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THE PROBLEM OF THE RUSSIAN LABIAL FRICATIVES: WHY *V* IS DIFFERENT

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ABSTRACT

This paper offers a new account of the ambiguous sonorant/obstruent behaviour displayed by the labial continuant *v* in Russian. This classic case of phonological opacity has been the subject of much debate in the literature. Derivational analyses advanced so far have proved unsatisfactory. It is argued that a coherent explanation for this phenomenon is provided by Optimality Theory (Prince and Smolensky 1993), where the indeterminate sonorant/obstruent behaviour of *v* is derived from the interplay of independent constraints. The analysis developed in this paper relies on the assumption that v is represented as the laryngeally unspecified sonorant /w/ in the underlying representation. On the surface, /w/ strengthens to the obstruent [v] but, unlike "regular" sonorants, does not receive the [+voice] specification by Sonorant Default. As a result, the output [v] lacks the laryngeal specification and so cannot affect the adjacent obstruent. The assumption that the output [v] remains unspecified for voice makes it possible to explain the fact that *v* can undergo but not trigger Voice Assimilation.

KEYWORDS: Optimality Theory; Russian *v*; voice assimilation.

1. Introduction

The Russian labial fricative *v* is notorious for its ambiguous sonorant/obstruent behaviour displayed with respect to Voice Assimilation. On the one hand, *v* patterns with sonorants as it fails to trigger Voice Assimilation. On the other hand, *v* behaves like an obstruent in that it undergoes Voice Assimilation and Final Devoicing. Though this dual status of the Russian *v* has received much attention in the literature (for example, Coats and Harshenin 1971; Hayes 1984; Kiparsky 1985; Petrova 1997; Plapp 1999; and others), the matter is far from being resolved. This paper proposes an alternative analysis of the facts relating to the indeterminate status of *v* in the framework of Optimality Theory (Prince and Smolensky 1993, OT, henceforth).

The article is organised as follows. The presentation begins with an overview of the problem related to the behaviour of the labial continuant *v* (Section 2). Section 3 recapitulates the facts of Russian Voice Assimilation that are relevant to the subsequent discussion. In Section 4 the basic generalisations are stated in terms of derivational theory. Section 5 goes over the main points of the OT analysis of Russian Voice Assimilation developed by Petrova (1997). Petrova's account of the dual sonorant/obstruent status of *v* is presented in Section 6. It is concluded that it does not account for the relevant facts in an explanatory fashion. Section 7 develops a new OT analysis of *v* which relies on the assumption that *v* is represented as a sonorant //w// in the underlying representation. Sections 7.1 and 7.2 show that the ambivalent behaviour of *v* is accounted for by a set of independent constraints. Finally, the main results are summarised in Section 8.

2. Overview

Historically, *v* derives from the Proto-Slavic glide *v*. In Slavic languages, the realisations of the Proto-Slavic glide range from the glide [w] to the fricative [v]. For example, the glide [w] surfaces in Slovak (Rubach 1993) and Ukrainian (Rusanovskij et al. 1986). In Polish, on the other hand, *w* has changed into the fricative [v] (Wierzchowska 1971). Likewise, the Russian *v* is realised phonetically as a voiced labiodental fricative (Jones 1923). The data in (1) show different reflexes of the Proto-Slavic *w* by looking at the pan-Slavic words *voda* 'water' and *pravda* 'truth' in Polish, Russian and Ukrainian.

(1) Pol. *woda* [v] – voiced labiodental fricative (obstruent)
prawda [v] – voiced labiodental fricative (obstruent)
Russ. *voda* [v] – voiced labiodental fricative (obstruent)
pravda [v] – voiced labiodental fricative (obstruent)
Ukr. *voda* [ʋ] – labiodental approximant (sonorant)
pravda [w] – bilabial glide (sonorant)

Phonetically, *v* surfaces as an obstruent in both Polish and Russian. In Ukrainian, on the other hand, the segment under consideration is realised as a sonorant whose exact quality depends on the context. As shown in (1) above, the approximant [ʋ] appears in the onset, while the glide [w] is found in the coda.[1]

As to the phonological status of the segments in question, Rubach (1993: 244) argues that in Polish "the fricative [v] has been restructured as the underlying representation". Czaplicki (2003) provides evidence that Ukrainian labial sonorants are derived from the underlying glide //w//.

The phonological position of the Russian *v* is far from clear. To illustrate the indeterminate status of *v* in Russian, let us consider the process of regressive voicing that

[1] This is a simplification. For a detailed analysis of labial consonants in Ukrainian, see Czaplicki (2003).

operates in Polish, Russian and Ukrainian. Briefly, the generalisation is that voiceless obstruents are voiced if followed by a voiced obstruent. Consider the data in (2) below.

	Polish	Russian	Ukrainian	
(2a)	*ko*[d b]*rata*	*ko*[d b]*rata*	*ki*[d b]*rata*	'brother's cat'
(2b)	*ko*[t m]*amy*	*ko*[t m]*amy*	*ki*[t m]*amy*	'mother's cat'
(2c)	*ko*[d v]*ani*	*ko*[t v]*ani*	*ki*[t ʊ]*ani*	'Vania's cat'

Underlyingly, the final segment of the word *kot* 'cat' is a voiceless stop //t//.[2] This is demonstrated by the Gen. Sg. form *kot+a* found in all three languages. The process of Voice Assimilation applies in (2a) above, where //t// is changed into [d] before the voiced obstruent [b]. The data in (2b) show that sonorants fail to trigger Voice Assimilation. In (2c) the underlyingly voiceless obstruent is followed by the voiced labial fricative [v] in Polish and Russian and by the approximant [ʊ] in Ukrainian. The situation is straightforward in Polish and Ukrainian. As expected, the voiceless //t// surfaces as the voiced [d] before the voiced obstruent [v] in Polish. In contrast, Ukrainian [ʊ] is a sonorant and, therefore, does not induce Voice Assimilation. The Russian [v] patterns together with the Ukrainian sonorant [ʊ] in that it fails to trigger Voice Assimilation. Recall that phonetically Russian [v] is an obstruent, just as in Polish.

To summarise, the Polish labiodental fricative [v] is an obstruent both phonetically and phonologically. In Ukrainian, the corresponding approximant is classified as a sonorant and behaves as such. The Russian voiced labiodental fricative takes an intermediate position because, though realised as an obstruent, it behaves phonologically like a sonorant (see Section 3 for more details).

Obviously, this ambiguous behaviour of *v* presents a real challenge to anyone who attempts to provide a coherent phonological account of the process of Voice Assimilation in Russian. It is argued in the following pages that the principles of Optimality Theory offer a simple explanation of the phenomenon in question. Before proceeding to the analysis proper, let us review the relevant facts concerning Voice Assimilation.

3. Basic facts

As is well known, Russian has a process of devoicing which affects obstruents in the word-final position.

(3) *xleb* + *a* [b] 'bread' (Gen. Sg) – *xleb* [p] (Nom. Sg.)
roz + *a* [z] 'rose' (Nom. Sg.) – *roz* [s] (Gen. Pl.)

[2] Double slashes // // are used for underlying representation; and single slashes / / for intermediate representation.

In consonant clusters, an obstruent assimilates in voice to the following obstruent. Regressive Voice Assimilation applies inside words as well as across clitic boundaries and full word boundaries, as demonstrated in (4) below.

(4a) Devoicing
uly<u>b</u> + *ok* [b] 'smile' (Gen. Pl.) – *uly<u>b</u>* + *<u>k</u>* + *a* [p+k] (Nom. Sg.)
sla<u>d</u> + *os't'* [d] 'sweetness' – *sla<u>d</u>* + *<u>k</u>* + *ij* [t+k] 'sweet'
(4b) Voicing
pro<u>s</u> + *i* + *t'* [s] 'ask' – *pro<u>s</u>'* + *<u>b</u>* + *a* [z'+b] 'request'
ko<u>t</u> + *a* [t] 'cat' (Gen. Sg.) – *ko<u>t</u> <u>by</u>* [d b] 'if the cat'

Voice Assimilation is triggered by voiceless obstruents which are derived by Final Devoicing. In other words, Final Devoicing feeds Voice Assimilation.

(5) *zve<u>zd</u>* + *a* [zd] 'star' (Nom. Sg.) – *zv'o<u>st</u>* [st] (Gen. Pl.)
nade<u>žd</u> + *a* [žd] 'hope' (Nom. Sg.) – *nade<u>št</u>* [št] (Gen. Pl.)

Sonorants neither trigger nor undergo Voice Assimilation. This is shown in (6) below, where an obstruent neither assimilates in voicing to the adjacent sonorant (6a), nor does the sonorant take on the feature [−voice] of the following obstruent (6b).

(6a) *o<u>t</u>* + *<u>r</u>ez* + *at'* [t+r] 'to cut off' (cf. *o<u>t</u>* + *<u>g</u>ad* + *at'* [d+g] 'to guess')
mo<u>g</u> <u>l</u>et + *at'* [k l] 'he could fly' (cf. *mo<u>g</u> <u>b</u>eg* + *at'* [g b] 'he could run')
(6b) *vi<u>lk</u>* + *a* [lk] 'fork' (Nom. Sg)
roma<u>n</u> <u>p</u>isatel' + *a* [n p] 'writer's novel'

The labiodental fricative *v* patterns with other obstruents in that it undergoes Final Devoicing (7a) and Voice Assimilation (7b). The data in (7c) show that the word-final devoiced *v* triggers Voice Assimilation. Furthermore, word-initial *v* which is followed by an obstruent both undergoes and triggers Voice Assimilation (7d).

(7a) *slo<u>v</u>* + *a* [v] 'word' (Gen. Sg.) – *slo<u>v</u>* [f] (Gen. Pl.)
tra<u>v</u> + *a* [v] 'grass' (Nom. Sg.) – *tra<u>v</u>* [f] (Gen. Pl.)
(7b) *sli<u>v</u>* + *a* [v] 'plum' – *sli<u>v</u>* + *<u>k</u>* + *a* [f+k] (Dim.)
pra<u>vd</u> + *a* [vd] 'truth' (Nom. Sg.) – *pra<u>vd</u>* [ft] (Gen. Pl.)
(7c) *tre<u>zv</u>* + *y* [zv] 'sober' (Pl.) – *tre<u>zv</u>* [sf] (Sg.)[3]
ja<u>zv</u> + *y* [zv] 'ulcer' (Nom. Pl.) – *ja<u>zv</u>* [sf] (Gen. Pl.)

[3] Hayes (1984) claims that word-final devoiced *v* fails to trigger Voice Assimilation, so that the final cluster /zv/ in words such as *trezv* 'sober' and *jazv* 'ulcer' (Gen. Pl.) is pronounced as [zf]. Kiparsky (1985:107) points out that there is a variation in the pronunciation of words such as *trezv* 'sober', [zf] or [sf], the latter found in fast speech. However, as reported in Petrova (1997 fn. 11), spectrographic tests show that the occurrence of the variant [zf] is restricted to words pronounced in isolation.

(7d) *ot vdov + y* [d vd] ‘from the widow’ (cf. *ot otc + a* [t o] ‘from the father’)
ot vtor + ogo [t ft] ‘from the second’

Like sonorants, *v* fails to trigger Voice Assimilation.

(8) *ot Van + i* [t v] ‘from Van’a’ (cf. *ot Žen + i* [d ž] ‘from Ženia’)
svinj + a [sv] ‘pig’ (cf. *zvenj + a* [zv] ‘link’ (Nom. Pl.))

To summarise, the labial fricative [v] is a target but not a trigger of Voice Assimilation. More exactly, *v* behaves like an obstruent as it undergoes Voice Assimilation and Final Devoicing. Like sonorants, the labiodental fricative does not induce Voice Assimilation. In the next section, basic generalisations concerning the behaviour of *v* are stated in terms of derivational theory.

4. Derivational account

The dual nature of the Russian labiodental voiced fricative [v] has received much attention in the derivational literature (Halle 1959; Coats and Harshenin 1971; Lightner 1972; Hayes 1984; Kiparsky 1985; and others). Lightner (1972) suggests that [v] is represented as the back glide //w// in the underlying representation. The underlying glide is independently motivated by the phonology of verbs in Russian. The evidence comes from several sources. First, the labiodental fricative /v/ as well as /j n m/ are deleted before the verbal endings beginning with a consonant (Jakobson 1948). This is demonstrated by the alternations in (9a) below, where *-u* is the 1st Pers. Sg. ending, *-l* is the past tense suffix and *-a* is a marker of the feminine gender. The data in (9b) show that obstruents are not deleted in this context.

	1st P. Sg.		Preterite Fem.	
(9a)	*žyv + u*	–	*žy +l + a*	‘live’
	delaj + u	–	*dela + l + a*	‘do’
	stan + u	–	*sta + l + a*	‘become’
	žm + u	–	*ža + l + a*	‘press’
(9b)	*greb + u*	–	*greb + l + a*	‘row’
	lez + u	–	*lez + l + a*	‘climb’

Observe that the segments *v j n m* are present before the vocalic ending *-u* of the 1st Pers. Sg. but dropped before the past tense suffix *-l* (9a). In contrast, the consonants *b* and *z* are retained before the ending *-l* in (9b). Lightner (1972) points out that if *v* is derived from the underlying glide //w//, then the process of truncation may be expressed

in a simple way by assuming that only sonorants (more exactly, glides and nasals) are deleted before the consonantal suffix (9a).[4]

Another piece of evidence that the obstruent [v] is derived from the underlying glide //w// comes from the phonology of derived imperfectives. Derived imperfectives are formed by means of the suffix *-aj*, which is attached to the verb stem.[5] The stems ending in a front glide exhibit a *j* ~ *v* alternation.

	Perfective Imp.		Derived Imperfective Imp.	
(10)	*za* + *bole<u>j</u>*	–	*za* + *bole<u>v</u>* + *aj*	'go sick'
	po + *spe<u>j</u>*	–	*po* + *spe<u>v</u>* + *aj*	'be on time'
	na + *du<u>j</u>*	–	*na* + *du<u>v</u>* + *aj*	'inflate'

Notice that [j] alternates with [v] before the imperfective suffix *-aj*. As pointed out by Flier (1972), this alternation is accounted for by assuming that [v] is derived from the underlying glide //w//. Flier posits a rule that turns //j// into /w/ before the derived imperfective suffix *-aj*.

(11) Glide Backing: j → [+back] / _ aj]$_{DI}$

Additional evidence for treating /v/ as an underlying sonorant is provided by Pugh (1993). Pugh demonstrates that the loss of intervocalic /v/ attested in contemporary colloquial Russian parallels the loss of the glide /j/.

As is well known, the glide [w] does not appear phonetically in standard Russian. It is assumed in the literature that the surface [v] is derived by means of the following context-free rule (for example, Hayes 1984; Kiparsky 1985; and others).

(12) *w*-Strengthening: $\begin{bmatrix} \text{C} \\ -\text{cons} \\ +\text{labial} \end{bmatrix} \rightarrow [-\text{sonorant}]$

However, the fact that the labiodental fricative is derived from an underlying sonorant does not explain the unusual behaviour of *v* with respect to Voice Assimilation. Namely, if the process in question applies prior to *w*-Strengthening, then *v*, like other sonorants, should not undergo Voice Assimilation, which is wrong because in words such as *sliv+k+a* [f+k] 'plum' (Dim.) *v* takes on the voicing of the following obstruent. On the other hand, were the sonorant /w/ to strengthen before the application of Voice Assimilation, then *v* would trigger the voicing of preceding obstruents producing incorrect forms

[4] The sonorant /r/ is not deleted before consonantal endings, for example *u+m<u>r</u>+u* 'die' (1st Pers. Sg.) – *u+me<u>r</u>+l+a* (Past Fem.).

[5] Another suffix that is used to form derived imperfectives is *-ovaj* (for example, *pro+igr+aj* – *pro+igr+ovaj* 'lose' (Imp.)). The distribution of the imperfective suffixes is governed morphologically.

such as *svet* *[zv] ‘light’. The contradiction stems from the fact that /v/ as a trigger of Voice Assimilation has to be [+sonorant], whereas /v/ as a target must be [−sonorant].

Various analyses that attempt to solve this problem have been suggested within the derivational theory. Halle (1959), accounts for the dual character of the Russian labiodental fricative by postulating the following phonotactic constraint: “{v*} functions as a sonorant if followed by a sonorant and as an obstruent if followed by an obstruent” (Halle 1959: 63).

Coats and Harshenin (1971), based on Lightner (1965), include this observation into their derivational account of Voice Assimilation and assume that //w// is shifted to [v] by means of two strengthening rules stated in (13) below.

(13a) $w \rightarrow v_1$: w → v / $\left\{ \begin{array}{l} \_\,\# \\ [-\text{sonorant}] \end{array} \right.$

(13b) $w \rightarrow v_2$: w → v

The former rule (13a) takes effect before an obstruent or a word boundary, while the latter (13b) is context-free. The processes of Final Devoicing and Voice Assimilation apply in between. Under this assumption, presonorant *v* does not trigger Voice Assimilation because it is still a glide at the time of the application of the voicing rule. This is shown by the derivations of *bez kvasa* [b’es kvasa] ‘without kvas’ and *vdov* ‘widow’ (Gen. Pl.).

(14)	//bez kwas+a//	//wdow//
$w \rightarrow v_1$	–	/vdov/
FINAL DEVOICING	–	/vdof/
VOICE ASSIMILATION	/bes kwasa/	–
$w \rightarrow v_2$	/bes kvasa/	–

Yet another analysis of the indeterminate status of *v* was proposed by Hayes (1984) and Kiparsky (1985), who suggest that sonorant consonants, just like obstruents, undergo both Final Devoicing and Voice Assimilation. In this scenario, the underlying labial glide //w// is changed into the voiceless /w̥/ in the devoicing contexts. A subsequent rule of *w*-Strengthening (see 12) shifts /w/ and its voiceless counterpart /w̥/ to [v] and [f], respectively. Hayes (1984) assumes that the remaining sonorants undergo the process of Sonorant Revoicing. In this scenario, the derivations of *bez kvasa* [b’es kvasa] ‘without kvas’ and *vdov* ‘widow’ (Gen. Pl.) are as follows.

(15)	//bez kwas+a//	//wdow//
FINAL DEVOICING	–	/wdow̥/
VOICE ASSIMILATION	/bes kwasa/	–
w-Strengthening	/bes kvasa/	/vdof/

Plapp (1999) offers a critique of the previous analyses dealing with the dual behaviour of the Russian labiodental fricative. She develops an alternative account based on the feature-geometric representation of /v/. Following Halle (1959), Plapp assumes that /v/ is a sonorant when it precedes a sonorant and an obstruent elsewhere. In this conception, only [−sonorant] /v/ can participate in the process of Voice Assimilation. Presonorant /v/, on the other hand, is specified as [+sonorant] and, hence, does not trigger Voice Assimilation. Although Plapp's analysis handles the data, it fails to account for the fact that, on the surface, /v/ is always an obstruent, no matter whether it is followed by a sonorant or not.

To summarise, the issue of the dual status of the Russian /v/ has not received a satisfactory account within the derivational framework. In the next section, it is argued that an OT analysis provides a more insightful explanation of the ambiguous behaviour of /v/ in Russian.

5. OT analysis of Voice Assimilation in Russian

The process of Voice Assimilation has received much attention in the OT literature, which includes Rubach (1997a, b), Lombardi (1999), and others. An OT account of Russian Voice Assimilation is developed in Petrova (1997). The following pages review briefly the main points of this analysis relating to the issue of the dual status of the labiodental continuant *v*.

As mentioned above, the generalisation is that an obstruent assimilates in voice to the obstruent that follows. In terms of OT, a constraint prohibiting adjacent obstruents with different [±voice] specifications is usually formulated as follows (Rubach 1997b; Petrova 1997; Lombardi 1999).

(16) SHARE VOICE: Obstruents adjacent on the laryngeal tier must share voice specifications.[6]

For SHARE VOICE to take effect, it must outrank the faithfulness constraint IDENT$_{[\pm voice]}$.

(17) IDENT$_{[\pm voice]}$: Correspondent segments must have the same specification for voice.

It is standardly assumed that IDENT constraints, hence also IDENT$_{[\pm voice]}$, apply biderectionally. That is, IDENT$_{[\pm voice]}$ prohibits the deletion as well as the insertion of the feature [±voice].

[6] Reference to adjacency on the laryngeal tier is needed to account for the transparency or opacity of sonorants at word boundaries (see Rubach and Booij (1990) and Rubach (1996, 1997a, b) for a detailed discussion).

To produce the right-to-left directionality of Voice Assimilation in Russian, Petrova (1997) proposes the following positional faithfulness constraint (after Lombardi 1999).

(18) IDENT-PRESYLSON$_{[\pm voice]}$: A segment before a syllabified sonorant must be faithful to an input value for voice.

The correct pattern of Voice Assimilation is generated if IDENT-PRESYLSON$_{[\pm voice]}$ is ranked above the generic IDENT$_{[\pm voice]}$. The tableau illustrating this pattern is taken from Petrova (1997: 16). We look at the relevant string only.[7]

(19) //ž + k + a// *knižka* [ška] 'book'
−v +v −v

	IDENT-PRESYLSON$_{[\pm voice]}$	SHARE VOICE	IDENT$_{[\pm voice]}$
(a) ž k a +v −v		*!	
(b) ž g a +v	*!		*
(c) ž g a +v +v	*!	*	*
☞ (d) š k a −v			*
(e) š k a −v −v		*!	*

As shown above, the winner (candidate 19d) incurs a violation of the low-ranked IDENT$_{[\pm voice]}$. Nevertheless, it fares better than the remaining contenders. Candidate (19a) is *hors du combat* due to a violation of SHARE VOICE as it contains two adjacent obstruents with different values for voice. Though the adjacent obstruents have the same laryngeal features in candidate (19e), it fatally violates SHARE VOICE because the feature [−voice] is not shared by the neighbouring obstruents. Candidates (19b) and (19c) are excluded by the undominated IDENT-PRESYLSON$_{[\pm voice]}$ since both change the underlying voice specification of the obstruent standing next to a syllabified sonorant.

[7] The problem of Velar Palatalisation $g \rightarrow ž$ is disregarded.

6. Voice Assimilation and *v*

To account for the ambiguous behaviour of *v* with regard to Voice Assimilation, Petrova (1997) introduces the constraint LABIAL SONORANT (LABSON), based on Halle's (1959) observation that *v* is a sonorant before a sonorant.

(20) LAB SON: A labiodental continuant "v" is a sonorant if and only if it is before a syllabified sonorant.[8]

The constraint LAB SON ensures that *v* behaves like a sonorant before a sonorant in that it does not trigger Voice Assimilation. In all other contexts, *v* functions as an obstruent because it undergoes Voice Assimilation and Final Devoicing.

However, Petrova's (1997) analysis of Russian *v* faces a serious problem as it fails to account for the fact that phonetically *v* is always realised as an obstruent regardless of the context. In Petrova's view, *v* behaves like a sonorant because it is a sonorant when followed by another sonorant and it is an obstruent elsewhere. Then, the question is why the phonological distinction between the two kinds of *v* is not attested on the surface.

The next section proposes an alternative account of the dual status of the Russian labiodental fricative *v* within the framework of Optimality Theory. It is argued that in order to avoid the drawbacks of Petrova's analysis, the parochial constraint LABSON should be dispensed with. Instead, it is demonstrated that the unusual behaviour of *v* is derived from an interaction of independent constraints.

7. An alternative OT analysis of *v*

As was demonstrated in Section 4, there is compelling evidence to assume that Russian *v* is represented as a sonorant //w// in the underlying representation.[9] Phonetically, however, the back glide [w] does not occur in Russian. In terms of Optimality Theory, the absence of [w] is expressed by the following two constraints (Rubach 2000).

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[8] The reference to a syllabified sonorant is motivated by the fact that some extrasyllabic sonorants are transparent to Voice Assimilation. This idea goes back to Rubach and Booij (1990) and Rubach (1996, 1997a, b), who observe that Polish sonorants are transparent word-medially and word-finally, but block Voice Assimilation word-initially. The situation is reversed in Russian in that only word-initial sonorants are transparent. Rubach and Booij (1990) point out that sonorants that do not block Voice Assimilation cannot be incorporated into the syllable structure due to sonority considerations. It is argued that only syllabified sonorants are specified for the laryngeal node. Sonorants that cannot be syllabified are not represented at the laryngeal tier and, therefore, are invisible to Voice Assimilation. Before such sonorants, *v* exhibits an obstruent behaviour because it assimilates in voice to the obstruent following the transparent sonorant (compare *v mcenske* [f mc] 'in Mcensk' versus *v mire* [v m] 'in the world').

[9] [w] is the melodic segment [u] that is syllabified into the onset or the coda (see Halle and Vergnaud 1980).

(21a) *CODA([u]): [u] cannot be in the coda.
(21b) *ONSET([u]): [u] cannot be in the onset.

The constraints *CODA([u]) and *ONSET([u]) are motivated crosslinguistically. For example, Slovak [w] can occur in the coda but not in the onset. This means that *ONSET([u]) is undominated whereas *CODA([u]) is a violable constraint in Slovak. Since [u] never surfaces as the glide [w] in Russian, the conclusion is that both *CODA([u]) and *ONSET([u]) are undominated (see Rubach 2000 for further discussion). In what follows, the constraints in (21) will be referred to as *[w], for compactness. As has been noted previously, the underlying sonorant //w// is always realised as the obstruent [v] on the surface, irrespective of the context. So let us assume that the output [v] is specified for the feature [−sonorant]. The constraint that prohibits sonorancy modifications is stated below.

(22) $\text{IDENT}_{[\text{sonorant}]}$: Input [α sonorant] on a segment must be preserved as output [α sonorant] on that segment.

In order to allow the //w// → [v] change, $\text{IDENT}_{[\text{sonorant}]}$ must be ranked lower than the markedness constraint *[w]. This is demonstrated in tableau (23) below, where "+s" and "−s" stand for [+sonorant] and [−sonorant], respectively. Additionally, it should be noted that an underlying //w// stands for a moraless melodic //u//.

(23) +s +s
| |
w ɨ *vy* 'you'

	*[w]	MAX_{Seg}	DEP_{μ}	$\text{IDENT}_{[+\text{back}]}$	$\text{IDENT}_{[\text{sonorant}]}$
☞ (a) −s +s | | v ɨ					*
(b) +s +s | | w ɨ	*!				
(c) +s | ɨ		*!			
(d) +s +s | | u ɨ			*!		
(e) +s +s | | j ɨ				*!	

The ranking *[w] > IDENT$_{[sonorant]}$ ensures that candidate (23b) loses to its more optimal competitor (candidate 23a). Candidate (23c) shows that the constraint *[w] would be satisfied equally well by deleting the glide //w//. As this does not happen in Russian, we conclude that MAX$_{Seg}$ (Do not delete a segment) outranks IDENT$_{[sonorant]}$. Moreover, the vocalisation of the glide shown by candidate (23d) is disallowed by the high-ranked DEP$_{\mu}$, a faithfulness constraint penalising mora insertion. Yet another possibility to circumvent *[w] is to shift //w// into a front glide [j] (candidate 23e). However, this change is prohibited by the faithfulness constraint IDENT$_{[+back]}$ (Input [+back] on a segment must be preserved as output [+back] on that segment).[10]

It is well known that sonorants do not contrast in voicing. Since [+voice] is redundant in sonorants, it has been assumed in the literature that they are not specified for [±voice] in the underlying representation and the feature [+voice] is assigned by Sonorant Default (Kiparsky 1982). In OT, this generalisation is expressed by the following constraint (Rubach 1997a).

(24) SONORANT DEFAULT: All and only syllabified sonorants are specified for voicing.[11]

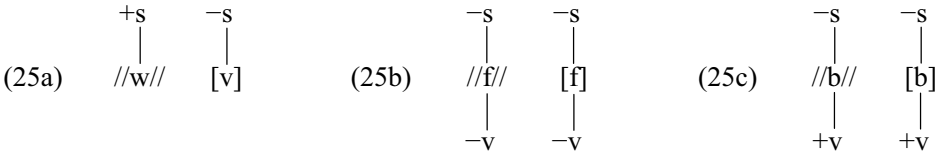
In order to enable the voicing of sonorants, SONDEF must take precedence over the faithfulness constraint IDENT$_{[+voice]}$ which prohibits the insertion of the feature [+voice]. Syllabified sonorants violate IDENT$_{[+voice]}$ because the feature [+voice] in the output is not found on the corresponding sonorant in the input. The voicing of surface sonorants is forced by the undominated SONDEF. Clearly, the output [v] is not within the purview of SONDEF because, even though derived from an underlying sonorant, it is an obstruent on the surface. As a result, the output obstruent [v] is not specified for voicing.

In this view, the output *v* is distinct from other obstruents in that it lacks laryngeal specification. This is exemplified in (25) below where we compare the underlying and phonetic representations of the labiodental fricative [v] with its voiceless counterpart [f] and the voiced stop [b], where "−v" stands for the feature [−voice] and "+v" stands for [+voice].

---

[10] Let us add that the change of //w// to [v] (candidate 23a) is natural in that both segments are labial. Therefore, IDENT$_{[lab]}$ excludes candidates such as [zɨ], [xɨ], etc. Moreover, //w// is a continuant and so is [v], hence the candidate [bɨ] is ruled out by IDENT$_{[+continuant]}$.

[11] The motivation for referring to syllabified sonorants comes from the fact that some extrasyllabic sonorants are transparent to Voice Assimilation (Rubach 1996). Being unsyllabified, such sonorants lack laryngeal specification and, hence, are invisible to the process of Voice Assimilation. Consequently, only syllabified consonants block the propagation of voicing. For example, in the Polish word *Jędrk+a* [trk] 'Andy' (Gen. Sg.), syllabification of the sonorant [r] would lead to sonority violations. It remains unsyllabified, and, so, not within the purview of Sonorant Default. As [r] is not represented at the laryngeal tier, it does not block Voice Assimilation.



As shown above, the feature [±voice] on "regular" obstruents such as *f* and *b* in (25b) and (25c), respectively, comes from the underlying representation. The peculiarity of *v* lies in the fact that it is derived from the underlying sonorant //w//, which is unspecified for [±voice] (25a). As a result, the output obstruent [v] is not defined for the feature [±voice].

Admittedly, *v* is realised as a voiced obstruent on the surface. It appears, then, that the feature [+voice] is added by default in the phonetic implementation component. However, there has been a general consensus in the literature that [+voice] is a marked value for obstruents. Additionally, as suggested by Kiparsky (1982, 1985) and others, a universal rule of Default Voicing assigns the unmarked value [−voice] to all obstruents that are not marked for voicing in the lexicon. This is a contradiction. On the one hand, the default value in obstruents is [−voice]. On the other hand, the unspecified obstruent *v* is phonetically interpreted as a voiced segment.

So how is it possible that the laryngeally unspecified obstruent *v* receives its phonetic [+voice] specification by default? Or, perhaps, the assumption that the output [v] is unspecified for voice is an artefact of the analysis which should be modified to exclude the representation in (25a). The answer is provided by Petrova (1997: 10). Having observed that the labial fricative *v* exhibits the dual sonorant/obstruent behaviour in many languages, Petrova assumes that there is some phonetic explanation for this phenomenon.[12]

(26) Indeed, voicing is possible whenever a sufficient drop in air pressure occurs across the glottis (supraglottal pressure being relatively low). Since it is easier to accommodate more incoming air in the oral cavity behind the labial articulation, one might predict that the voiced state should be relatively easier and voicelessness relatively harder for fronter places of articulation in obstruents. This prediction is borne out by crosslinguistic phonetic inventories. As it turns out, while in the world languages the presence of a voiced obstruent in a language generally implies the presence of the voiceless one at the same place of articulation, the reverse markedness scale (voiceless labial fricative implies the presence of a voice one) is claimed for labial fricatives by Gamkrelidze (1978). Thus, it is possible that /v/ is special because, like sonorants, it is voiced by default.
(Petrova 1997: 10)[13]

[12] For example, the ambivalent /v/ is found in Swedish, Romanian and Hungarian (see Petrova 1997: 10 and references therein).

[13] Unfortunately, Petrova does not incorporate this observation into her analysis of Voice Assimilation. Quite the opposite, while discussing Final Devoicing, she claims that the output word-final [v] "receives [−son] by default and then [−voice] (as a default value on a laryngeally unspecified [−son]) (Petrova 1997: 70).

Additionally, Maddieson (1984) notes that crosslinguistic distribution of labial stops reflects the fact that voiced labial obstruents are less marked than the corresponding voiceless obstruents of the same place of articulation.

In light of these facts, the representation of *v* as unspecified for voice in (25a) is not problematic. Since [+voice] is an unmarked value for labial obstruents, it is to be expected that laryngeally unspecified *v* is realised as voiced on the surface.

Unspecified segments are prohibited by the following constraint, mandating full specification for all the features (Rubach 1997a).

(27) SPEC: Output segments must be fully specified. In order for [v] to remain laryngeally unspecified, SPEC must be outranked by $\text{IDENT}_{[\pm\text{voice}]}$.

(28) +s +s −s
| | |
//w o t// *vot* 'here'
|
−v

	*[w]	SONDEF	$\text{IDENT}_{[\pm\text{voice}]}$	$\text{IDENT}_{[+\text{back}]}$	$\text{IDENT}_{[\text{sonorant}]}$
☞ (a)	−s +s −s | | | v o t | | +v −v			*	*	*
(b)	+s +s −s | | | w o t | | | +v +v −v	*!		**		
(c)	−s +s −s | | | v o t | | | +v +v −v			**!	*	
(d)	−s +s −s | | | v o t | −v		*!		*	**

In the optimal candidate (28a), the underlying glide //w// surfaces as the obstruent [v]. This change entails a violation of the lower-ranked $\text{IDENT}_{[\text{sonorant}]}$. The vowel *o* receives

the feature [+voice] by Sonorant Default. The addition of the feature [+voice] is prohibited by the bidirectional IDENT$_{[\pm voice]}$. Let us note that faithfulness constraints applying in a bidirectional manner penalise both deletion and insertion of features. Moreover, the laryngeally unspecified *v* violates the lower-ranked SPEC. Nevertheless, candidate (28a) fares better than its competitors. The undominated *[w] excludes candidate (28b) as it preserves the underlying back glide. Candidate (28c), on the other hand, is ruled out by IDENT$_{[\pm voice]}$ because the voice specification of the initial *v* does not come from the underlying representation. Similarly, the output feature [+voice] on the vowel *o* is not found in the corresponding segment in the input. However, candidate (28d) shows that the laryngeally unspecified output sonorant is disqualified by the high-ranked SONDEF.

In sum, the system of constraints forces [+voice] on the output sonorants. The labial continuant *v*, being an obstruent, does not receive the feature [+voice] and, in consequence, remains laryngeally unspecified. In contrast, voice specification of "regular" obstruents comes from the underlying representation.

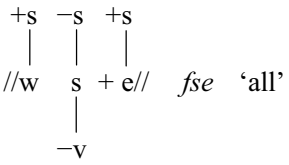
7.1. Voice Assimilation and *v*

This section addresses the issue of the ambivalent obstruent/sonorant behaviour of *v* with respect to Voice Assimilation. It is argued that the dual status of *v* can be accounted for in a simple fashion on the assumption that *v* is derived from the underlying sonorant which is unspecified for [±voice]. Let us begin by recapitulating the basic facts.

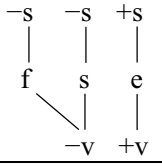
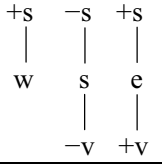
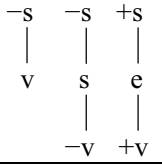
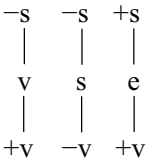
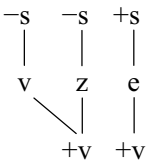
(29a) Phonetically, the labiodental [v] is a fricative, so it is an obstruent.
(29b) Like obstruents, [v] is a target of Voice Assimilation and Final Devoicing.
(29c) Like sonorants, [v] does not trigger Voice Assimilation.

The facts in (29a) and (29b) are straightforwardly accounted for on the assumption that the output [v] is specified for the feature [−sonorant]. That is, *v* undergoes the processes of Voice Assimilation and Final Devoicing, which affect [−sonorant] consonants. Obviously, the question is how to explain the sonorant-like behaviour of an obstruent sound (29c). It is argued in this section that *v* does not initiate Voice Assimilation because it is laryngeally unspecified and, hence, cannot spread [±voice] to the preceding obstruent. The details of the analysis are laid out below.

In the previous section, it was assumed that *v* is represented as the back glide //w// in the lexicon. Since the undominated constraint *[w] prohibits labial sonorants in the output, the underlying glide must strengthen to an obstruent on the surface. Given the fact that the output *v* is defined as [−sonorant], it is not surprising that the fricative [v], like other obstruents, undergoes the process of Voice Assimilation. Let us consider the evaluation of the word *vse* [fs'e] 'all' shown in (30). The alternation with *ves'* [v'es'] 'whole' shows that the initial voiceless [f] is due to devoicing.

(30) 

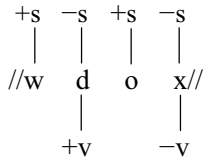
fse ‘all’

	*[w]	IDENT-PRESYLSON [±voice]	SHARE VOICE	IDENT[±voice]	IDENT[sonorant]
☞ (a) 				**	*
(b) 	*!			*	
(c) 			*!	*	*
(d) 			*!	**	*
(e) 		*!		**	*

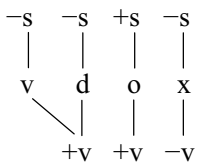
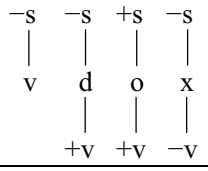
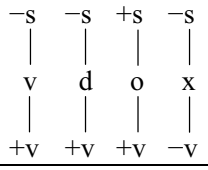
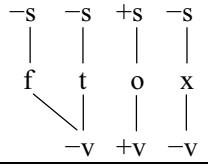
The optimal candidate (30a) violates IDENT$_{[\pm voice]}$ twice. First, IDENT$_{[\pm voice]}$ is violated by the initial *f* because the feature [−voice], which is shared by the adjacent obstruents, is not found in the same segment in the input. Second, [+voice] on the vowel *e* does not come from the underlying representation. Still, candidate (30a) fares better than the remaining competitors. Candidates (30c) and (30d) are excluded due to the high-ranked SHARE VOICE. The last contender, candidate (30e), complies with SHARE VOICE. However, it changes the laryngeal specification of the presonorant obstruent and so fatally violates IDENT-PRESYLSON$_{[\pm voice]}$.

The evaluation of *vdox* [vdox] 'intake of breath' proceeds in a similar way, as demonstrated below.

(31)



vdox 'intake of breath'

	*[w]	IDENT-PRESYLSON [±voice]	SHARE VOICE	IDENT[±voice]	IDENT[sonorant]
☞ (a) 				**	*
(b) 			*!	*	*
(c) 			*!	**	*
(d) 		*!		**	*

In the optimal candidate (31a), the voiced obstruent spreads its laryngeal specification to the preceding *v*. Candidates (31b) and (31c) fail on the high-ranked SHARE VOICE, whereas the undominated IDENT-PRESYLSON[±voice] eliminates candidate (31d).

To summarise briefly, the labial fricative /v/ assumes the feature [±voice] of the following obstruent in compliance with the high-ranked SHARE VOICE. As a result, the cluster of *v* followed by an obstruent is either voiceless, as in *vse* [fs'e] 'all', or voiced, as in *vdox* [vdox] 'intake of breath'.

Now let us consider the reverse situation where the labial continuant *v* is preceded by an obstruent. Recall that *v* does not trigger Voice Assimilation, which is characteris-

tic of sonorants. As a result, both voiced and voiceless obstruents are found before the voiced fricative *v*, for example, *zver'* [zv] 'animal' versus *sver'* [sv] 'check' (Imp.). It is this fact that is problematic for all phonological accounts of *v* advanced so far. As is demonstrated below, the sonorant-like behaviour of *v* receives a coherent explanation within the analysis developed here.

The account is built on the following assumptions. First, [v] is derived from the underlying sonorant that is not specified for voice. As a result, the output [v] lacks the laryngeal specification and so cannot affect the adjacent obstruent. Second, the undominated IDENT-PRESYLSON$_{[\pm voice]}$ guarantees that *v* does not receive voice specification of the preceding obstruent. Consider the evaluation of *dva* [dva] 'two'.

(32) −s +s +s
| | |
//d w + a// *dva* 'two'
|
+v

	*[w]	IDENT-PRESYLSON $_{[\pm voice]}$	SHARE VOICE	IDENT$_{[\pm voice]}$	IDENT$_{[sonorant]}$
☞ (a)	−s −s +s | | | d v a | | +v +v			*	*	*
(b)	−s −s +s | | | d v a | /| +v +v		*!		**	*
(c)	−s +s +s | | | d w a | | +v +v	*!			*	

The optimal candidate (32a) violates SHARE VOICE because the adjacent obstruents do not share the laryngeal specification. Candidate (32b) complies with SHARE VOICE as the feature [+voice] of the initial obstruent is spread onto the following *v*. However, this candidate is eliminated by the high-ranked IDENT-PRESYLSON$_{[\pm voice]}$ since [+voice] on the presonorant *v* is not present on the corresponding segment in the input. The underlying sonorant //w// appears unchanged in candidate (32c), so SHARE VOICE is mute because only adjacent obstruents are required to share the laryngeal specification. In the

phonetic implementation component, the laryngeally unspecified labial obstruent [v] receives [+voice] by default (candidate 32a).

In (33) below we look at the evaluation of the relevant string of the word *tvoj* [tvo] 'your', in which *v* is preceded by a voiceless obstruent.

(33) −s +s +s
| | |
//t w + o// *tvoj* 'your'
|
−v

	*[w]	IDENT-PRESYLSON [±voice]	SHARE VOICE	IDENT[±voice]	IDENT[sonorant]
☞ (a)	−s −s +s | | | t v o | | −v +v			*	*	*
(b)	−s −s +s | | | t f o | / −v +v		*!		**	*
(c)	−s −s +s | | | t v o \ | +v +v		*!		**	*

As shown above, obstruents agree in voicing in the failed candidates (33b) and (33c). However, this agreement is achieved at the cost of violating IDENT-PRESYLSON$_{[\pm voice]}$. Their more faithful competitor, candidate (33a), does not exhibit Voice Assimilation and so runs afoul of SHARE VOICE. The ranking of IDENT-PRESYLSON$_{[\pm voice]}$ above SHARE VOICE gives preference to candidate (33a).

7.2. Final Devoicing and *v*

As mentioned in Section 3, the process of devoicing affects word-final obstruents in Russian. The labiodental fricative *v* patterns with other obstruents in that it undergoes Final Devoicing.

According to Petrova (1997: 69), word-final voiced obstruents are prohibited by the following constraint.

(34) FIN VOICE LIC: Word-finally, only sonorants license voice.[14]

Feature licensing requires that all melodic material be attached to a segment. Unlicensed features do not surface phonetically (Goldsmith 1990). In the case at hand, word final obstruents cannot act as licensers of the feature [±voice].

The reference to sonorants in the formulation of FIN VOICE LIC is motivated by the fact that, in Petrova's analysis, the word-final *v* is neither an obstruent nor a sonorant in Russian. Therefore, the word-final *v* is grouped together with word-final obstruents in that it cannot be specified for voicing. The high-ranked FIN VOICE LIC makes sure that word-final obstruents and *v* lack laryngeal specification. The feature [−voice] is added by default to unspecified obstruents in the component of phonetic implementation.

However, it has been argued above that the default value for labial obstruents is [+voice]. Therefore, the prediction is that unspecified labial obstruents should be interpreted as voiced on the surface, which is incorrect.

One possible solution to this problem is to assume that the process of Final Devoicing in Russian is enforced by the positional markedness constraint FIN DEV stated in (35) below. In fact, the constraint FIN DEV is a restatement of the familiar rule of Final Devoicing that has traditionally been assumed in the literature (Halle 1959; Lightner 1972; Hayes 1984; among others).

(35) FIN DEV: Word-final obstruents are [−voice].

Obviously, for FIN DEV to take effect, it must outrank $\text{IDENT}_{[\pm\text{voice}]}$, which mandates faithfulness to the underlying voice specification. The evaluation of *lo<u>v</u>* [f] 'catching' serves to illustrate the point. Observe that in the optimal candidate (36a), the feature [−voice] on the final *v* is inserted in compliance with the high-ranked FIN DEV. Even though candidate (36b) vacuously satisfies FIN DEV (the final segment is not an obstruent), it is ruled out by the undominated *[w]. Candidate (36c), in turn, incurs a fatal violation of FIN DEV because the final obstruent *v* is not specified for the feature [−voice].

[14] This is a modified version of the licensing constraint FinDevPW proposed by Rubach (1997a: 310): [voice] on an obstruent at the end of the phonological word may only be licensed parasitically. The high-ranked FinDevPW makes sure that word-final obstruents are not specified for the feature [voice]. In effect, the voiced/voiceless opposition is neutralised in this position. In the phonetic interpretation component, unspecified obstruents receive [−voice] by default.

(36) +s +s +s
| | |
//l o w// *lo<u>v</u>* [f] ‘catching’

	*[w]	FinDev	Ident$_{[\pm voice]}$	Ident$_{[sonorant]}$
☞ (a) +s +s −s / l o f / +v +v −v			***	*
(b) +s +s +s / l o w / +v +v +v	*!		***	
(c) +s +s −s / l o v / +v +v		*!	**	*

As has been remarked previously, regressive Voice Assimilation applying across word boundaries overrides Final Devoicing. For example, the final segment of the word *le<u>v</u>* [f] ‘lion’ is voiced before the voiced obstruents of the following word: *le<u>v</u> <u>d</u>oma* [v d] ‘the lion is home’. From this it follows that Fin Dev is outranked by Share Voice. The ranking is illustrated in (37), where we look at the evaluation of the relevant string of *le<u>v</u> <u>d</u>oma* [v d] ‘the lion is home’.

(37) +s −s
| |
//w ## d// *lev doma* ‘the lion is home’
|
+v

	Ident-Presylson $_{[\pm voice]}$	Share Voice	FinDev	Ident$_{[\pm voice]}$	Ident$_{[sonorant]}$
☞ (a) −s −s / v ## d / +v			*	*	*

(b) −s v ## −s d +v		*!			*
(c) −s f −v ## −s d +v		*!		*	*
(d) −s f ## −s t −v	*!			**	*

The winning candidate (37a) complies with SHARE VOICE because the word-final *v* assumes the feature [+voice] of the following obstruent. Notice that this is done at the cost of violating FIN DEV. Still, candidate (37a) fares better than its contenders. In candidates (37b) and (37c), two adjacent obstruents do not share the [±voice] specification. Consequently, the high-ranked SHARE VOICE is fatally violated. It should be noted that the presonorant obstruent [t] in candidate (37d) is followed by [o], which is not shown in the tableau. This candidate is ruled out by the undominated IDENT-PRESYLSON$_{[\pm voice]}$ as the presonorant obstruent [t] does not retain its underlying value for [±voice].

However, the system of constraints established thus far does not account for all the data. Consider the following examples.

(38) *le̲v̲ o̲tca* [f o] 'father's lion' (cf. *le̲v̲ d̲'adi* [v d] 'uncle's lion')
mo̲g̲ l̲etat' [k l] 'he could fly' (cf. *mo̲g̲ b̲egat'* [g b] 'he could run')

As shown in (38), word-initial sonorants do not inhibit Final Devoicing in obstruents. Given the undominated IDENT-PRESYLSON$_{[\pm voice]}$, we incorrectly predict that word-final obstruents should not undergo Final Devoicing when followed by a sonorant in the next word. This is demonstrated by the evaluation of the relevant string of *le̲v̲ o̲tca* [f o] 'father's lion'.

(39) +s +s
//w ## o// *lev otca* 'father's lion': failed evaluation

	IDENT-PRESYLSON [±voice]	SHARE VOICE	FINDEV	IDENT[±voice]	IDENT[sonorant]
(a) f ## o (−s/−v, +s/+v)	*!			**	*
☜ (b) v ## o (−s, +s/+v)			*	*	*

Since the obstruent *v* is followed by a sonorant, both candidates vacuously satisfy SHARE VOICE. The desired output (candidate 39a) is disqualified by the undominated IDENT-PRESYLSON[±voice] because the feature [−voice] on the presonorant *v* is not found in the corresponding segment in the input. The re-ranking of IDENT-PRESYLSON[±voice] below FIN DEV and, hence, below SHARE VOICE is not an option since then we could not account for the absence of Voice Assimilation in words such as *dva* 'two' and *tvoj* 'your' (compare the evaluations in (32) and (33)).

Let us observe that the devoicing in *lev otca* [f o] 'father's lion' takes place when the obstruent and the following sonorant belong to different words. As there is no re-syllabification across word boundaries in Russian, the obstruent and the sonorant in (38) above belong to different syllables. Given this observation, a reasonable guess is that IDENT-PRESYLSON[±voice] should be modified to refer to tautosyllabic segments. In other words, it may be assumed that the presonorant obstruent must be faithful to its underlying value for [±voice] only if an obstruent and a sonorant belong to the same syllable. In fact, this is in keeping with Lombardi's (1999) assumption that the laryngeal feature is only licensed in a segment if it is followed by a sonorant in the same syllable. In this position, the underlying value for voice is preserved due to the following constraint.

(40) IDENTONSET(LARYNGEAL): Consonants standing before the sonorant segment in the same syllable should be faithful to underlying laryngeal specification (Lombardi 1999: 270).

In cases such as *lev otca* [f o] 'father's lion', the modified constraint IDENTONSET(LARYNGEAL) (IDONSLAR) is mute on the word-final obstruent *v* because the following sonorant occurs in a different syllable. In (41) below we look at the evaluation of the relevant string of *lev otca* [f o] 'father's lion'.

(41) +s +s
| |
//w ## o// *lev otca* ‘father’s lion’

	IDONSLAR	SHARE VOICE	FINDEV	IDENT$_{[\pm voice]}$	IDENT$_{[sonorant]}$
(a) −s +s | | f ## o | | −v +v				**	*
☞ (b) −s +s | | v ## o | +v			*	*	*

The winner (candidate 41a) incurs a double violation of the faithfulness constraint IDENT$_{[\pm voice]}$. Nevertheless, it fares better than its competitor, candidate (41b), which fails on the higher-ranked FIN DEV.

However, Petrova (1997) argues that the constraint IDONSLAR is inadequate to account for the Russian data. In brief, Lombardi (1999) assumes that voiced obstruents are penalised by the markedness constraint *LAR (do not have laryngeal features). In Lombardi’s theory, [voice] is privative and so voiceless obstruents do not violate *LAR. On this view, devoicing is produced by *LAR ranked above the faithfulness constraint IDENT$_{[\pm voice]}$. Laryngeal contrasts in presonorant obstruents in the onset are preserved due to the undominated IDONSLAR. The ranking IDONSLAR > *LAR > IDENT$_{[\pm voice]}$ correctly generates the process of Final Devoicing because word-final obstruents are not in the onset and, hence, not within the purview of IDONSLAR. In addition, *LAR makes sure that voiced obstruents do not occur in the coda word-medially. However, Russian does not have coda devoicing. Petrova points out that “to accommodate the Russian data, Lombardi is committed to assume that word-internally at a juncture of an obstruent followed by a sonorant, the obstruent is syllabified in an onset (e.g., *ob+myt’* [o.bmɨt’] ‘wash around’; cf. *ot+myt’* [o.tmɨt’] ‘wash off’), which is incorrect”. Consequently, Lombardi’s theory wrongly predicts that //ob+mɨt’// should surface as *[op.mɨt’]. Petrova (1997) suggests that in order to generate the correct output [ob.mɨt’], the privileged position of presonorant obstruents should be defined without reference to syllable structure.

It should be noted that the account presented here avoids the problem of Lombardi’s analysis. It has been assumed that Final Devoicing in Russian is driven by the high-ranked positional markedness constraint FIN DEV. *LAR is ranked below the faithfulness

constraint IDENT$_{[\pm voice]}$ and, therefore, does not play an active role in Russian. In this scenario, Petrova's argument loses validity because word-medial presonorant obstruents retain their underlying value for [±voice] irrespective of their syllabic affiliation.

8. Summary and residual problems

This article has addressed the issue of the ambivalent sonorant/obstruent status of the Russian labiodental fricative *v*. The controversial behaviour of *v* receives a coherent explanation in the analysis suggested here. The discussion has revealed that the sonorant-like behaviour of *v* is best accounted for on the assumption that the segment in question is represented as the glide //w/ at the underlying level. Sonorants, which are not defined for [±voice] in the lexicon, receive the feature [+voice] by Sonorant Default. Like other sonorants, the glide //w// is laryngeally unspecified in the underlying representation. On the surface, //w// strengthens to the obstruent [v] and, therefore, does not receive the [±voice] specification by Sonorant Default. The assumption that the output [v] remains laryngeally unspecified made it possible to explain the fact that *v* can undergo but not trigger Voice Assimilation. Furthermore, it has been argued that [+voice] is the unmarked value in labial obstruents. Consequently, the unspecified *v* receives the feature [+voice] in the phonetic implementation component.

Finally, let us point out that there remain problems that the present analysis does not account for. Namely, Plapp (1999: 259), based on Petrova (p.c.), reports that word-final *v* is opaque to Voice Assimilation in phrases such as *vetv' duba* 'branch of an oak', which is pronounced as either [tv' d] or [tf' d]. Contrary to what is expected under the analysis proposed here, *t* does not assimilate in voicing to the following *v*, *[dv' d]. Also, the option between [v'] and [f'] in *vetv' duba*, as well as the variation between [tresf] and [trezf] (see 9c and fn. 2) require an explanation. It has been suggested in the literature that Voice Assimilation applies in a gradient fashion. Kiparsky (1985) states: "the degree of (de)voicing should decrease in proportion to the distance from the triggering (rightmost) consonant". It may be the case that *vetv' duba* is pronounced [dv' d] in fast speech. Needless to say, a detailed phonetic and phonological study is needed to resolve this matter.

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