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Jers or floaters in the phonology of Bulgarian ?

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Abstract

By positing the existence of underlying floating vowels and of no more than two rules, both triggered by unsyllabified consonants — one that anchors floaters and one that inserts the default vowel (schwa) — this analysis accounts for the entire set of phenomena that have been described as 'mobile vowel' alternations in modern standard Bulgarian (ă-syncopation, *e*-syncopation, schwa-liquid metathesis), as well as for the phonologically-conditioned suspensions[1] of vowel syncopation and schwa-liquid metathesis. By positing liquids surrounded by consonants, and hence unsyllabifiable, in the lexical representations of a limited number of morphemes, it accounts also for the 'irregular' patterns exhibited by these morphemes: maintained syncopation or metathesis where, in accordance with the principles of the analysis put forward here, their suspension should be expected. The 3-level M/W/P model of Harmonic Phonology (Goldsmith 1993) has been used. There is no need to introduce abstract segments that never surface, as has been done in the case of the 'jer accounts' for the alternations in question (at least for so-called zero-endings). The rules proposed in this paper are partly, but not entirely conditioned by constraints on syllabification. They are therefore considered to be non-harmonic cross-level rules applying between M- and W-level.

1. Data on vowel syncopation in Bulgarian.

Table 1 below presents the main regularities observed with syncopating ă [2] and *e*. The vowels *ă* and *e* of examples (1)–(4) are non alternating, those of examples (5)–(9) are syncopating, i.e. they alternate with zero before a vowel-initial affix. (11) and (14) are examples of suspended syncopation of normally syncopating vowels (see examples 10 and 13), while in (17) and (20), although with similar morphological structure, syncopation is maintained. (23) is representative of a limited set of morphemes whose behaviour in derivation deviates from that of the more productive pattern in 1.2: here the stem syncopation is maintained regardless of the syncopating nature of the suffixal vowel.

Table 1. Vowel syncopation in Bulgarian

	Column A	Column B	Column C
1.0.	NO ROOT SYNCOPATION		NO SUFFIXAL SYNCOPATION
(1)	gàbăr ~ gàbări 'pin' SG ~ PL	(2)	pìsăk ~ pìsăci[3] 'cry' NOUN, SG ~ PL
(3)	štằrkel ~ štằrkeli 'swan', SG ~ PL	(4)	kòžen ~ kòžena[4] 'made of leather' MASC ~ FEM

1.1. ROOT SYNCOPATION SUFFIXAL SYNCOPATION

(5)	xràbăr ~ xràbri 'courageous' SG ~ PL	(6)	màlăk ~ màlki[5] 'little' SG ~ PL
(7)	orèl ~ orlì 'eagle' SG ~ PL	(8)	smèšen ~ smèšna[6] 'ridiculous' MASC ~ FEM
(9)	nòkăt ~ nòkti 'nail' SG ~ PL		

1.2. ROOT SYNCOPATION SUSPENDED ROOT SYNCOPATION SUFFIXAL SYNCOPATION

(10)	àgăl ~ àgli 'angle' SG ~ PL	(11)	triàgălen 'triangular' SG	(12)	triàgălen ~ triàgălni 'triangular' SG ~ PL
(13)	pèsen ~ pèsni 'song' SG ~ PL	(14)	pèsenen 'relative to songs' SG	(15)	pèsenen ~ pesenna 'relative to songs' SG ~ PL

1.3. ROOT SYNCOPATION MAINTAINED ROOT SYNCOPATION NO SUFFIXAL SYNCOPATION

(16)	ògăn ~ ognìšte 'fire' ~ 'fireplace'	(17)	ògnen 'relative to fire' MASC SG	(18)	ògnen ~ ògneni 'relative to fire' SG ~ PL
(19)	stăkălcè ~ stăklò 'piece of glass' ~ 'glass'	(20)	stàklen 'made of glass' MASC SG	(21)	stàklen ~ stàklena 'made of glass' MASC ~ FEM

1.4. ROOT SYNCOPATION MAINTAINED ROOT SYNCOPATION SUFF. SYNCOP. DOES OCCUR

(22)	bègăl ~ bèglo 'cursory' ~ 'cursorily'	(23)	beglèc 'fugitive' NOUN SG	(24)	beglèc ~ begălcì 'fugitive' SG ~ PL

Syncopation applies only within the phonological word. The following examples, where *e,* the 3d p. sg. present form of the copula, is an enclitic, attest that syncopation does not occur across word boundaries within the clitic group[7] :

malăk e	* malk e	'(he) is little'
smešen e	* smešn e	'(he) is ridiculous'

2. Interpretation of the data on vowel syncopation

Slavic studies traditionally posit jers in the underlying representations of morphemes exhibiting syncopation in certain contexts and thus distinguish them from the other vowels (the non-jers) by introducing a distinctive feature of tenseness. Jers are described as high lax, i.e. [–tense] vowels. They are lowered in the environment of a following jer and deleted elsewhere. So-called zero endings (the masculine Nom. sg. and the feminine and neuter Gen. pl. endings) and a host of derivational suffixes have a similar effect on a preceding jer: they block its syncopation. Generative phonologists (e.g. Gussmann 1980 and Rubach 1986 for Polish, and

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5 cf. smaljà 'diminish' pf.
6 cf. smjàx 'laughter', smèja se 'laugh'
7 See examples (6) and (8), table 1, demonstrating that *malăk* and *smešen* do belong to the syncopating paradigm.

Scatton 1983 and Zec 1988 for Bulgarian) have assumed that zero endings are jers and that derivational suffixes blocking jer syncopation themselves contain a jer, in order to account for the complicated pattern of presence/absence of syncopation by means of a single rule (the so-called rule of Jer Vocalization).

In the multilinear phonology framework, syncopation has been interpreted as due to mismatches between the skeletal and the melodic tier in the underlying representation of the syncopating vowels. The latter have been analyzed as unassociated skeletal V-slots (Spencer 1986) or as floating (i.e. unassociated to the skeleton) vocalic feature matrices (Kenstowicz and Rubach 1987, Rubach 1986). Nevertheless these analyses continue to posit the mismatching structure in all previous jer positions, included the zero endings. Some recent work (Farina 1991 and Szpyra 1993) attempts to eliminate such abstract structures. The solution proposed is to account for the retention of normally syncopating vowels before zero endings by reference to syllabification: the surfacing of jers is interpreted as triggered by unsyllabified consonantal melodic material.

We assume that a floating vowel (a floater) must be posited in underlying representations only where a vowel-zero alternation is observed in surface forms, i.e. where a vowel surfaces in at least one of the allomorphs of a given morpheme. If the syncopating vowel is an *e,* it is always a floater. Floaters can surface only if they get anchored, otherwise they cannot be included in upper-level structures (syllables, feet, phonological words, clitic groups, etc.) and will be deleted by Stray Erasure. In Bulgarian, only two out of six vowels may be underlying floaters: *ă* [ə] and *e* [ɛ]. The others ([a], [i], [u] and [ɔ]) are always anchored. Moreover, only the last vowel in a root or the first vowel in a suffix can float. Further on in this paper, floating vowels will be represented between angled brackets: <ă>, <e>.

ANCHORED VOWEL /V/ or

$$\begin{matrix} \bullet \\ | \\ V \end{matrix}$$

FLOATING VOWEL /<V>/ or

$$V$$

If the alternating roots and suffixes in the examples of Table 1 are interpreted as containing floating vowels, it can be seen that the suspension effect on syncopation results from a combination of two floaters (one in the root, the other in the suffix), cf. 1.2. In 1.3 syncopation is not suspended, because the suffixal vowel does not float. To account for the lack of suspending effect in 1.4, where the suffixal vowel does float, it will be assumed that the stem vowel-zero alternation is not due to floatation, but is of different origin. As the syncopating vowel in all stems belonging to pattern 1.4[8] is an *ă* (i.e. the default vowel in the Bulgarian phonemic system), we can interpret it as generated by epenthesis.

The following interpretation of the data presented in Table 1 is proposed:

		Column A	Column B		Column C
1.0.		ANCHORED /V/			ANCHORED /V/
1.1.		FLOATING /<V>/			FLOATING /<V>/
1.2.		FLOATING /<V>/	—>	<—	FLOATING /<V>/
1.3.		FLOATING /<V>/	—>	<—	ANCHORED /V/
1.4.		EPENTHETIC [V]	—>	<—	FLOATING /<V>/

Here are the corresponding underlying representations. The same example numbers from Table 1 are repeated in Table 2 below.

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8   The list of items belonging to this pattern can be found in Scatton (1984: app. 5E). Some of these forms are characterized by variability, e.g. the PL. *begălci* has an alternative form *begleci* which seems to be rarer, but confirms the unstable and 'irregular' (non-productive) nature of pattern 1.4.

Table 2.
Putative underlying representations for the examples in Table 1

	Column A	**Column B**	**Column C**
2.0.	(1) /gàbăr/ ~ /gàbări/		(2) /pìsăk/ ~ /pìsăki/
	(3) /štä̀rkel/ ~ /štä̀rkeli/		(4) /kòžen/ ~ /kòžena/
2.1.	(5) /xràb<ă>r/ ~ /xràb<ă>ri/		(6) /màl<ă>k/ ~ /màl<ă>ki/
	(7) /or<è>l/ ~ /or<e>lì/		(8) /smèš<e>n/ ~ /smèš<e>na/
	(9) /nòk<ă>t/ ~ /nòk<ă>ti/		

	Column A	**Column B**	**Column C**
2.2.	ROOT SYNCOPATION	SUSPENDED ROOT SYNCOPATION	SUFFIXAL SYNCOPATION
	(10) /ä̀g<ă>l/ ~ /ä̀g<ă>li/	(11) /triä̀g<ă>l<e>n/	(12) /triä̀g<ă>l<e>n/ ~ /triä̀g<ă>l<e>ni/
	(13) /pès<e>n/ ~ /pes<e>ni/	(14) /pès<e>n<e>n/	(15) /pès<e>n<e>n/ ~ /pès<e>n<e>na/
2.3.	ROOT SYNCOPATION	MAINTAINED ROOT SYNCOPATION	NO SUFFIXAL SYNCOPATION
	(16) /òg<ă>n/ ~ /og<ă>nìšte/	(17) /òg<ă>nen/	(18) /òg<ă>nen/ ~ /òg<ă>neni/
	(19) /stä̀k<ă>lcè/ ~ /stä̀k<ă>lò/	(20) /stä̀k<ă>len/	(21) /stä̀k<ă>len/ ~ /stä̀k<ă>lena/
2.4.	ROOT SYNCOPATION	MAINTAINED ROOT SYNCOPATION	SUFF. SYNCOP. DOES OCCUR
	(22) /bègl/ ~ /bèglo/	(23) /begl<è>c/	(24) /begl<è>c/ ~ /begl<e>cì/

In addition to phonologically unmarked roots, two types of phonologically marked roots are assumed: roots that contain a floater (marked [+FL]) and roots that trigger epenthesis (marked [+EP]).

The examples in Table 1 and the lexical representations proposed for them in Table 2 attest the existence of roots characterized by the following combinations of values for the "features" [±FL] and [±EP]:

Combination	Pattern type	Examples (from Table 1)
–FL, –EP	the non-alternating pattern	1.0

| +FL, –EP | syncopation that can be suspended | 1.1, 1.2, 1.3 |
| –FL, +EP | syncopation that cannot be suspended | 1.4 |

It will be demonstrated in the next section that the fourth possible combination, namely [+FL, +EP], occurs with metathesis.

3. Data on metathesis in Modern Bulgarian

Metathesis is a peculiarity of Bulgarian. No other Slavic language seems to have phonologized a similar alternation. It consists in inverting the linear order of a liquid and a schwa that is adjacent to it. Metathesis of schwa occurs with both [r] and [l], but is much more frequent with words containing «[r] + schwa».

Examples (25)-(26) contain sequences *ră, lă* that are non alternating. In (27)-(29) the same sequences alternate with *ăr, ăl* before a vowel-initial affix. (31) and (34) are examples of suspended metathesis and, as such, parallel examples (11) and (14) on syncopation, while in (37) and (40), which share the same morphological structure, metathesis is maintained. In (37), which parallels (17), the maintenance of metathesis can be attributed to the presence of a non-syncopating vowel in the suffix. As for (40), an epenthetic origin of the first *ă* (the one in the root) has been hypothesized.

Table 3 : Metathesis of *ă* with *r* and *l* in Bulgarian

	Column A	**Column B**	**Column C**
3.0.	NO METATHESIS		
	(25) krǎg ~ krǎžà 'circle' NOUN ~ VERB		
	(26) plǎx ~ plǎxove 'rat' SG ~ PL		
3.1.	METATHESIS		
	(27) krǎv ~ kǎrvjà 'blood' ~ 'bleed'		
	(28) xlǎc ~ xǎlcam 'hiccup' INTERJ ~ VERB		
	(29) grǎk ~ gǎrci 'Greek' NOUN, SG ~ PL		
3.2.	METATHESIS	SUSPENDED METATHESIS	SUFFIXAL SYNCOPATION
	(30) krǎv ~ kǎrvi 'blood' SG ~ PL	(31) krǎven 'relative to blood' MASC SG	(32) krǎven ~ krǎvni 'rel. to blood' SG ~ PL
	(33) grǎm ~ gǎrmjà 'thunder' NOUN ~ VERB	(34) grǎmǎk 'loud' MASC SG	(35) grǎmǎk ~ grǎmka 'loud' MASC ~ FEM

3.3.	METATHESIS		MAINTAINED METATHESIS		NO SUFFIXAL SYNCOPATION
	(36) drăvcè ~ dărvò		(37) dărven		(38) dărven ~ dărveni
	'piece of wood' ~ 'wood'		'wooden' MASC SG		'wooden' SG ~ PL
3.4.	METATHESIS		MAINTAINED METATHESIS		SUFF. SYNCOP. DOES OCCUR
	(39) drăzna ~ dărzost		(40) dărzăk		(41) dărzăk ~ drăzki
	'dare' ~ 'audacity'		'audacious' MASC SG		'audacious' SG ~ PL

Metathesis, like syncopation, is limited to the domain of the phonological word. It does not apply across word boundaries. The words *grăk* 'Greek' (29) and *krăv* 'blood' (30) do not metathesize before the enclitic form *e:*

grăk e	* gărk e	'(he) is Greek'
krăv e	* kărv e	'(it) is blood'

4. Interpretation of the data on metathesis

The parallels established between the data on syncopation and those on metathesis endorse the assumption that metathetic roots should contain a floater <ă>. In the underlying form, the floater should be posited after the liquid. Where an *ă* appears before the liquid, it will be interpreted as generated by epenthesis and hence not present underlyingly. This assumption on underlying representations of metathetic roots is historically motivated: in Common Slavic and in Old Bulgarian, jers always followed liquids before another consonant, because of the so-called Law of the open syllable. The following combinations of [±FL] and [±EP] will be assumed for the different patterns of metathesis:

Combination	Pattern type	Examples (from Table 3)
–FL, –EP	the non-alternating pattern	3.0
+FL, +EP	metathesis that can be suspended	3.1, 3.2, 3.3
–FL, +EP	metathesis that cannot be suspended	3.4

Table 4.
Putative underlying representations for the examples in Table 3

	Column A	**Column B**	**Column C**
4.0.	(25) /krăg/ ~ /krăga/		
	(26) /plăx/ ~ /plăxove/		
4.1.	(27) krăv ~ kărvjà /kr<ă>v/ ~ /kr<ă>vjà/		
	(28) hlăc ~ hălcam /hl<ă>c/ ~ /hl<ă>cam/		

180

(29) grㆆk ~ gㆆrci
/gr<ㆆ>k/ ~
/gr<ㆆ>ki/

<table>
<tr><td>4.2.</td><td>METATHESIS</td><td>SUSPENDED
METATHESIS</td><td>SUFFIXAL
SYNCOPATION</td></tr>
</table>

(30) krㆆv ~ kㆆrvi   (31) krㆆven   (32) /kr<ㆆ>v<e>n/ ~
/kr<ㆆ>v/ ~   /kr<ㆆ>v<e>n/   /kr<ㆆ>v<e>ni/
/kr<ㆆ>vi/

(33) grㆆm ~ gㆆrmjà   (34) grㆆmㆆk   (35) /gr<ㆆ>m<ㆆ>k/ ~
/gr<ㆆ>m/ ~   /gr<ㆆ>m<ㆆ>k/   /gr<ㆆ>m<ㆆ>ka/
/gr<ㆆ>m/jà

<table>
<tr><td>4.3.</td><td>METATHESIS</td><td>MAINTAINED
METATHESIS</td><td>NO SUFFIXAL
SYNCOPATION</td></tr>
</table>

(36) drㆆvcè ~ dㆆrvò   (37) dㆆrven   (38) dㆆrven ~ dㆆrveni
/dr<ㆆ>vcè/ ~   /dr<ㆆ>ven/   /dr<ㆆ>ven/ ~
/dr<ㆆ>vò/   /dr<ㆆ>veni/

<table>
<tr><td>4.4.</td><td>METATHESIS</td><td>MAINTAINED
METATHESIS</td><td>SUFF. SYNCOP.
DOES OCCUR</td></tr>
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(39) drㆆzna ~ dㆆrzost (40) dㆆrzㆆk   (41) dㆆrzㆆk ~ drㆆzki
/drzna/ ~ /drzost/   /drz<ㆆ>k/   /drz<ㆆ>k/ ~
                                       /drz<ㆆ>ki/

In Bulgarian, syncopation and metathesis may occur in both inflection and derivation. Bulgarian morphemes (roots and suffixes)[9] can either be involved in alternations or be non-alternating. The contexts of syncopation and metathesis are not predictable from the phonological structure. They must be lexically assigned. Our claim is that, once the exact positions of floaters in the underlying representations of the alternating (syncopating or metathetic) morphemes are established, the whole pattern of alternations and suspensions of alternations described here is conditioned by the phonological structure. However, in a few cases the suspension of syncopation seems to be morphophonologically-conditioned.[10] But they have no parallel in the metathetic paradigm, i.e. metathesis is not suspended by the same affixes. This asymmetry corroborates the assumption that the suspensions under consideration are not phonologically-conditioned.

5. The analysis: principles and rules

The analysis that is put forward here does not regard cases where a morphophonological effect intervenes. It posits underlying floating vowels only in contexts where a vowel actually surfaces (at least in one of the alternating forms for a given word). As far as alternating schwas are concerned, the analysis distinguishes between cases of floatation and cases of epenthesis.

The framework is that of the 3-level M/W/P model of Harmonic Phonology.[11]

It has been assumed that in Bulgarian at the M-level some, but not all segmental material is syllabified. At the W-level, there is a constraint on total syllabification.

In Bulgarian, a syllable consists of an onset (which may be a single consonant or a consonant cluster), a nucleus (which can only be a vowel) and a single optional coda consonant. Consonant clusters in coda position are admitted only word-finally and can be viewed as due to an edge effect.[12]

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9 In Bulgarian, unlike other Slavic languages, no prefixes are involved in such alternations.
10 The following affixes have a suspending effect on syncopation: the MASC SG definite article (subjective -ăt and objective -a [ə]), the count plural affix -a [a] and the vocative affix for MASC SG nouns -o.
11 See Goldsmith (1990: 319-331) and Goldsmith (1993: 25-33).
12 The second consonant of such clusters will be analysed in a word-final appendix constituent, according to Goldsmith 1990.

It is assumed that the syllable template remains of the same shape throughout the derivation, i.e. the same template serves to measure well-formedness of syllables at M-, W- and P-level.

Only anchored vowels can trigger the creation of a syllable. Hence, anchoring is a pre-condition for the syllabification of floaters.

The following two rules apply between the M- and the W-level.

(42) FLOATER ANCHORING

M: \<V\>   Ⓒ

  ↕ |
         ↓

W: V   [C]
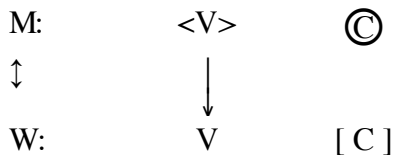
A floater anchors at W-level (if available at M-level) before a consonant that remains unsyllabified after M-level syllabification (i.e. after the syllabification triggered by non-floating vowels has applied at M-level). This first rule applies maximally, i.e. all such consonants, unsyllabified at M-level, but syllabifiable at W-level, trigger it.

The notation used here for this first type of unsyllabified consonants is a circled consonant: Ⓒ.

(43) SCHWA EPENTHESIS

M: C   ⊡

  ↕ |
           ↓

W: [C] ə [C]
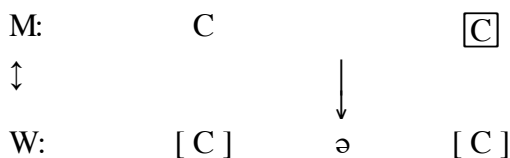
A schwa is inserted before a consonant that remains unsyllabified after M-level syllabification and that would otherwise remain unsyllabified even after W-level syllabification. This second rule applies minimally, i.e. not all consonants unsyllabified at M-level and otherwise unsyllabifiable at W-level trigger it, but only one, so as to create the syllable that can incorporate all the unsyllabified consonants.
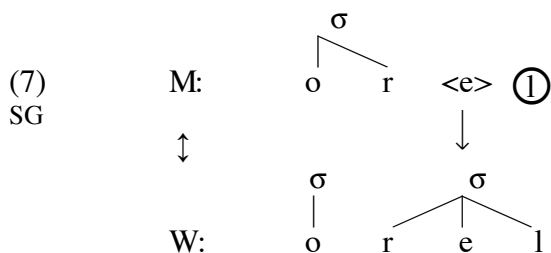
The notation used here for this second type of unsyllabified consonants is a framed consonant: $\boxed{\text{C}}$.
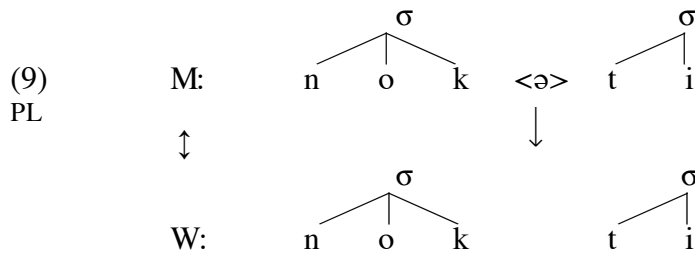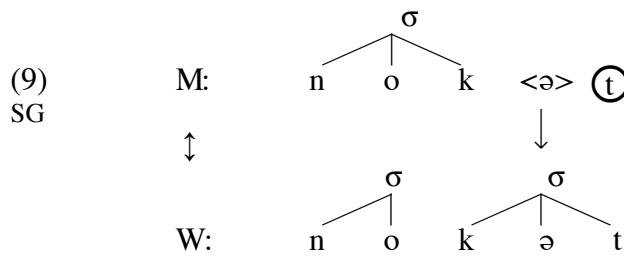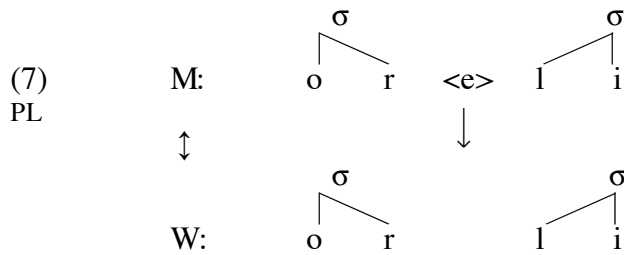
In both rules (42) and (43), the trigger (a consonant) follows the vowel-anchoring/vowel-epenthesis site. As a consequence, the syllables resulting from the application of SCHWA EPENTHESIS are exclusively closed, and this is due to its minimal manner of application. As for FLOATER ANCHORING, the syllables that are created by its application are not necessarily closed, because of its maximal manner of application.

6. Harmonic Phonology analyses of the data

The examples in this section are all taken from Tables 1, 2, 3 and 4 and the original number of every example is repeated:

6.1. Analysis of syncopation

           σ
          ╱ ╲

(7)   M: o r \<e\> ①
SG

    ↕   ↓

         σ   σ
         | ╱ ╲

    W: o r e l

(7) PL

M: σ [o r]   <e>   σ [l i]

↕   ↓

W: σ [o r]   σ [l i]

(9) SG

M: σ [n o k]   <ə>   Ⓣ

↕   ↓

W: σ [n o k]   σ [ə t]

(9) PL

M: σ [n o k]   <ə>   σ [t i]

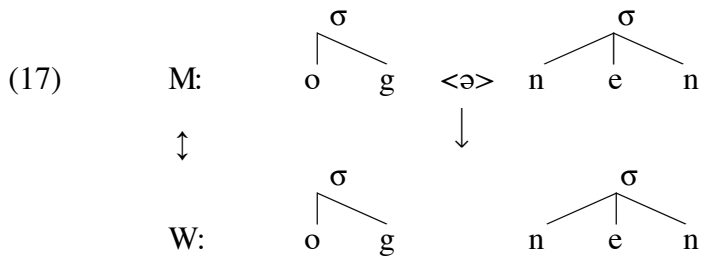↕   ↓

W: σ [n o k]   σ [t i]

In the SG forms one consonant – *l* in (7) and *t* in (9) – remains unsyllabified and triggers the anchoring of the preceding floater, while in the PL forms there are no unsyllabified consonants. The floater thus remains unassociated and is deleted.

6.2. Analysis of metathesis

(30) SG

M: k   r   <ə>   Ⓥ

↕   ↓

W: k   σ [r ə f]
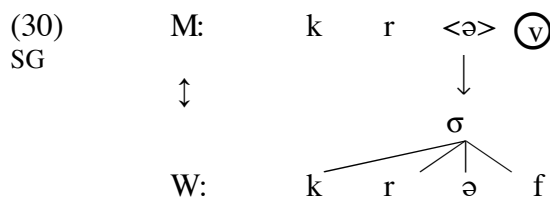
In the M-level representation of the SG form (30) there is no anchored vowel at all, so that syllabification cannot apply. One of the consonants is preceded by a floater and hence triggers the anchoring of the latter. The other two consonants are unsyllabified at M-level, but syllabifiable at W-level. Therefore no schwa epenthesis is needed to satisfy the constraint on total syllabification.

In the corresponding PL form, the floater is deleted, as there is no unsyllabified consonant following it. The preceding consonant *r* remains unsyllabified, but is not preceded by a floater. So Floater Anchoring cannot apply. The unsyllabified *r*, otherwise unsyllabifiable at W-level, triggers Schwa Epenthesis. The insertion of a schwa creates a syllabic nucleus and the syllable that is built around it also incorporates the initial consonant *k*.

(30)
PL

M:　　k　　[r]　　\<ə\>　v　i　（σ over v,i）

↕

W:　　k　ə　r　（σ）　　v　i　（σ）

6.3. Analysis of suspended syncopation

(14)

M:　　p　e　s　\<e\>　(n)　\<e\>　(n)　（σ over p,e,s）

↕

W:　　p　e　s　e　n　e　n

(15)

M:　　p　e　s　\<e\>　(n)　\<e\>　n　a

↕

W:　　p　e　s　e　n　n　a

6.4. Analysis of suspended metathesis

(34)

M:　　g　r　\<ə\>　(m)　\<ə\>　(k)

↕

W:　　g　r　ə　m　ə　k

(35)

M:　　g　r　\<ə\>　(m)　\<ə\>　k　a

↕

W:　　g　r　ə　m　k　a

6.5. Analysis of maintained syncopation (before a non-alternating vowel)

(17)   M:

$$\sigma \qquad\qquad \sigma$$

o   g   <ə>   n   e   n

↕

$$\sigma \qquad\qquad \sigma$$

W: o   g   n   e   n

6.6. Analysis of maintained metathesis (before a non-alternating vowel)

(37)   M: d   [r]   <ə>   v   e   n   (σ)

↕

W: d   ə   r   v   e   n
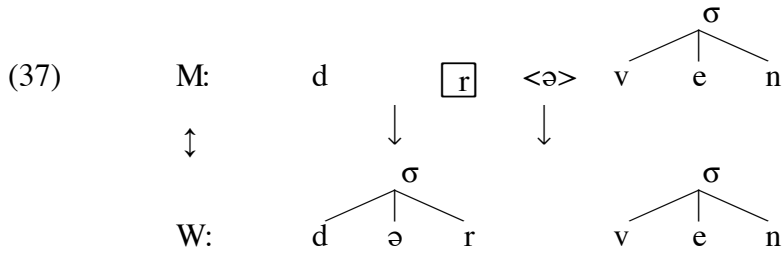
6.7. Analysis of maintained syncopation (before another alternating vowel)

(23)   M: b   e   g   l   <e>   (ts)

↕

W: b   e   g   l   e   ts

(24)   M: b   e   g   [l]   <e>   ts   i

↕

W: b   e   g   ə   l   ts   i
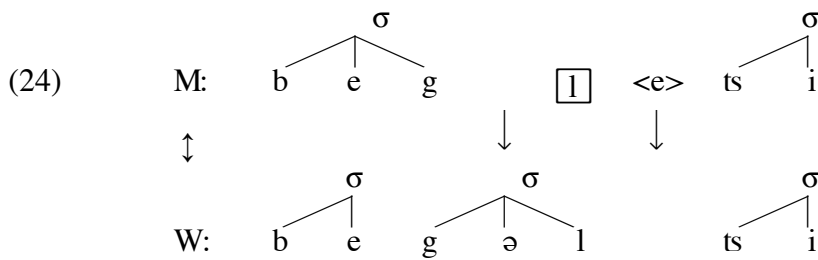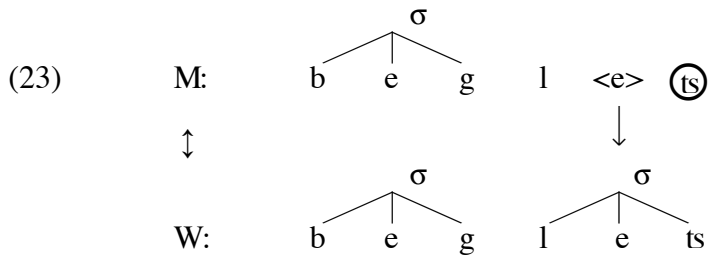
6.8. Analysis of maintained metathesis (before another alternating vowel)

(40)   M: d   [r]   z   <ə>   (k)

↕

W: d   ə   r   z   ə   k
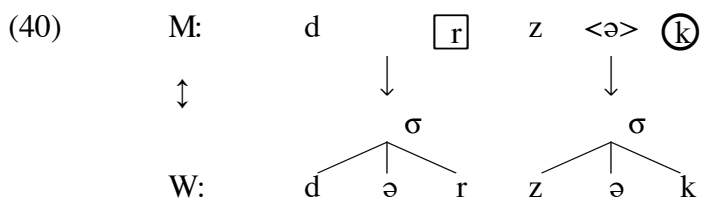
(23) and (40) illustrate the 'irregular' patterns respectively for maintained syncopation (cf. 1.4) and maintained metathesis (cf. 3.4). In both cases, the stem schwa-zero alternation (cf. examples 22 and 39) has been assumed to be triggered not by the presence of an underlying floater, but by epenthetis. Thus, with only one floater in the underlying representations of (23), the correct surface form is obtained after the application of rule (42). The surface from in (40) is analyzed as triggered by the simultaneous application of rules (42) and (43). As for (24), the PL of (23), and for (41), the PL of (40), the deletion of the floater and the application of rule (43) give the actual forms.

(41)   M: d   r   [z]   <ə>   k   i

        ↕   ↓   ↓

                              σ   σ

        W: d   r   ə   s   k   i
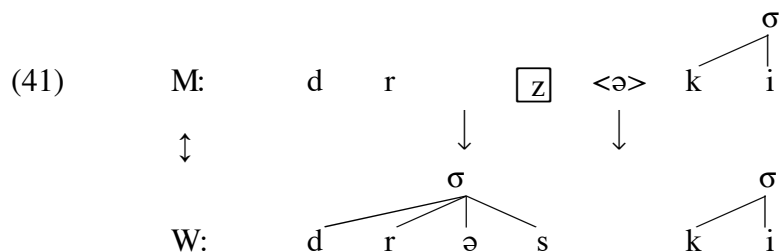
7. Conclusion

The analysis of vowel syncopation and schwa-liquid metathesis in Bulgarian proposed in this paper, based on vowel floatation and on schwa-epenthesis, has the following advantages over previous jer analyses: 1) it posits underlying structures (floaters) only for positions where a vowel actually surfaces ; 2) it accounts for the various patterns of alternations and for the cases of suspension of alternations (excluding cases where a morphophonological suspending effect on syncopation is clearly discernible) by means of a single intra-level constraint on total syllabification (at W-level) and only two cross-level rules which do not need to be intrinsically ordered.

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