stops in Regressive Voicing Assimilation. The palatalizations belong to the lexical level, where sounds are specified only for contrastive and marked features, while the voicing assimilation belongs to the post-lexical level, where sounds are specified for all features.

I proposed that, in order to understand the phenomenon of asymmetrical patterning, or the “double nature” of sounds, we need to look primarily at the inventory and phonological processes of a particular language. Moreover, I argue that it is crucial to determine, in the strictest possible way, the underlying specifications of sounds, by combining the Contrastive Hierarchy with Modified Contrastive Specification. In this way, we see that the apparently contradictory patterning follows directly from a model that makes direct reference to phonological activity in identifying feature specifications, and one that distinguishes lexical and post-lexical levels.
References


