1. The data

1.1. Data on ghost [ə] and [e] vowels.

Ghost vowels (GV's) are vowels that alternate with zero in surface forms. Two of the six vowels in the Bulgarian vowel system [i, e, a, **ə**, o, u] systematically behave as ghost vowels: [**ə**] and [e]. Exceptionally, [i] and [o] can be ghosts : [i] in four lexical items, [o] optionally in one (cf. Tilkov 1982:232, Aronson 1968:121).The examples in (1) parallel those in (2). Each pair demonstrates that in similar phonological and morphological contexts, a vowel [**ə**] or [e] may be syncopating (1) or stable (2).

(1)	xrà**ə**bər 'brave' masc.sg.	(1a)	xrà**ə**br+i, pl.
	zà**ə**lək 'morsel' masc.sg.		zà**ə**lc+i, pl.
	fà**ə**kel 'torch' masc.sg.		fà**ə**kl+i, pl.
	tə̀ž+en 'sad'[1] masc.sg.		tə̀ž+n+a, fem.
(2)	gà**ə**bər 'hornbeam' masc.sg.		gà**ə**bər+i, pl.
	zà**ə**mək 'castle' masc.sg.		zà**ə**mək+i, pl.
	štə̀rkel 'stork' masc.sg.		štə̀rkel+i, pl.
	kò**ə**ž+en 'leather' adj.[2] masc.sg.		kò**ə**ž+en+a, fem.

First of all, it is important to distinguish between two different problems:

(3) The distribution of roots and suffixes whose last vowel is [**ə**] or [e] in two different paradigms: the non-syncopating paradigm vs. the syncopating paradigm, see (2) vs. (1). Morphemes that fall into the syncopating paradigm will be considered to contain a ghost vowel (a ghost [**ə**] or a ghost [e]).

(4) The ditribution of syncopated vs. non-syncopated allomorphs within the syncopating paradigm, see (1) vs. (1a).

Our claims are:

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[1] This adjective is derived from *tə̆g+à* 'sadness' with a change [g] —> [ž] by 1st Velar Palatalization before the front vowel [e] of the suffix; cf. 1.4.2.

[2] cf. *kò**ə**ž+a* ‘leather’, noun fem.sg.

(5) the distribution described as (3) is lexically conditioned. To have a ghost vowel is an idiosyncratic property of a given root/suffix and must be encoded in its lexical representation.

(6) The distribution stated in (4) is phonologically conditioned, unless a morphophono-logical effect suspends the GV alternation (see 1.1.6.1).

1.1.1. Domain of ghost vowel alternations

GV alternations like those in (1) occur only within the phonological word. The conditioning context for syncopation of [e] or [ə] never spans word boundaries. We can test this by adding the clitic form *e*, 3p.sg.pres., of the copula 'be', to the alternating forms listed in (1):

(7) Xràbăr e 'He is brave', *Xràbr e
Sàmo edìn zàlăk e 'It is just a morsel', *Sàmo edìn zàlk e
Fàkel e, kakvò da e? 'It's a torch, what could it be?' *Fàkl e, …
Tǎžen e 'He is sad', *Tǎžn e

As can be seen from (7), the vowel that is lost in (1a) before a vocalic inflection (*-i* or *-a*), does not syncopate before the vocalic clitic form *e*.

1.1.2. Ghost vowels in roots

1.1.2.1. Ghost vowel alternations with inflection

With inflection only Ø-inflected roots (i.e. roots whose base form is consonant-final) may exhibit ghost vowels. Most of the Ø-inflected roots are masculine (e.g. *măž* 'man' masc. sg.) and a limited set are feminine nominal roots (e.g. *kost* 'bone' fem.sg.). All neuter roots, most feminine and a limited set of masculine roots are vocalic, i.e. the base form is vowel-inflected (V-inflected). In V-inflected forms, stress can fall on the root (e.g. *mljàk+o* 'milk' neut.sg., *màs+a* 'table' fem.sg.) or on the inflection (*mor+è* 'sea' neut.sg., *žen+à* 'woman' fem.sg., *bašt+à* 'father' masc.sg.).

1.1.2.1.1. Inventory of ghost vowel Ø-inflecteḍroots

1.1.2.1.1.1. Masculine noun Ø-inflected roots with ghost vowels

A number of masculine noun roots exhibit a ghost vowel *ă* [ə], see (8). The change of the stem-final *-k* to *-c* before the plural inflection *-i* is due to 2nd Velar Palatalization, see 1.4.2.

(8) vòpăl 'wail' — vòpl+i, pl.
žèzăl 'scepter' — žèzl+i, pl.
còkăl 'wainscot, plinth' — còkl+i, pl.
ǎgăl 'corner' — ǎgl+i, pl.
čèxăl 'slipper' — čèxl+i, pl.
bòbăr 'beaver' — bòbr+i, pl.
minìstăr 'minister' — minìstr+i, pl.
fìltăr 'filter' — fìltr+i, pl.
lìtăr 'litre' — lìtr+i, pl.
cilìndăr 'cylinder' — cilìndr+i, pl.
nègăr 'Black' — nègr+i, pl.
tìgăr 'tiger' — tìgr+i, pl.
vìxăr 'whirlwind' — vìxr+i, pl.
ògăn 'fire' — ogn´+òve, pl.
rìtăm 'rhythm' — rìtm+i, pl.
kòsăm 'strand of hair' — kòsm+i, pl.
zàlăk 'mouthful, bite' — zàlc+i, pl.
làkăt 'elbow' — làkt+i, pl.
nòkăt 'nail' — nòkt+i, pl.

Other masculine roots contain a ghost vowel [e]:

(9) vǎzel 'knot' — vǎzl+i, pl.
fàkel 'torch' — fàkl+i, pl.
kotèl 'cauldron' — kotl+ì, pl.
orèl 'eagle' — orl+ì, pl.
petèl 'cock' — petl+ì, pl.
koz+èl 'male goat' — koz+l+ì, pl.
dèn 'day' — dn+ì, pl.
ov+èn 'ram' — ov+n+ì, pl.

zàek 'rabbit' — zàjc+i, pl.
venèc 'wreath' — venc+ì, pl.
šturèc 'cricket' (the insect) — šturc+ì, pl.

Many foreign borrowings exhibit a GV alternation. The suffix *-(i)zăm*, productive in borrowings, exhibits a ghost schwa, cf. (18).

entusià+zăm 'enthusiasm' — entusià+zm+ăt, def.

In some of the examples a non-productive suffix is recognizable: *-el*[3] in *koz+èl*, cf. *koz+à*, 'female goat'; *-en* in *ov+èn*, cf. *ov+c+à* 'sheep'
It can be seen that most masculine GV roots are stressed on one of their stable vowels. However, a limited number of them —where the ghost is [e], cf. (9)— are stressed on their final vowel in the singular. When the latter, a ghost vowel, is syncopated in the plural, the stress is shifted to the inflection.

1.1.2.1.1.2. Feminine noun Ø-inflected roots with ghost vowels

A few feminine nouns that are Ø-inflected like masculine nouns exhibit a ghost *ă* or *e*.

(10) mìsăl 'thought' — mìsl+i, pl.
săblàzăn 'temptation' — săblàz+n+i, pl.
pèsen 'song' — pèsn+i, pl.

1.1.2.1.1.3. Adjectival Ø-inflected roots with ghost vowels

In Bulgarian the masc. sg. indefinite form is used as lexical entry for adjectives.[4] The adjectives listed in (11) contain a ghost schwa.

(11) zȁl 'evil' masc.sg. — zl+à, fem., zl+ò, neut., zl+ì, pl., zl+ìj+[ə] masc.sg.def.
nàgăl 'arrogant' — nàg+l+i, pl.
pòdăl 'base' — pòd+l+i, pl.
svèt+ăl 'light' (cf. svèt+[ʲ+ə][5] 'shine')— svèt+l+i, pl.

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[3] from Proto-Slavic *-ĭlŭ* (< Indo-European *-ilo*) according to Georgiev 1971-1995, vol.2:525.

[4] Unlike other Slavic languages that confine this form (coinciding with the bare adjectival stem) to predicative use, Bulgarian has also extended it to attributive use and has lost the former longer attributive form.

tòpăl 'warm' — tòpl+i, pl.
krǎ̀g+ăl 'round' (< krăg 'circle') — krǎ̀g+l+i, pl.
bè̀g+ăl 'cursory' (< bjag 'running') — bè̀g+l+i, pl.
bì̀stăr 'clear' masc.sg. — bì̀str+a, fem., bì̀str+o, neut., bì̀str+i, pl., bì̀str+ij+[ə], masc.sg.def.
bò̀dăr 'alert' — bò̀dr+i, pl.
dobǎ̀r 'good' — dobr+ì̀, pl.
mǎ̀dăr 'wise' — mǎ̀dr+i, pl.
pǎ̀stăr 'variegated' — pǎ̀str+i, pl.
xì̀tăr 'clever' — xì̀tr+i, pl.
xrà̀băr 'brave' — xrà̀br+i, pl.
štè̀dăr 'generous' — štè̀dr+i, pl.
mǎ̀rt+ăv 'dead' (cf. s+măr̀t 'death') — mǎ̀rt+v+a, fem., mǎ̀rt+v+o, neut., mǎ̀rt+v+i, pl., mǎ̀rt+v+ij+[ə], masc.sg.def.
edn+à̀k+ăv 'identical' — edn+à̀k+v+i, pl.
k+ak+ǎ̀v 'what sort of' — k+ak+v+ì̀, pl.
vsjà̀+k+ak+ăv 'every sort of' — vsjà̀+k+ak+v+i, pl.
njà̀+k+ak+ăv 'some' — njà̀+k+ak+v+i, pl.
nì̀+k+ak+ăv 'no' — nì̀+k+ak+v+i, pl.
dǎ̀lăg 'long' — dǎ̀lg+i, pl.

In some of the adjectives in (11), the non-productive adjectivizing suffixes -l-, -r-, -v-[6] are recognizable.

1.1.2.1.2. Ø-inflected ghost vowel root + Vocalic suffix:

1.1.2.1.2.1. In noun declension

Some vocalic nominal inflections (all plurals, some vocatives) cause the syncopation of the ghost vowel in a GV root, cf. (8), (9), (10), or in a GV suffix, see (12). Others

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[5] As usually do Bulgarian linguists, I use the 1p.sg.pres. as citation form for verbs. The old infinitive has been lost in Bulgarian. A newly-created truncated infinitival form can be used after a small set of modal auxiliaries like *stì̀ga* 'stop', *nedè̀j* 'do not', etc. [ʲ+ə] stands for orthographic *ja*, the ending of the 1p.sg.pres. for so-called soft stem verbs, which corresponds to the vowel [ə] with palatalization of the preceding consonant. Thus, the stem-final consonant in *svètja* 'shine' is realized as palatalized [tʲ].

[6] Coming from historical suffixes -lŭ, -rŭ, -vŭ.

exert a suspending effect on the GV alternation in the root (definite articles, count plurals, some vocatives), cf. 1.1.6.1.
The following vocalic inflections in noun declension trigger GV syncopation :

i. The plural inflection *-i*

The plural inflection *-i* is usually found with masculine polysyllabic and with feminine nouns and exceptionally, with some monosyllabic masculine nouns. (8), (9), (10) for roots, and (12), further repeated in 1.1.4.1, for suffixes, demonstrate that the ghost vowel syncopation is systematic before the plural *-i*.

(12) lov+èc 'hunter' — lov+c+ì, pl.
xubav+èc 'handsome man' — xubav+c+ì, pl.

ii. The plural inflection *-ove*

The plural *-ove* is found exclusively in the declension of masculine monosyllabic nouns. Two GV masculine roots[7] take this inflection and in both plurals the ghost vowel is syncopated.

(13) ògăn 'fire' — ognj+òve, pl.
vjàtăr 'wind' — vetr+ovè [8] , pl.

i.i.i. Vocative affixes for masc. sg. nouns

The vocative is productive with animate masc. sg. and fem. sg. nouns only. None of the feminine GV roots is animate. For masc. sg. nouns with Ø-inflected roots there are two basic suffixes: *-o* (with the variant *-´o* [ʲo]) and *-e*. Some nouns have two vocatives with different affixes, e.g., *čovèk+o* and *čovèč+e* 'you man' (with 1st Velar Palatalization changing [k] into [č] before *-e*, a front vowel, and not before *-o*, a back vowel), cf. *čovèk* 'man'.
The vocative suffix *-e* systematically triggers GV syncopation in the root:

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[7] The surface forms of these two nouns are bisyllabic, but their underlying forms can be viewed as monosyllabic, see (124), (125).

[8] This is an instance of the *ă*-alternation, cf. 1.5. Here *vja-* [vʲa] changes to *ve-* [ve], i.e. [a] changes to [e] because of the stress-shift on the final syllable in the plural, and the preceding consonant depalatalizes before a front vowel.

minìstăr 'minister' — minìstr+e 'you minister'
tìgăr 'tiger' — tìgr+e 'you tiger'
vjàtăr 'wind' — vètr+e 'you wind' [9] (with personification)
vìxăr 'whirlwind' — vìxr+e 'you whirlwind' (with personification)

Suffixed nouns in *-ec-*, see (12), also syncopate the suffixal ghost [e] when they take the *-e* vocative, e.g. *stàr+ec* 'old man' — *stàr+č+e* 'you old man', where the change [c] —> [č] is an instance of Affricate Palatalization, see 1.4.2.

The vocative suffix *-´o,* [ʲo], i.e. *-o* with palatalization of the preceding consonant, combines only with sonorant-final roots. Syncopation in GV roots is systematic, see (14). Here palatalization of the root-final consonant is not part of the root's lexical form, as can be seen from the respective def. sg. forms: *orèla* (*orèlja), *petèla* (*petèlja), *ovèna* (*ovènja), but belongs to the suffix. Note also the stress-shift to the first syllable in the vocative.

(14) orèl 'eagle' — òrl+[ʲo] 'you eagle'
petèl 'cock' — pètl+[ʲo] 'you cock'
ovèn 'ram' — òvn+[ʲo] 'you ram'
šturèc 'cricket' (the insect) — štùrč+o (< šturc+[ʲo] with Affricate Pal., cf. 1.4.2, and [ʲ]-deletion[10])

The vocative *-o* (without palatalization) suspends the GV alternation, i.e. the ghost vowel of the stem is retained, see (15). An exception is *mòmăk* 'lad' which regularly syncopates its ghost *ă* before the vocalic vocative *-o*, see (16). Note that the *-ec* suffix, that normally shifts its stress to the inflection, cf. (12), remains stressed in vocatives.

(15) zàek 'rabbit' — zàek+o 'you rabbit'
lov+èc 'hunter' — lov+èc+o 'you hunter'
begl+èc 'fugitive' — begl+èc+o 'you fugitive'

(16) mòmăk 'lad', momc+ì, pl. — mòmk+o 'you lad', *mòmăk+o

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[9] See footnote 8. The difference is that in the **vocative** the change [vʲa] —> [ve] occurs before a front vowel in the next syllable (the vocative *-e*), cf. 1.5.

[10] cf. ex.7a, Table 3, p.74, and the analysis in chapter 2, (13).

iv. The masc. sg. definite article

A systematic suspension of the GV alternation in the root is observed before the postpositive definite article for the masc.sg, see (17). The Bulgarian definite article *-ăt, -a,* phonetically -[ə], masc.sg., *-ta,* fem.sg., *-to,* neut. sg., *-te* and *-ta,* pl. (where the vowel varies in accordance with the plural inflection[11]), is postposed to the first nominal constituent of definite noun phrases. If the first nominal constituent is an adjective, the latter takes the definite article, which in adjectival declension is *-ija(t),* phonetically -[ij+ə(t)] where [ij] is a thematic vowel added to the article that we find also with nouns, masc.sg., *-ta,* fem., *-to,* neut., *-te*, pl. The masc. sg. definite article contrasts non-objective and objectiveforms. The distinction is strictly observed only in careful written Bulgarian, where the so-called *pălen člen* ('full article') is restricted to non-objective s (subject and predicative attribute), while the *kratăk člen* ('short article') is used elsewhere (direct object or prepositional complement). The standard colloquial variant of Bulgarian, at least the variant spoken in Sofia, does not distinguish two forms of the article and makes use of -[ə] for nouns and -[ij+ə] for adjectives, i.e. without the final [t], in all cases.

Some authors (Scatton 1975, Zec 1988) posit an underlying jer (i.e. a high lax vowel, which in their interpretation corresponds to our underlying ghost vowels) for the [ə] of the definite article. According to the definition of ghost vowels we adopt here, i.e. a vowel that alternates with zero, the [ə] of the definite masc.sg. article cannot be a ghost vowel. It never happens to find itself before another vocalic suffix and thus never syncopates.

(17) vòpăl 'wail' — vòpăl+[ə] def., objective form, vòpăl+ăt, def., non-objective form
minìstăr 'minister' — minìstăr+[ə], def.
vjàtăr 'wind' — vjàtăr+[ə], def.
kòsăm 'strand of hair' — kòsăm+[ə], def.
ògăn 'fire' — ògăn[ʲ]+[ə], def.

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11 The choice of the plural definite article (*-te* or *-ta*) is made on phonetic grounds and regardless of the noun's gender: *-te* is selected by nouns whose plural inflection is *i*-final (e.g. lèbed 'swan' masc.sg. — lèbed+i, pl., lèbed+i+te, pl.def.; vod+à 'water' fem.sg. — vod+ì, pl., vod+ì+te, pl.def.) or *e*-final (e.g. gràd 'town' masc.sg. — grad+ovè, pl., grad+ovè+te, pl.def.; ràm+o 'shoulder' neuter sg. — ram+enè, pl., ram+enè+te, pl.def.), whereas plurals with *a*-final inflections select the *-ta* definite article (e.g. kràk 'leg' — krak+à, pl., krak+à+ta, pl.def.; pol+è 'field' neuter sg. — pol[ʲ+à], pl., pol[ʲ+à]+ta, pl.def.; ràm+o 'shoulder' neuter sg. — ram+enà, pl., ram+enà+ta, pl.def.)

zàlăk 'mouthful' — zàlăk+[ə], def.
nòkăt 'nail' — nòkăt[ʲ]+[ə], def.
vằzel 'knot' — vằzel+[ə], def.
orèl 'eagle' — orèl+[ə], def.
dèn 'day' — den[ʲ]+[ə̀], def.
zàek 'rabbit' — zàek+[ə], def.

In (17) it can be seen that some of the roots (namely *den*, *ogăn*, *nokăt*) contain a final consonant that is underlyingly palatalized. The root-final consonant depalatalizes in the uninflected form, because in Bulgarian, the word-end neutralizes the opposition palatalized vs. plain consonants, see 1.4.1.
The ghost [ə] of the suffix *-(i)zăm* resists the suspending effect of the definite article, see (18).[12]

(18) entusià+zăm 'enthusiasm' (cf. entusiàst 'enthusiast') — entusià+zm+[ə], def.
cin+ìzăm 'cynicism' (cf. cin+ìk 'cynic', cin+ìč+en 'cynical') — cin+ìzm+[ə], def.
skeptic+ìzăm 'scepticism' (< skeptìk 'sceptic' with *k* —> *c* by 2nd Velar Pal., cf. skeptìč+en 'sceptical' with 1st Velar Pal.) — skeptic+ìzm+[ə], def.

spàzăm 'spasm', *spàzm+i*, pl., where *-zăm* is not a suffix, retains its ghost [ə] before the definite article: spàzăm+[ə], spàzăm+ăt.

v. The count plural inflection *-a*

The count plural, used with cardinal numerals, is productive with countable and non-personal masculine nouns.
With personal masculine nouns, special "virile" forms of the numerals with the suffix *-(i)ma* are used (*dvà+ma* 'two', *trì+ma* 'three', *četirì+ma* 'four', *pet+ìma* 'five', *šest+ìma* 'six', etc.) and the latter do not select the count plural, but the normal plural, e.g. *trì+ma nègr+i* 'three Blacks', *pet+ìma minìstr+i* 'five ministers'. Neither feminine nor neuter nouns have count plurals.

(19) žèzăl 'scepter', žèzl+i, pl. — dvà žèzăl+a 'two scepters'

[12] This peculiarity of Standard Bulgarian was systematically infringed by Todor Zhivkov, leader of the Bulgarian Communist Party for 30 years (1958-1989), even in his political talks. He thus demonstrated his indifference to orthoepic norms.

ǎgăl 'corner', ǎgl+i, pl. — čètiri ǎgăl+a 'four corners'
bòbăr 'beaver', bòbr+i, pl. — pèt bòbăr+a 'five beavers'
tìgăr 'tiger', tìgr+i, pl. — šèst tìgăr+a 'six tigers'
fìltăr 'filter', fìltr+i, pl. — dvàjset fìltăr+a 'twenty filters'
ògăn 'fire', ogn´+òve, pl. — dvà ògăn[ʲ+a] 'two fires'
fàkel 'torch', fàkl+i, pl. — stò fàkel+a 'hundred torches'
kozèl 'male goat', kozl+ì, pl. — dvà kozèl+a 'two male goats'
làkăt 'elbow', làkt+i, pl. — pèt làkăt[ʲ+a] 'five elbows, five cubits'

mètăr 'metre', *mètr+i*, pl. and *lìtăr* 'litre', *lìtr+i*, pl., as well as their derivatives exceptionally drop the ghost [**ə**] in the count plural:

(20) dèset mètr+a (*mètăr+a) 'ten meters'
dvà mililìtr+a (*mililìtăr+a) 'two milliliters'

1.1.2.1.2.2. In adjectival declension

In adjectival declension, all vocalic inflectional suffixes without exception trigger GV syncopation: the definite article for the masc.sg. *-ija*, -[ij+**ə**], objective form, and *-ijat*, -[ij+**ə**t], non-objective form, cf. (iv) above, the fem.sg. ending *-a*, the neut. sg. ending *-o*, the plural inflection *-i*.

(21)

masc.sg.indef.	*masc.sg.def.*	*fem.sg.*	*neut. sg.*	*pl.*
bìstăr 'clear'	bìstr+ij+[**ə**]	bìstr+a	bìstr+o	bìstr+i
dobǎr 'good'	dobr+ìj+[**ə**]	dobr+à	dobr+ò	dobr+ì
bèg+ăl 'cursory'	bèg+l+ij+[**ə**]	bèg+l+a	bèg+l+o	bègl+i
zǎl 'evil'	zl+ìj+[**ə**]	zl+à	zl+ò	zl+ì
mǎrtăv 'dead'	mǎrtv+ij+[**ə**]	mǎrtv+a	mǎrtv+o	mǎrtv+i
kakǎv 'what sort of'		kakv+à	kakv+ò	kakv+ì
tǎž+en 'sad'	tǎž+n+ij+[**ə**]	tǎž+n+a	tǎž+n+o	tǎž+n+i
rjàd+ăk 'rare'	rèdk+ij+[**ə**]	rjàd+k+a	rjàd+k+o	rèd+k+i

1.1.2.1.3. Ø-inflected GV root + Consonantal inflectional suffix

1.1.2.1.3.1. In noun declension

The singular definite article for feminine nouns (*-ta*, -[tà]) is the only consonantal inflection in declension. It does not trigger syncopation when added to GV Ø-inflected roots:

(22) mìsăl 'thought', mìsl+i, pl. — misăl+tà, sg. def.
neprijàzăn 'enmity', nerpijàzn+en, 'hostile' adj.masc.sg. — neprijazăn+tà 'enmity' sg. def.
pèsen 'song', pèsn+i, pl. — pesen+tà, sg. def.

1.1.2.1.3.2. In verb conjugation

GV alternations in conjugation are very limited. This is due to the fact that the vast majority of Bulgarian verbs contain a verbalizing suffix between the root and conjugational desinences. Thus, the verbal stem consists of the root and a verbalizing suffix. A number of Bulgarian verbs exhibit different verbalizing suffixes in the present tense and aorist. Below we describe both the present tense stem and the aorist stem for the main subclasses of verbs. All verb forms are derived from one of these two stems.
The typically Bulgarian third conjugation, which is productive for the derivation of secondary imperfectives and assimilation of borrowed verbs (cf. Scatton 1993), is characterized by a number of verbalizing suffixes all ending in *-a* (*-a-*, *-ja-*, *-ava-*, *-java-*, *-va-*, *-uva-*, *-ira-*, *-stva-*). Third-conjugation verb forms have no thematic vowel, but retain their verbalizing suffix in both the present and aorist stems. Thus, consonantal desinences attach exclusively to the final [a] of the suffix, see (23).

(23) bjàg+a+m 'run' (< bjag 'running' noun)

bjàg+a+m, pres. 1p.sg.	bjàg+a+x, aor. & ipft. 1p.sg.
bjàg+a+š, 2p.sg.	bjàg+a [13], aor. 2&3p.sg.
bjàg+a, 3p.sg.	bjàg+a+še, ipft. 2&3p.sg
bjàg+a+me, 1p.pl.	bjàg+a+xme, aor. & ipft. 1p.pl.
bjàg+a+te, 2p.pl.	bjàg+a+xte, aor. & ipft. 2p.pl.
bjàg+a+t, 3p.pl.	bjàg+a+xa, aor. & ipft. 3p.pl.
bjàg+a+j, imper.sg.	bjàg+a+j+te, imper. pl.
bjàg+a+l, aor. & ipft. part. masc.sg.	bjàg+a+n, passive part.[14]

bjàg+a+št, pres.part. masc.sg. bjàg+a+jki, gerund bjàg+a+ne, verbal noun

Most first- and second-conjugation verbs exhibit a thematic vowel in the present tense stem (*-e-* for first conjugation and *-i-* for second conjugation) and a verbalizing suffix (*-a-* for first conjugation and *-i-* or *-ʲa-* for second conjugation) in the aorist stem. The thematic vowel is retained before consonantal desinences and is replaced by the vocalic inflections of the 1p.sg., *-a* [**ə**], and 3 p.pl., *-at* [**ə**t], see the conjugation pattern in (24) illustrated by the second-conjugation verb *čìst*+[ʲ+**ə**] 'clean'. Before the vocalic inflections the second-conjugation thematic vowel *-i-* deletes, but causes palatalization of the preceding root-final consonant.

The verbalizing suffixes *-ej-* and *-aj-* attach the thematic vowel *-e-* in the present tense stem (like first-conjugation verbs) and exhibit vowel-final forms (that result from j-deletion) in the aorist stem: živ+èj+[**ə**] 'live' (< živ 'alive' adj.masc.sg.), pres. 1p.sg., živ+è+e+š, 2p.sg. — živ+[ʲà]+x, aor. 1p.sg.; igr+àj+[**ə**] 'play'. (< igr+à 'play' noun fem.sg.), pres. 1p.sg., igr+à+e+š, 2p.sg— igr+à+x, aor. 1p.sg.

[13] This form being homophonous with the 3p.sg. of the present tense, there exists an alternative aorist form with stress-shift to the inflection. The latter involves the *ä*-alternation in the root: beg+à.

[14] The passive participle of an intransitive verb like *bjagam* is used, in its neuter form, with the so-called "impersonal passive", e.g. Po tazi păteka mnogo e bjagano. 'This is a well-run path.'

(24) čȉst+[ʲ+**ə**] 'clean' 1p.sg. pres. (< čist 'clean' adj.masc.sg.)

	present tense	*aorist*	*imperfect*	*imperative*
1p.sg.	čȉst+[ʲ+**ə**]	čȉst+i+x	čȉst+e+x	
2p.sg.	čȉst+i+š	čist+ȉ	čȉst+e+še	čist+ȉ
3p.sg.	čȉst+i	čist+ȉ	čȉst+e+še	
1p.pl.	čȉst+i+m	čȉst+i+xme	čȉst+e+xme	
2p.pl.	čȉst+i+te	čȉst+i+xte	čȉst+e+xte	čist+è+te
3p.pl.	čȉst+[ʲ+**ə**]t	čȉst+i+xa	čȉst+e+xa	

čȉst+i+l, aor.part. masc.sg. čȉst+e+l, ipft.part. masc.sg.
čȉst+en, passive part. masc.sg. čȉst+e+št, pres.part. masc.sg.
čȉst+e+jki, gerund čȉst+e+ne, verbal noun

Finally, the unsuffixed roots of some first-conjugation verbs, are augmented with an intervening vowel *-o-* (cf. *čȅt+o+x*, *čȅt+o+xme*, etc. in (25) below) before the consonantal aorist desinences *-x*, *-xme*, *-xte*, *-xa*, and take a thematic vowel *-e* in the Ø-inflected 2p.sg. and 3p.sg. of the aorist (cf. *čȅt+e*). Verbs belonging to this conjugational type take the thematic vowel *-e-* before consonantal inflections in the present tense. The conjugation of unsuffixed verbs therefore also results in a stable vocalic environment.

(25) čet+[ȁ] 'read' (cf. prȍ+čit 'reading' noun masc.sg.)

	present tense	aorist	imperfect	imperative
1p.sg.	čet+[ȁ]	čȅt+o+x	čet+[ʲȁ]+x	
2p.sg.	čet+è+š	čȅt+e	čet+è+še	čet+ȉ
3p.sg.	čet+è	čȅt+e	čet+è+še	
1p.pl.	čet+è+m	čȅt+o+xme	čet+[ʲȁ]+xme	
2p.pl.	čet+è+te	čȅt+o+xte	čet+[ʲȁ]+xte	čet+è+te
3p.pl.	čet+[ȁ]t	čȅt+o+xa	čet+[ʲȁ]+xa	

čȅl, aor.part. masc.sg., cf. (32) čet+[ʲȁ]+l, ipft.part. masc.sg.
čȅt+en, passive part. masc.sg. čet+[ʲȁ]+št, pres.part. masc.sg.
čet+è+jki, gerund čȅt+e+ne, verbal noun

In (26) below the morphological decomposition for the different conjugational types is given with both the present tense and the aorist stem. Either stem may be composed of ‘verbalizing suffix (Vblz.sfx.) and/or thematic vowel (Th.V.) + inflections’. Only the last conjugational type attach directly the aorist desinences, but the root is vowel-final due to j-deletion: *ču+x* (< čuj+x), 1p.sg.aor. of *čȕj*+[**ə**] 'hear', *pi+x* (< pij+x), 1p.sg.aor. of *pȉj*+[**ə**] 'drink'.

(26)	Examples	Present tense stem				Aorist stem			
		Vblz. sfx.	Th. V.	Inflections		Vblz. sfx.	Th. V.	Inflections	
				1p.sg. 3p.pl.	2-3p.sg. 1-2p.pl.			2-3p. sg.	1p.sg., 1-3p.pl.
3rd	bjȁg+a+m	-(_)a-		-m, -t	-š, -Ø, -me, te	-(_)a-		-Ø	-x, -xme, -xte, -xa
2nd	čȉst+ʲ+**ə**,		-[ʲ]-	**-ə,-ət**		-i-		-Ø	-x, -xme, -xte, -xa
	gnezd+ʲ+**ȁ**		-i-		-š, -Ø, -me, te				
	let+ʲ+**ȁ**,		-[ʲ]-	**-ə,-ət**		-ʲȁ-		-Ø	
	vȉd+ʲ+**ə**		-i-		-š, -Ø, -me, te				
1st	živ+ȅj+**ə**	-ȅj-		**-ə,-ət**		-ʲȁ-		-Ø	
		-ȅ-	-e-		-š, -∅, -me, te				
	igr+ȁj+**ə**	-ȁj-		**-ə,-ət**		-ȁ-		-Ø	
		-ȁ-	-e-		-š, -Ø, -me, te				
	mȉn+**ə**,			**-ə,-ət**		-a-		-Ø	
	kov+**ȁ**		-e-		-š, -Ø, -me, te				
	čet+**ȁ**,			**-ə,-ət**			-e-	-Ø	
	vljȁz+**ə**		-e-		-š, -Ø, -me, te		-o-		-x, -xme, -xte, -xa
	čȕj+**ə**			**-ə,-ət**				-Ø	
	pȉj+**ə**		-e-		-š, -Ø, -me, te				-x, -xme, -xte, -xa

A GV stem like *mȁdăr* 'wise' masc.sg., *mȁdr+i*, pl., thus never happens to find itself before a consonantal suffix in verbs. Consider the conjugation of the following three verbs derived from *mȁdăr*: the second-conjugation ipfv. *mȁdr*+[ʲ+**ə**] 'concoct, invent'' (27), the first-conjugation pfv. *po+mădr+ȅj*+[**ə**] 'become wise' (28) and the corresponding secondary ipfv. *po+mădr*+[ʲȁ]*va+m* (29) which illustrates the productive third-conjugation verb class.

(27) mȁdr+[ʲ+**ə**] 'concoct, invent' ipfv.

	present tense	*aorist*	*imperfect*	*imperative*
1p.sg.	mȁdr+[ʲ+**ə**]	mȁdr+i+x	mȁdr+e+x	
2p.sg.	mȁdr+i+š	măd**r**+ì	mȁdr+e+še	măd**r**+ì
3p.sg.	mȁdr+i	măd**r**+ì	mȁdr+e+še	
1p.pl.	mȁdr+i+m	mȁdr+i+xme	mȁdr+e+xme	
2p.pl.	mȁdr+i+te	mȁdr+i+xte	mȁdr+e+xte	măd**r**+è+te
3p.pl.	mȁdr+[ʲ+**ə**]t	mȁdr+i+xa	mȁdr+e+xa	
	mȁdr+i+l, aor.part. masc.sg.		mȁdr+e+l, ipft.part. masc.sg.	
	mȁdr+en, passive part. masc.sg.		mȁdr+e+št, pres.part. masc.sg.	
	mȁdr+e+jki, gerund		mȁdr+e+ne, verbal noun	

(28) po+măd**r**+èj+[**ə**] 'become wise' pfv.

	present tense	*aorist*	*imperfect*	*imperative*
1p.sg.	po+măd**r**+èj+[**ə**]	po+măd**r**+[ʲà]+x	po+măd**r**+è+e+x	
2p.sg.	po+măd**r**+è+e+š	po+măd**r**+[ʲà]	po+măd**r**+è+e+še	po+măd**r**+èj
3p.sg.	po+măd**r**+è+e	po+măd**r**+[ʲà]	po+măd**r**+è+e+še	
1p.pl.	po+măd**r**+è+e+m	po+măd**r**+[ʲà]+xme	po+măd**r**+è+e+xme	
2p.pl.	po+măd**r**+è+e+te	po+măd**r**+[ʲà]+xte	po+măd**r**+è+e+xte	po+măd**r**+èj+te
3p.pl.	po+măd**r**+èj+[**ə**]t	po+măd**r**+[ʲà]+xa	po+măd**r**+è+e+xa	
	po+măd**r**+[ʲà]+l, aor.part. masc.sg.		po+măd**r**+è+e+l, ipft.part.	

(29) po+măd**r**+[ʲà]va+m 'become wise' ipfv.

po+măd**r**+[ʲà]va+m, pres. 1p.sg.	po+măd**r**+[ʲà]va+x, aor. & ipft. 1p.sg.
po+măd**r**+[ʲà]va+š, 2p.sg.	po+măd**r**+[ʲà]va, aor. 2&3p.sg.
po+măd**r**+[ʲà]va, 3p.sg.	po+măd**r**+[ʲà]va+še, ipft. 2&3p.sg
po+măd**r**+[ʲà]va+me, 1p.pl.	po+măd**r**+[ʲà]va+xme, aor. & ipft. 1p.pl.
po+măd**r**+[ʲà]va+te, 2p.pl.	po+măd**r**+[ʲà]va+xte, aor. & ipft. 2p.pl.
po+măd**r**+[ʲà]va+t, 3p.pl.	po+măd**r**+[ʲà]va+xa, aor. & ipft. 3p.pl.
po+măd**r**+[ʲà]va+j, imper.sg.	po+măd**r**+[ʲà]va+j+te, imper. pl.
po+măd**r**+[ʲà]va+l, aor. & ipft. part.	po+măd**r**+[ʲà]va+št, pres.part. masc.sg.
po+măd**r**+[ʲà]va+jki, gerund	po+măd**r**+[ʲà]va+ne, verbal noun

i. The aorist participle suffix -l/-l-

The only case in conjugation, where an unsuffixed first-conjugational consonant-final stem (C-stem) is found in adjacency with a consonantal suffix, is the aorist participle. The suffix in question is *-l* /*-l-* and is attached directly (without thematic vowel) to the

aorist stem, see (30). The other *l*-participle, the imperfect participle, takes as the basis for its formation the imperfect, which is always vowel-final; see (31).

We can see that the aorist participle suffix is consonantal if we look at the phonological shape of participles from vocalic verb stems (V-stems). The examples given in (26) and (31) below are from *vljaz̀*+[**ə**] 'enter', *za+nes*+[**è**] 'bring', *rek*+[**è**] 'say', *čìst*+[ʲ+**ə**] 'clean', *kaž̀*+[**ə**] 'tell' and *čuj̀*+[**ə**] 'hear'. The aorist stem is found in the aor.1p.sg. before the inflection *-x*. Between a C-stem and the aorist inflection *-x*, the vowel *-o-* is inserted.

(30)

	masc.sg.	*fem.sg.*	*neut. sg.*	*pl.*
C-stems	vljàz+ăl	vljàz+l+a	vljàz+l+o	vlèz+l+i
	za+nès+ăl	za+ nès+l+a	za+ nès+l+o	za+ nès+l+i
	rèk+ăl	rèk+l+a	rèk+l+o	rèk+l+i
V-stems	čìst+i+l	čìst+i+l+a	čìst+i+l+o	čìst+i+l+i
	kàz+a+l	kàz+a+l+a	kàz+a+l+o	kàz+a+l+i
	čù+l	čù+l+a	čù+l+o	čù+l+i

(31)

	pres.1p.sg.	*aor.1p.sg.*	*aor.part.*	*ipft.1p.sg..*	*ipft.part.*
C-stems	vljàz+[**ə**]	vljàz+o+x	vljàz+ăl	vlèz+e+x	vlèz+e+l
	za+nes+[**è**]	za+nès+o+x	za+nès+ăl	za+nes+jà+x	za+nes+jà+l
	rek+[**è**]	rèk+o+x	rèk+ăl	reč+à+x	reč+à+l
V-stems	čìst+[ʲ**ə**]	čìst+i+x	čìst+i+l	čìst+e+x	čìst+e+l
	kàž+[**ə**]	kàz+a+x	kàz+a+l	kàž+e+x	kàž+e+l
	čùj+[**ə**]	čù+x	čù+l	čù+e+x	čù+e+l

The issue here is what happens when the *-l* /*-l-* suffix is added to a consonantal verb stem. Two alternative processes are observed:

1) If the final consonant is a fricative or a velar stop, schwa epenthesis takes place: a schwa is inserted between the stem-final consonant and the *-l* suffix:

vljàz+l —> vljàz+ăl, za+nès+l —> za+nès+ăl, rèk+l —> rèk+ăl

2) If the final consonant is a coronal stop, cluster simplification occurs – the coronal stop is deleted before the *-l* /*-l-* suffix:

(32) čèt+l —> čèl, aor.part. masc.sg., čèl+a, fem., čèl+o, neut., čèl+i, pl. (čet+[ə̀] 'read' ipfv. pres.1p.sg., čèt+o+x, aor.1p.sg.)
za+vèd+l —> za+vèl, aor.part. masc.sg., za+vèl+a, fem., za+vèl+o, neut., za+vèl+i, pl. (za+ved+[ə̀] 'lead' pfv. pres.1p.sg., za+vèd+o+x, aor.1p.sg.)

ii. GV alternations in Present tense vs. Aorist.

A subclass of verbs exhibit an '[e]/zero' alternation between the present tense stem and the aorist stem:

(33) na+ber+[ə̀] 'pick', pfv.pres.1p.sg., na+ber+è, 3p.sg. — na+br+à+x, aor. 1p.sg., na+br+à, 3p.sg.
iz+per+[ə̀] 'wash', pfv.pres.1p.sg., iz+per+è, 3p.sg. — iz+pr+à+x, aor. 1p.sg., iz+pr+à, 3p.sg.
să+der+[ə̀] 'tear', pfv.pres.1p.sg., să+der+è, 3p.sg. — să+dr+à+x, aor. 1p.sg., să+dr+à, 3p.sg.
s+mèl+[ʲ+ə] 'grind', pfv. pres.1p.sg., s+mèl+i, 3p.sg. —s+ml+[ʲà]+x, aor.1p.sg., s+ml+[ʲà], 3p.sg.
po+stèl+[ʲ+ə] 'spread out', pfv. pres.1p.sg., po+stèl+i, 3p.sg. — po+stl+à+x, aor.1p.sg., po+stl+à, 3p.sg.[15]

Besides, this presumably ghost [e] alternates with [i] in secondary derived imperfectives:

na+ber+[ə̀], pfv. — na+bìr+a+m, ipfv.
iz+per+[ə̀], pfv. — iz+pìr+a+m, ipfv.
să+der+[ə̀], pfv. — să+dìr+a+m, ipfv.
s+mèl+[ʲ+ə], pfv. — s+mìl+a+m, ipfv.
po+stèl+[ʲ+ə], pfv. — po+stìl+a+m, ipfv.

This seems to correlate with Derived Imperfective Raising in Slovak (Rubach 1993:149) and Polish (Rubach 1984:29):

[15] These alternations occur also in the respective non-prefixed imperfective stems: ber+[ə̀] 'pick' ipfv. 1p.sg.pres. — br+à+x, aor.; per+[ə̀] 'wash' ipfv. 1p.sg.pres. — pr+à+x, aor.; der+[ə̀] 'tear, rip' ipfv. 1p.sg.pres. — dr+à+x, aor.; mèl+[ʲ+ə] 'grind' ipfv. 1p.sg.pres. — ml+[ʲà]+x, aor.; stèl+[ʲ+ə] 'spread out' ipfv. 1p.sg.pres. — stl+à+x, aor. Surprisingly, the verbal nouns for some of these verbs take the aorist stem instead of the present tense stem: br+a+nè, pr+a+nè, dr+a+nè.

(34) Slk. za+tk+nú+t´ 'imprison' pfv. za+týk+aj+ú 'they imprison' ipfv.
Slk. vy+sch+nú+t´ 'to dry' pfv. vy+sych+aj+ú 'they dry' ipfv.
Pol. zamk+ną+ć 'to lock' pfv. zamyk+aj+ą 'they lock' ipfv.

But the difference is that in Bulgarian the [e] does not syncopate before the vocalic verbalizing suffix neither in the present tense nor in the other forms derived from the present tense stem, cf. ber+[ʲà]+x, ipft. 1p.sg., ber+è+še, 2&3p.sg., ber+ì, imper.sg, etc. So it is not a real ghost vowel. It seems preferable to analyze verb stems like *ber*+[ə̀] 'pick' as allomorphic: the present stem contains a stable [e], whereas the aorist stem contains a ghost [e].
One verb exhibits a ghost [o] in present tense vs. aorist:

(35) kòl+[ʲ+ə] 'slay' ipfv. pres.1p.sg., kòl+i, 3p.sg. — kl+à+x, aor. 1p.sg., kl+à, 2&3p. sg.; cf. za+kòl+[ʲ+ə] 'slay' pfv.—za+kòl+va+m, derived ipfv.

This should also be considered a case of allomorphic verb stems. More on derived imperfectives is found in 1.1.2.2.4 and 1.1.2.2.5 below.

1.1.2.2. Ghost vowel alternations with derivation

1.1.2.2.1. Ø-inflected ghost vowel root + Vocalic suffix

GV syncopation systematically occurs before vocalic suffixes in various derivational patterns where a GV root is involved.
1) Adjectivization of GV root nouns by means of different vocalic suffixes (*-ov, -at, -est, -ičen, -eški, -even, -i*, etc.):

ə̀gəl 'corner'—ə̀gl+ov, adj. masc.sg.
bòbər 'beaver'—bòbr+ov, adj.masc.sg.
čèsən 'garlic'—česn+òv, adj.masc.sg.
orèl 'eagle'—orl+òv, adj.masc.sg.
tìgər 'tiger' —tìgr+ov 'tiger' adj.masc.sg.
kòsəm 'strand of hair'—kosm+àt 'hairy' masc.sg.
ə̀gəl 'corner'—ə̀gl+est 'angular' masc.sg.
və̀zel 'knot' —və̀zl+est 'knotty' masc.sg.
nòkət 'nail'—nòkt+est 'nailed' masc.sg.
rìtəm 'rythm' —ritm+ìčen 'rhythmical' masc.sg.

mètăr 'metre'—metr+ìčen 'metric' masc.sg.
ovèn 'ram' —òvn+ešk̀i 'mutton' adj. masc.sg.
dèn 'day' —dn+èven 'day, daytime' adj. masc.sg.
zàek 'rabbit' —zàjč+i 'rabbit' adj. masc.sg.[16]

2) Derivation of adjectives from adjectives.
The stem ghost vowel may be in an adjectival GV root or in the suffix *-en*/*-n-*.

dobȁr 'good' —dobr+ìčăk, dimin. masc.sg.
xìtăr 'clever' —xìtr+ičăk, dimin. masc.sg.
bòl+en 'sick' masc.sg., bòl+n+i, pl. — bol+n+àv 'sickly' masc.sg.
drèb+en 'small' masc.sg., drèb+n+i, pl. — dreb+n+àv 'petty' masc.sg.

3) Nominalization of adjectives.
The stem GV may be in the root or in one of the suffixes *-en*/*-n-* or *-ăk*/*-k-*.

nàgăl 'arrogant' —nàgl+ost 'arrogance'
mȁdăr 'wise' —mȁdr+ost 'wisdom'
bèd+en 'poor' —bèd+n+ost 'poverty', bed+n-otà 'poverty', bed+n+jàk 'poor man'
rjàd+ăk 'rare'—rjàd+k+ost 'rareness'
pȁstăr 'variegated'—păstr+ot+à 'variegation'
tòpăl 'warm'—topl+ot+à 'warmth', topl+in+à 'heat'
svèt+ăl 'clear'—svet+l+in+à 'light' noun
dobȁr 'good'—dobr+in+à 'goodness'
dȁlăg 'long'—dălž+in+à 'length'[17]
mȁrtăv 'dead'—mărtv+ìl+o 'dead season, deadness'

4) Derivation of nouns from nouns:

ògăn 'fire' —ogn+ìšt+e 'fireplace'
zàlăk 'mouthful, bite' —zàlč+e, dimin.[18]
kotèl 'cauldron'—kotl+è, dimin.
orèl 'eagle' —orl+è, 'young eagle', orl+ìc+a 'female eagle'

[16] The root-final velar changes to [č] by 1st Velar Pal., cf. 1.4.2. As for the change e —> j, see 1.1.4.5.

[17] The change g —> ž is due to 1st Velar Pal., see 1.4.2.

[18] With k —> č due to 1st Velar Pal., see 1.4.2.

tìgăr 'tiger' — tigr+è 'yound tiger', tigr+ìc+a 'tigress'
čèxăl 'slipper' —čexl+àr 'maker of slippers'

5) Derivation of nouns and adjectives from numerals:

sèdem 'seven' — sedm+ìc+a 'the figure seven', sèdm+i 'seventh' masc.sg.
òsem 'eight' — osm+ìc+a 'the figure eight', òsm+a 'eighth' fem.sg.

6) Verbalization of nouns (all verb forms are pres. 1p.sg.):

vìxăr 'whirlwind' —raz+vìxr+[ʲa]+m se 'rage, storm' verb ipfv.
vjàtăr 'wind' —pro+vetr+[ʲ+ə̀] 'ventilate' pfv.
kòsăm 'strand of hair' —o+bez+kosm+[ʲ+ə̀] 'dehair' pfv.
fìltăr 'filter' —filtr+ìram 'filtrate', ipfv. & pfv.

7) Verbalization of adjectives (all verb forms are pres. 1p.sg.):

dobằr 'good' —o+dobr+[ʲ+ə̀] 'approve' pfv., o+dobr+[ʲà]va+m, ipfv.
xìtăr 'clever'—xitr+ùva+m 'play tricks', ipfv., nad+xitr+[ʲ+ə̀] 'outwit' pfv., nad+xìtr+[ʲa]+m, ipfv.
bèd+en 'poor' — o+bed+n+èj+[ə] 'become poor' pfv., o+bedn+[ʲà]va+m, ipfv.
mằdăr 'wise' — mằdr+[ʲ+ə] 'invent, concoct' ipfv., iz+mằdr+[ʲ+ə], pfv., iz+mằdr+[ʲa]+m, sec. ipfv.
mằdăr 'wise' — po+mădr+èj+[ə] 'become wise' pfv., po+mădr+[ʲà]va+m, ipfv.

1.1.2.2.2. Ø-inflected ghost vowel root + Consonantal suffix

When a GV root finds itself before a consonantal suffix in derivation, syncopation never applies. This can be observed with different types of derivational processes:

1) Adjectivization of nouns:

nègăr 'Black' —nègăr+ski 'Black' adj.
vjàtăr 'wind' —vjàtăr+ničav 'flighty, frivolous'
zàek 'rabbit'—zàeš+ki 'rabbit' adj. (š < č+s[k+i] by 1st Velar Pal. and cluster simplifaction, see 1.1.4.4)

2) Derivation of nouns from nominal stems:

nè̀gằr 'Black' — nè̀gằr+ka 'female Black', nè̀gằr+če 'young Black'
ằgằl 'corner' —ằgằl+če, dimin.
bò̀bằr 'beaver' —bò̀bằr+če, 'young beaver'
vằzel 'knot' —vằzel+če, dimin.
nò̀kằt 'nail' —nò̀kằt+če, dimin.

3) Nominalization of adjectives:

rà̀ven 'equal' masc. sg., rà̀vn+i, pl. — rà̀ven+stv+o 'equality'
duxò̀v+en 'clerical' masc. sg., duxò̀v+n+a, fem. — duxò̀v+en+stv+o 'clergy'

4) Verbalization by means of the consonantal suffix *-stva-* (*-stvuva-*). This suffix is usually attached directly to nouns (kljukà̀r 'gossip' noun masc.sg. —kljukà̀r+stva+m 'gossip' 1p.sg.pres., plagià̀t 'plagiarism'—plagià̀t+stva+m 'plagiarize' 1p.sg.pres.), but we also find it with one GV adjectival stem:

bò̀dằr 'alert' — bò̀dằr+stva+m, bò̀dằr+stvuva+m 'be awake' ipfv. pres.1p.sg.

1.1.2.2.3. V-inflected ghost vowel roots

Some vowel-inflected (V-inflected) roots also exhibit GV alternations with derivation:

1.1.2.2.3.1. Neuter noun roots in *-o* and *-e*

(36) rebr+ò 'rib', rebr+à, pl. —rebằr+c+è, dimin., rebằr+c+à, pl.
stằkl+ò 'glass' —stằkằl+c+è 'a little piece of glass'
masl+ò 'butter' —masằl+c+è, dimin.
à̀gn+e 'lamb' —à̀gằn+c+e, dimin.
petn+ò 'spot' —petằn+c+è, dimin.
pism+ò 'letter' —pisằm+c+è, dimin.
srebr+ò 'silver' —srebằr+c+è 'a little piece of silver'

It can be seen from (36) that all these neuter roots present a cluster 'consonant + sonorant' before vocalic inflections. The ghost vowel that neuter V-inflected roots exhibit is always [**ə**], never [e]. The ghost schwa manifests itself before the

consonantal diminutive suffix for neuter nouns *-c+e* and, in one of these roots, before the GV adjectivizing suffix *-en/-n-*, see (37).

(37) srebr+ò 'silver' — srèbăr+en, adj. masc. sg., srèbăr+n+i, pl.

Apart from the root *srebr+o*̀ 'silver', the other roots listed in (36) select the non-GV adjectivizing suffix *-en/-en-*, cf. (67).

1.1.2.2.3.1. Feminine noun roots in *-a*

Several feminine V-inflected roots exhibit a ghost schwa in derived adjectives:

(38) za+gàdk+a 'puzzle', zagàdk+i, pl. — zagàdăč+en 'puzzling' masc. sg.— zagàdăč+n+ij+[ə], def., zagàdăč+n+a, fem., zagàdăč+n+o, neut., zagàdăč+n+i, pl.
klètk+a 'cell (biol.)' — klètăč+en, 'cellular' masc.sg., klètăč+n+a, fem.
o+cènk+a 'evaluation' — ocènăč+en 'evaluational' masc.sg., ocènăč+n+a, fem.
rešètk+a 'grating' —rešètăč+en 'barred' masc., rešètăč+n+a , fem. sg.

The above noun roots manifest their ghost vowel in adjectives before the GV suffix *-en/-n-* (cf. 1.1.6.2.1). The change k—>č before the adjectivizing suffix is due to 1st Velar Pal., cf. 1.4.2. The ghost vowel of the feminine noun roots in (38) is not predictable from the phonetic structure. Not all nouns ending in 'consonant + k + a' have a ghost vowel:

sljùnk+a 'saliva' — sljùnč+en (*sljunăč+en) 'salivary' masc., sljùnč+en+a, fem.

In the above example, the non-GV suffix *-en/-en-* is used, as can be seen from the feminine form where [e] is retained.

1.1.2.2.4. Stabilized jers in perfectives vs. imperfectives

Most of the Bulgarian verbs related to the Slovak and Polish verbs undergoing Derived Imperfective Raising, cf. (34), developed a stable vowel from a previous jer in their root. Thus they became non-alternating, i.e. the vowel of the imperfective stem is retained in the perfective stem also:

(39) Bg. iz+sə̀x+n+[ə] 'dry' pfv. 1p.sg.pres. — iz+sə̀x+va+m, ipfv.
(cf. Slk. vy+sch+nú+t´ 'dry' pfv. infin. — vy+sych+aj+ú, ipfv. 3p.pl.pres.)
Bg. na+tìk+a+m 'shove in' pfv. 1p.sg.pres. — na+tìk+va+m, ipfv.
(cf. Slk. za+tk+nú+t´ 'imprison' pfv. infin. — za+týk+aj+ú, ipfv. 3p.pl.pres.)
Bg. pri+mə̀k+n+[ə] 'drag up to' pfv. 1p.sg.pres. — pri+mə̀k+va+m, ipfv.
(cf. Rs. pri+mk+nu+t´ 'drag up to' pfv. infin. — pri+myk+a+t´, ipfv. infin.)
Bg. na+èm+[ə] 'rent, hire' pfv. 1p.sg.pres. — na+èm+a+m, ipfv. (cf. nà+em 'rent' sg., nà+em+i, pl.)
(cf. Slk. ná+jom, 'hiring' nom.sg., ná+jm+u, gen.sg. — na+jím+aj+ú, 'hire' ipfv. 3p.pl.pres.)
Bg. na+zov+[ə̀] 'name' pfv. — na+zov+àva+m, ipfv (but cf. na+zv+àni+e 'denomination')
Bg. pri+zov+[ə̀] 'call on' pfv. — pri+zov+àva+m, ipfv., cf. pri+zv+àni+e 'calling, vocation' (< pri+zv+à+n 'called on' adj.masc.sg.)
(cf. Slk. ná+zov 'name' nom.sg., ná+zv+u, gen.sg. — na+zýv+aj+ú, 'name' ipfv. 3p.pl.pres.)

In (40) we can see that the Bulgarian verbs corresponding to Slovak *n*-final verbs (Rubach 1993:152) have either stabilized their stem ghost vowel (cf. na+čèn+[ə], o+pə̀n+[ə]) or dropped it everywhere (cf. pò+čn+[ə], ò+pn+[ə]), even before the consonantal imperfectivizing suffix *-va* (cf. pò+č+va+m, ò+p+va+m).

(40) Bg. na+čèn+[ə] 'begin' pfv. 1p.sg.pres., na+čèn+a+x, aor. — na+čè+va+m, ipfv.pres.
Bg. pò+čn+[ə] 'begin' pfv. 1p.sg.pres., pò+čn+a+x, aor. — pò+č+va+m, ipfv. pres.
(cf. Slk. za+ča+t´ 'begin' infin., za+ča+l, part. — za+čn+em, 1st sg. pres.; Rs. na+čà+t´ 'begin', nà+ča+l, part. — na+čn+ù, 1p.sg.pres.)
Bg. o+žə̀n+[ə] 'reap' pfv. 1p.sg.pres., o+žə̀n+a+x, aor., o+žə̀n+va+m, ipfv. pres.
(cf. Slk. vy+ža+t´ 'mow' infin., vy+ža+l, past part. — vy+žn+em, 1p.sg. pres.; Rs. po+žà+t´ 'reap', po+žà+l, past part. — po+žn+ù, 1p.sg.pres.)
Bg. na+pə̀n+[ə] 'strain' pfv. 1p.sg.pres., na+pə̀n+a+x, aor., na+pə̀+va+m, ipfv. pres.
Bg.o+pə̀n+[ə] 'stretch, strain' pfv. 1p.sg.pres., o+pə̀n+a+x, aor., o+pə̀+va+m, ipfv.pres.
Bg. ò+pn+[ə] 'stretch, strain' pfv. 1p.sg.pres., ò+pn+a+x, aor., ò+p+va+m, ipfv.pres.
(cf. Slk. na+pä+t´ 'strain' infin., na+pä+l, past part. — na+pn+em, 1p.sg. pres.)

Note that the root-final *-n* of this subclass of verbs is deleted before the consonantal *-va* suffix, which is not the case with other Bulgarian verb subclasses:

(41)		*pfv. 1p.sg.pres.*	*ipfv. 1p.sg.pres.*
	Deleting root-final *-n*	po+tằn+[ə] 'sink'	po+tằ+va+m
		s+gằn+[ə] 'fold'	s+gằ+va+m
		na+stì̀n+[ə] 'catch cold'	na+stì̀+va+m
	Non-deleting root-final *-n*	iz+gò̀n+[ʲ+ə] 'chase off'	iz+gò̀n+va+m
		pro+dằn+[ʲ+ə] 'break down'	pro+dằn+va+m

As for the suffixal *-n-* in derived semelfactive and inchoative perfectives, it is always deleted before *-va* in derived imperfectives:

(42)		*pfv. 1p.sg.pres. (< primary ipfv.)*	*derived ipfv.*
	Deleting suffixal *-n-*	kò̀p+n+[ə] 'dig' (< kop+à̀j+[ə])	kò̀p+va+m
		mì̀g+n+[ə] 'wink' (< mì̀g+a+m)	mì̀g+va+m
		po+bjà̀g+n+[ə] 'flee' (< bjà̀g+a+m)	po+bjà̀g+va+m

1.1.2.2.5. GV alternations in Derived imperfectives vs. Perfectives

A subclass of first-conjugation verbs with no vowel in the root exhibit what seems to be a GV alternation with the introduction of the vowel [i] in their derived imperfectives:

(43)	*pfv. 1p.sg.pres.*	*pfv. 1p.sg.aor.*	*ipfv. 1p.sg.pres.*	*related noun*
	pod+pr+[ə̀] 'prop up'	pod+pr+[ʲà̀]+x	pod+pì̀r+a+m	pod+pò̀r+a 'prop'
	pro+str+[ə̀] 'hang out'	prostr+[ʲà]+x	pro+stì̀r+a+m	pro+stò̀r 'clothes line'
	s+pr+[ə̀] 'stop'	spr+[ʲà]+x	s+pì̀r+a+m	
	za+vr+[ə̀] 'thrust'	za+vr+[ʲà]+x	za+vì̀r+a+m	
	s+vr+[ə̀] 'thrust'	svr+[ʲà]+x	s+vì̀r+a+m	
	să+zr+[ə̀] 'catch sight of'	să+zr+[ʲà]+x	să+zì̀r+a+m	
	v+zr+[ə̀] se 'gaze, peer'	v+zr+[ʲà]+x se	v+zì̀r+a+m se	v+zor 'gaze'
	u+mr+[ə̀] 'die'	u+mr+[ʲà]+x	u+mì̀r+a+m	mor 'plague'
	za+mr+[ə̀] 'decline'	za+mr+[ʲà]+x	za+mì̀r+a+m	

With this subclass we have systematic syncopation in the perfective stem and systematic maintenance of the vowel [i] in the derived imperfective stem. Should we

consider that there is a ghost vowel [e] in the perfective that raises to [i] in the imperfective? Consider the related nouns that are given for some of these verb stems: they all contain [o] which is not a ghost vowel, cf. *pro+stòr* 'clothes line' masc.sg., *pro+stòr+i*, pl. We prefer to consider the roots in question as allomorphic. They exhibit three different allomorphs: /CoC/ in nouns — /CC/ in perfective verbs — /CiC/ in derived imperfectives. Allomorphy in pfv./ipfv. verb pairs is systematic with verbs that take the imperfectivizing suffixes -a-, -[ʲa]- and can be achieved by means of a variety of phonological changes. A non-exhaustive list of some of the most frequent changes is given in (44) below. Note that the latter only accompany the change of conjugational type: all derived imperfectives in Bulgarian are of the productive and regular third conjugation.

(44) [e]-Raising, i.e. stable [e] vs. [i]
na+mèr+[ʲ+ə] 'find' pfv. pres.1p.sg., na+mèr+i+x, aor.1p.sg. — na+mìr+a+m, ipfv. pres.1p.sg., na+mìr+a+x, aor. & ipft. 1p.sg.

[o]-Lowering, i.e. [o] vs. [a]
ot+vòr+[ʲ+ə] 'open' pfv. pres.1p.sg., ot+vòr+i+x, aor. 1p.sg. — ot+vàr+[ʲa]+m, ipfv. pres. 1p.sg., ot+vàr+[ʲa]+x, aor.&ipft. 1p.sg.

Stressless root[19] (pfv.) vs. Stressed root (ipfv.)
ot+kač+[ə̀] 'unhook, unhinge' pfv. pres.1p.sg., ot+kač+ì+x, aor. 1p.sg. — ot+kàč+a+m, ipfv. pres. 1p.sg., ot+kàč+a+x, aor. & ipft. 1p.sg.

t —> št, d—> žd
iz+pràt+[ʊ̯+ə] 'send' pfv. 1p.sg.pres., iz+pràt+i+x, aor. — iz+pràšt+a+m, ipfv.
ubed+[ʲ+ə̀] 'persuade' pfv. 1p.sg.pres., ubed+ì+x, aor. — ubežd+àva+m, ipfv.

One verb exhibits a GV alternation in perfective pres. tense vs. perfective aorist & imperfective:

(45) za+kăln+[ə̀] 'swear', pfv. pres.1p.sg., za+kăln+è, 3p.sg. — za+klè+x, aor. 1p.sg., za+klè, 3p.sg. — za+klè+va+m, ipfv. pres.1p.sg.

[19] Following Daniels (1976) based on Halle (1973), we assume that Bulgarian morphemes fall into two classes: lexically stressed and lexically stressless (unstressed). The latter lack inherent stress. A stressless root typically shifts the stress to the inflection, see 1.3.1.

In (45) the [e], that surfaces in the aorist (before the consonantal inflection *-x*) and in the imperfective (before the consonantal suffix *-va*), is syncopated in the present tense. Where the ghost [e] manifests itself, the root-final [n] is deleted. Such nasal deletion has been already observed with imperfectives, cf. (41). Root-final nasal deletion is observed in some aorist forms also, cf. vzèm+[ə] 'take' pfv. 1p.sg.pres., vzè+x, aor.1p.sg., cf. vzìm+a+m, ipfv. pres. 1p.sg.
In the related verb given in (46) below, the GV alternation is restricted to the present tense vs. aorist of the perfective. Here too, the surfacing of the ghost [e] vowel in the aorist combines with root-final *n*-deletion, cf. (41). As for the imperfective *pro+klìn+a+m*, it is the result of [e]-raising (44) without *n*-deletion.

(46) pro+kăln+[ə̀] 'curse', pfv. pres.1p.sg., pro+klè+x, aor. — pro+klìn+a+m, ipfv. pres.

1.1.2.2.6. Prefixes

Unlike other Slavic languages, Bulgarian does not exhibit ghost vowels in prefixes.
v-/vă- and *s-/să-* are the only prefixes to manifest themselves in two alternative surface forms. In some cases the selection of one or the other form is phonologically-conditioned. The forms *să-*, *vă-* systematically appear to avoid a sequence of two identical consonants (a geminate) word-initially:

să+stàv[ʲ+ə] 'compose', să+zìd+am 'build up', să+zr+[ə̀] 'catch sight of';
vă+vlek+[ə̀] 'drag, involve', vă+ved+[ə̀] 'lead in, introduce'

s+krìj+[ə] 'hide' pfv. (< krìj+[ə] 'hide' ipfv.), s+plàš+[ə] 'frighten' pfv. (< plàš+[ə] 'frighten' ipfv.), s+čùp+[ʲ+ə] 'break' pfv. (<čùp+[ʲ+ə] 'break' ipfv.)
v+koren+[ʲ+ə̀] 'root' pfv. (< kòren 'root'), v+tečn+[ʲ+ə̀] 'liquefy' pfv. (< tečen 'liquid')

But the selection of *să-* and *vă-* can be lexically-conditioned in other cases:

să+der+[ə̀] 'tear, wear out' să+greš+[ə̀] 'sin', să+postàv+[ʲ+ə] 'juxtapose';
vă+dvor+[ʲ+ə̀] 'intern', vă+plăt+[ʲ+ə̀] 'embody'

Geminates are admitted at the 'prefix+stem' boundary, but only in 'coda+onset' clusters:

iz+zìd+a+m 'build' (cf. zid 'wall'), raz+sìp+[ʲ+ə] 'spill' (< sìp+[ʲ+ə] 'pour'), iz+sek+[ə̀] 'cut out' (< sek+[ə̀] 'cut'), bez+zə̀b 'toothless' (cf. zăb 'tooth')

The schwa in *să-*, *vă-* does not interact with ghost vowels in GV roots, see (47). Therefore, it cannot be considered a ghost vowel itself. *să-* (*vă-*) and *s-* (*v-*) are two prefixal allomorphs, one with a stable schwa, the other with no schwa, whose selection is partly phonologically and partly lexically conditioned.

(47) Bg. să+zr+[ə̀] 'catch sight of' pfv.1p.sg.pres.— să+zìr+a+m [*s+zìr+a+m], ipfv.
Bg. să+der+[ə̀] 'tear, wear out' pfv. — să+dìr+a+m [*s+dìr+a+m], ipfv.
Rs. so+dr+àt´ 'tear', pfv. infin. — s+dir+àt´, ipfv.
Bg. raz+der+[ə̀] 'tear apart' pfv. 1p.sg.pres. — raz+dìr+a+m, ipfv.
Rs. razo+dr+àt´ 'tear apart' pfv. infin. — raz+dir+àt´, ipfv.
Bg. iz+gòn+[ʲ+ə] 'chase off' pfv. 1p.sg.pres. — iz+gòn+va+m, ipfv.
Rs. so+gn+àt´ — s+gon+jàt´ (cf. gn+àt´ 'drive out' ipfv. infin., gon+jù, 1p.sg.pres.)

1.1.2.3. Ghost vowel alternations with compounding

GV root (Root 1) + Linking vowel (-o-, -e-) + Root 2

(48) vetr+o+pokazàtel 'weather-vane' (< vjàtăr 'wind' + pokàzvam 'show')
ogn+e+dìšašt 'fire-breathing' (< ògăn 'fire' + dìšašt 'breathing')
krăgl+o+lìk 'round-faced' (< krə̆gə̆l 'round' + lìk 'face')
dobr+o+namèren 'well-intentioned' (< dobə̆r 'good' + namerènie 'intention')
păstr+o+cvèten 'multicolored' (< pə̆stə̆r 'variegated' + cvjàt 'color')
kratk+o+tràen 'short-lived' (< kràtăk 'short' + tràjen 'lasting')
dălg+o+nòs 'long-nosed' (< də̀lăg 'long' + nòs 'nose')

1.1.3. Ghost vowel root types: an overview

1.1.3.1. Ø-inflected and V-inflected ghost vowel roots

Ø-inflected GV roots may be nominal masculine, cf. (8), (9), nominal feminine, cf. (10), or adjectival, cf. (11). V-inflected GV roots are either neuter, cf. (36), or feminine, cf. (38), nominal roots.

1.1.3.2. Sonorant and obstruent GV roots. Special status of [v].

Most of the Ø-inflected roots containing ghost vowels are sonorant-final, but a limited set of them are obstruent-final. All sonorants are found as root-final in GV roots: [r], [l], [n], [m], cf. (8), (9), (10) and (11). Obstruents attested at the end of syncopating roots are [k], [t], [c], cf. (8), (9), and [g], cf. (11). In (11) root-final [v] is also found. Some of the [v]-final GV adjectival roots combine with the *-ec/-c-* GV suffix, see (71).

Note that all neuter V-inflected GV roots are sonorant-final, cf. (36). As for feminine V-inflected GV roots, they all end in the obstruent [k], cf. (38).

In Bulgarian, [v], phonetically a voiced labio-dental fricative, behaves as a sonorant in some respects. Obstruents undergo voice assimilation before another obstruent, see (49), except before [v]. Thus, [v] like the consonants of the sonorant class — [r], [l], [m] and [n] — cannot assimilate a preceding voiceless consonant (cf. Tilkov & Bojadžiev 1981:139) , see (50). Acoustically, it also resembles very much sonorants: unlike other voiced obstruents, [v] is characterized by the presence not only of a voice bar, but also of clear-cut formants on spectrograms (Tilkov 1982:82).

(49) žằt+va [t] 'harvest' svà̀t+ba [d] 'wedding'
rez+bà̀ [z] 'carving' rez+kà̀ [s] 'cut, notch'

(50) do+kò̀[s]+na 'touch' pfv.3p.sg.aor. do+kò̀[s]+va 'touch' ipfv.3p.sg.pres.
mà̀[z]+n+a 'smear' pfv.semelf.3p.sg.aor. na+mà̀[z]+va 'smear' ipfv.3p.sg.pres.
snjà̀g [sn] 'snow', znà̀me 'flag' svètằl [sv] 'light, bright', zvezdà̀ 'star'

However, unlike sonorants, but like obstruents, [v] undergoes voice assimilation from a following obstruent and word-final devoicing; see (51).

(51) rev+[ə̀] rè̀v+l´o [v] rè̀v+če [f] rè̀v [f]
'roar, cry' 'cry-baby' 'cry' dimin. 'roar, cry'

kə̀rv+av	krə̀v+n+a [v]	krəv+tà [f]	krə̀v [f]
'bloody'	'blood' adj.fem.sg.	'blood' def.	'blood'

1.1.3.3. GV roots in derivation only. Cases of allomorphy.

If a root manifests itself as a GV root in inflection, in the vast majority of cases it behaves as a GV root in derivation, as well. However, a limited number of roots that are GV roots in derivation, behave as non-GV roots with inflection:

(52) gə̀băr 'hornbeam', gə̀băr+i, pl.— gabr+à̀k 'grove of hornbeams', gabr+ò̀v 'hornbeam' adj. masc. sg.
pì̀săk 'scream' noun sg., pì̀săc+i, pl. (*k* —> *c* by 2nd Velar Pal.)— pì̀sk+a+m 'scream' verb pres.1p.sg.

1.1.4. Ghost vowels in suffixes

One nominalizing suffix (*-ec*) and several adjectivizing suffixes (*-ăk*, *-ičăk*, *-en*) exhibit GV alternations. First, examples demonstrating the suffixal alternations will be given. Then, special attention will be paid to sequences of two successive ghost vowels, i.e. to combinations of a GV root with a GV suffix.

1.1.4.1. The nominalizing suffix -ec/-c-

Nouns derived from adjectives and verbs with the nominalizing suffix *-ec*, lose the ghost vowel of the suffix before the plural inflection *-i* and, if the suffix has a lexical accent[20], they shift the stress to the inflection:

(53) xubav+è̀c 'handsome man' (< xù̀bav 'handsome'), xubav+c+ì̀, pl.
lov+è̀c 'hunter' (< lov+[ʲ+ə̀] 'hunt'), lov+c+ì̀, pl.
zvăn+è̀c 'bell' (< zvăn+[ʲ+ə̀] 'ring'), zvăn+c+ì̀, pl.

[20] The nominalizing suffix *-ec* is generally inherently stressed (see 1.3.1) except in some lexical items as for instance, skità̀l+ec 'wanderer' (< skì̀ta+m 'wander', cf. skì̀ta+l, aor.part.), skità̀l+c+i, pl., stà̀r+ec 'old man' (< star 'old'), stà̀r+c+i, pl., that rather represent the marked case.

1.1.4.2. Adjectivizing suffixes with ghost schwa

The vowel of the adjectivizing suffix *-ăk-* systematically syncopates before vocalic inflections:

> blȉz+ăk 'near' (< blȉz+o 'near' adverb) — blȉz+k+i, pl., blȉz+k+ij+[ə], masc.sg. def., blȉz+k+a, fem.
> žȁl+ăk 'pitiful' (< žal 'pity') — žȁl+k+i, pl.
> krȁtăk 'short' (cf. să+krat+[ʲ+ȁ] 'shorten') — krȁt+k+i, pl.
> mȁlăk 'small' (cf. o+mal+ȅj+[ə] 'become small') — mȁl+k+i, pl.
> rjȁdăk 'rare' (cf. raz+red+[ʲ+ȁ] 'rarify') — rȅd+k+i[21], pl.; rjȁd+k+ost 'rarity' (noun derived from the adjectival stem)
> tȁnăk 'thin' (cf. iz+tăn+[ʲ+ȁ] 'make thinner' — tȁn+k+i, pl.; tȁn+k+ost 'subtlety' (noun derived from the adjectival stem)

The diminutive and/or emotive (endearing) suffix for adjectives *-ičăk* also contains a ghost *ă*-vowel:

> xȕbav 'beautiful' — xȕbav+ičăk 'somewhat beautiful, pretty' masc. sg. — xȕbav+ičk+ij+[ə], def., xȕbav+ičk+a, fem., xȕbav+ičk+i, pl.
> dobȁr 'good' — dobr+ȉčăk, adj.dimin. masc.sg., dobr+ȉčk+a, fem.

1.1.4.3. The -EN adjectivizing suffixes

-EN is one of the most productive adjectivizing suffixes in Bulgarian. It is found not only in native adjectives, but also in borrowings where it is added to a foreign suffixal formative (*-al-*, *-ar-*, *-iv-*, *-oz-*, *-on-*, *-ik-* becoming *-ič-* by 1st Velar Pal.) : geni+ȁl+en 'of genius, great' (cf. gènij 'genius'), avtorit+ȁr+en 'authoritarian' (cf. avtoritȅt 'authority'), obekt+ȉv+en 'objective' (cf. obȅkt 'object'), luks+ȍz+en 'luxurious' (cf. lȕ uks 'luxury'), senzaci+ȍn+en 'sensational' (cf. senzȃcij+a 'sensation'), klimat+ȉč+en 'climatic' (cf. klȉmat 'climate'). In all borrowed adjectives, -EN has a GV that syncopates before a vocalic inflectional or derivational suffix:

> obekt+ȉv+en 'objective' masc.sg. — obekt+ȉv+n+ij+[ə], def., obekt+ȉv+n+a, fem., obekt+ȉv+n+o, neut., obekt+ȉv+n+i, pl.; obekt+ȉv+n+ost 'objectivity'
> luks+ȍz+en 'luxurious' masc.sg. — luks+ȍz+n+a, fem., luks+ȍz+n+i, pl.

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[21] This is an instance of the *jat´* alternation, cf. ( ) in

1.1.4.3.1. -en/-n- and -en/-en-

Historically, all adjectives derived with the -EN suffix contained a front jer (ĭ) which should have given rise to a ghost [e] everywhere. However, a number of modern Bulgarian adjectives ending in suffixal *-en* in the masc.sg. indefinite, exhibit a non-GV suffix, i.e. a suffix *-en*/*-en-* where [e] is not a ghost, but a stable vowel. Tilkov (1982:230) mentions two different reasons for the choice of a non-GV *-en*/*-en-* suffix:

1.1.4.3.2. Semantically-conditioned selection of -en/-en-

It is often the case that derived adjectives wich denote the material from which an object is made take the suffix *-en*/*-en-* with a stable [e]. For instance, there are two adjectives derived from *kal* 'mud, clay': one, meaning 'muddy', takes the GV suffix *-en*/*-n-*, while the second, meaning 'made of clay, earthen', takes the non-GV suffix *-en*/*-en-*:

kàl+en, kàl+n+i 'muddy' adj. sg., pl. kàlni ùlici 'muddy streets'
kàl+en, kàl+en+i 'clay' adj. sg., pl. kàleni panìci 'clay bowls'

Other examples of adjectives derived from nouns denoting the material of which the determinee is made include: stomàn+en (< stomàn+a 'steel') 'steel' adj. masc.sg., stomàn+en+a, fem.[22]; xartì+en (< xartìj+a 'paper') 'paper' adj. masc.sg., xartì+en+a, fem.

The relationship between the non-GV variant of the -EN suffix and the meaning 'made of such material' is far from systematic.

Some adjectives, where neither the semantic nor the phonological reason (see 1.1.4.3.3) is discernable, nevertheless take the non-GV suffix -en/-en-, e.g., bìr+en (< bìr+a 'beer') 'beer' adj. masc.sg., bìr+en+a, fem., e.g. in *bìrena čaša* 'beer-glass', *bìrena fàbrika* 'beer factory, brewery'.

(54) gives a minimal pair of adjectives differing by the presence of a ghost/stable [e] in the suffix, based on the homophony in Bulgarian between the base forms of *med* 'honey' and *med* 'copper' (the inflected forms are not homophonous, given that *med* 'honey', *med*+[ə̀], def., is a masculine noun, whereas *med* 'copper', *med+tà,* def., is a feminine noun with a Ø-inflected root).

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[22] Bulgarian allows a geminate -nn- at morpheme boundaries, e.g., cèn+en 'precious' (< cen+à 'price') masc.sg. indef., cèn+n+a, fem.

(54) mèd+en, mèd+en+i 'honey' adj. sg., pl. mèdeni pìti 'honeycombs'
mèd+en, mèd+n+i 'copper' adj. sg., pl. mèdni sȁdove 'copper vessels

The form *medni sădove* 'copper vessels' demonstrates that the meaning 'made of such material' is not systematically represented by the non-GV suffix *-en*/*-en-*.

1.1.4.3.3. Phonologically-conditioned selection of -en/-en-. CS-roots

The second reason for a root to select the non-GV suffix is purely phonological. Adjectives systematically take the suffix *-en*/*-en-*, instead of *-en-*/*-n-*, when the nominal root ends in a cluster 'consonant + sonorant' (a CS-root):

mòstr+en (< mòstr+a 'sample') 'sample' adj. masc.sg., mòstr+en+i, pl., e.g. in *mòstreni drèxi* 'sample clothes'
ìgl+en 'of a needle' adj. masc.sg. (< igl+à 'needle'), ìgl+en+o, neut., e.g. in *ìgleno uxò* 'eye of a needle'
ùstn+en 'labial' (< ùstn+a 'lip') masc.sg., ùstn+en+a, fem., e.g. in *ùstnena săglàsna* 'labial consonant'
kòtv+en (< kòtv+a 'anchor')[23] 'anchor' adj. masc. sg., kòtv+en+a, fem., e.g. in *kòtvena verìga* 'anchor chain'
vȁln+en (< vȁln+a 'wool') 'woolen' masc. sg., vȁln+en+a, fem., e.g. in *vȁlnena žilètka* 'woollen cardigan'

A root ending in a consonant cluster that is not sonorant-final (that is not a CS-root) does not necessarily select the non-GV suffix *-en*/*-en-*.
Below we give examples of nominal roots that end in a cluster 'obstruent + obstruent', (namely [zd] and [st]) or 'sonorant + obstruent' (namely [rt]). In both cases the final consonant of the cluster is not a sonorant, and the GV suffix *-en*/*-n-* is selected.

(55) zvèzd+en (< zvezd+à 'star') 'star, starry' adj. masc. sg., zvèzd+n+a, fem.
ùst+en 'oral' (< ust+à 'mouth') masc. sg., ùst+n+a, fem., e.g. in *ùstna rečˇ* 'oral speech'
spòrt+en (< sport 'sport') 'sports' adj. masc. sg., spòrt+n+a, fem.

[23] Phonologically [v] behaves like a sonorant in Bulgarian, cf. 1.1.3.2

It appears that modern Bulgarian has developped two alternative adjectivizing suffixes whose base forms (that we find in the Ø-inflected masc. sg. indefinite form of adjectives) are identical, but their V-inflected forms differ because of the presence of a stable [e] in one of the suffixes and of a ghost [e] in the other one. A given nominal root selects one or the other suffix. Even though a phonological conditioning is easily discernable in some cases (namely, with CS-roots), the selection of the GV or the non-GV variant of the -EN suffix is lexically-conditioned in the remaining cases.

While there are two alternative adjectivizing -EN suffixes, a GV and a non-GV one, there is only one *-en/-en-* suffix that derives past passive participles from verbs and it is always non-GV. Compare the past participle of *obìd*+[ʲ+**ə**] 'offend' and the adjective derived from *obìd+a* 'offence':

obìd+en (< obìd+[ʲ+**ə**] 'offend' 1p.sg.pres.) 'offended' past passive part. masc.sg., obìd+en+a, fem.
obìd+en (< obìd+a 'offence' fem.sg.) 'offending' adj. masc.sg., obìd+n+a, fem.

1.1.4.4. Allomorphy of the suffixes -stvo/-estvo and -ski/-eski/-ki

Consider the nouns in (56) and (57). Both lists give derivatives of nouns with a nominalizing suffix. According to the principle that ghost vowels are posited where real alternations between presence/absence of a vowel can be observed phonetically, one could analyze *-estv+o* and *-stv+o* as phonetic realizations of a hypothetic GV suffix *-estv+o/-stv+o* with a ghost vowel [e].

(56) càr+stv+o 'kingdom' (< càr 'king'), oxòl+stv+o 'affluence' (oxòl+en 'affluent'), stràn+stv+o 'foreign countries' (< stràn+en 'strange'), kmèt+stv+o 'town hall' (< kmèt 'mayor');

(57) čovèč+estv+o 'mankind' (<čovèk 'man'), bož+estv+ò 'godness' (< bòg 'God'); nevèž+estv+o 'ignorance' (< nevèž+a 'ignoramus' noun masc.)

However, the conditions for selecting the *-estv+o* variant are not of the same nature as for selecting the non-GV variant *-en/-en-* of the -EN suffix, cf. 1.1.4.3.3. The *-estv+o* suffix, like *-stv+o*, appears after a single consonant, not after a CS cluster. The selection seems to be conditioned by the type of stem-final consonant. In (57) the stem-final consonants are all [–anterior] coronal continuants. The [–anterior] coronal

can be non-alternating (e.g. in *nevež+a*, *nevež+estv+o*) or involved in an alternation with a velar stop by means of 1st Velar Pal. (in the remaining examples).
Therefore, it is preferable to consider *-estv+o* and *-stv+o* a case of allomorphy, where the vocalic allomorph of the nominalizing suffix with a stable [e] is selected by a preceding [-anterior] coronal.
Independent support for the above assumption is given by the fact that [e] in *-estv+o* does not interact with a ghost vowel in the preceding syllable. When *-estv+o* happens to follow the GV suffix *-ec*/*-c-*, it triggers the syncopation of the latter's ghost vowel; see (58), i.e. it produces the effect of a vocalic suffix with a stable vowel, not that of a GV suffix, cf. (64).

(58) tvor+èc 'creator', tvor+c+ì, pl. — tvòr+č+estv+o 'creation'[24], *tvòr+eč+stv+o

Likewise, *-esk+i*, see (60), must be analyzed as a vocalic allomorph with a stable [e] of the adjectivizing suffix *-sk+i*, see (59), not as realization of a hypothetic GV suffix *-esk+i*/*-sk+i* with a ghost vowel [e] The conditioning context for selecting *-esk+i* is the same as for *-estv+o*.

(59) gràd+sk+i, adj.masc.sg. (< grad 'town'), prijàtel+sk+i 'friendly' (< prijàtel 'friend'), kòn+sk+i (< kon 'horse'), sădìj+sk+i (< sădij+à 'judge')

(60) monàš+esk+i 'monastic' (< monàx 'monk'), vràž+esk+i 'inimical' (< vrag 'enemy'), prevodàč+esk+i (< prevodàč'translator, interpreter')

When *-esk+i* follows the GV suffix *-ec*/*-c-*, it triggers the syncopation of the latter's ghost vowel; see (61). This means that the vowel [e] of *-esk+i* acts as a stable, not as a GV vowel.

(61) stàr+ec 'old man', stàr+c+i, pl., stàr+č+e, vocative — stàr+č+esk+i, adj., *stàr+eš+k+i (< *stàr+eč+ski, with hypothetic cluster simplification, cf. (62))

A third allomorph of the -SKI suffix is *-k+i*; see (62). Here too, the result avoids the sequence '[–anterior] coronal + [s]'. But this is achieved by means of cluster simplification (čs = [□s] —> [ʃ] = š , or simply, šs —> š) instead of selecting an alternative vocalic allomorph as is the case in (57) and (60).

[24] In *tvòr+č+estv+o*, [c] in the suffix changes into [č] by Affricate Pal., see 1.4.2.

(62) junàš+k+i, *junač+esk+i (< junàk 'hero, fine boy'), kovàš+k+i, *kovač+esk+i (< kovàč 'blacksmith'), siromàš+k+i, * siromaš+esk+i (< siromàx 'poor man')

The allomorphs *-esk+i* (or *-k+i*) and *-estv+o*, non-suppletive allomorphs, are selected according to a phonological criterion: after a stem that ends in a [–anterior] coronal continuant. This is a case in which phonology feeds morphology. The choice between *-esk+i* and *-k+i* seems to be made entirely on lexical grounds.

1.1.4.5. GV suffix after a j-root. The root *zaek*, *zajc+i*.

Consider (63). What seems to be an alternation [e]/[j] is rather the result of root-final [j]-deletion. Root-final [j] is deleted before [e], a front vowel (cf. Scatton 1983:§2.224), i.e. when the ghost vowel of the suffix is present, and it surfaces only when the ghost vowel [e] of the suffix is syncopated with inflection or derivation.

(63) bò+en 'fighting' adj.masc.sg (< boj 'fight, battle'), bòj+n+a, fem., bòj+n+o, neut., bòj+n+i, pl., bòj+n+ija, def.; bo+èc 'soldier' masc.sg., bo+èc+[ə], def. — boj+c+ì, pl.
trò+en 'triple' masc.sg. (cf. tròj+ka 'triad'), tròj+n+a, fem.
kità+ec 'Chinese' sg. (< Kitàj 'China'), kitàj+c+i, pl., kitàj+k+a 'female Chinese', kitàj+sk+i 'Chinese' adj.masc.sg.
belgì+ec 'Belgian' sg. (< Bèlgij+a 'Belgium'), belgìj+c+i, pl., belgìj+k+a 'female Belgian', belgìj+sk+i 'Belgian' adj.masc.sg.

[j]-deletion before a front vowel is a common process in Bulgarian:

stroj+[ə] 'build' ipfv. 1p.sg.pres. (< stroj 'order'), stro+ì+š, 2p.sg.; stro+ì+tel 'builder', stro+èž 'building'

In the GV noun root *zaèk* 'rabbit' there seems to be a stem-internal [j] that does not manifest itself in the Ø-inflected form, where a front vowel [e] follows. But it happens that the latter is a ghost vowel. In the plural *zajc+i*, and in the derived adjective *zajč+i*, where the ghost [e] syncopates before a vocalic suffix, the underlying [j] emerges: zaek < /zàj<e>k/, zàjc+i < /zàj<e>k+i/, zàjč+i < /zàj<e>k+i/[25], where <e> stands for a ghost vowel [e].

[25] In the plural 2nd Velar Pal. applies giving [c], while the [č] in the adjective comes from 1st Velar Pal., see 0

1.1.5. The general pattern for GV syncopation

From the survey of GV alternations with inflection (cf. 1.1.2.1), derivation (cf. 1.1.2.2) and compounding (cf. 1.1.2.3) given above, it is clear that a GV root syncopates its ghost vowel before a vocalic morpheme (inflectional or derivational suffix or linking vowel), while it retains the ghost vowel before a consonantal suffix (inflectional or derivation) and at the word-end:

$$\text{GV} \longrightarrow \begin{cases} \text{Ø} / \_\_ \; C_0 + V \\ [V] \; / \; \_\_ \; C_0 \begin{Bmatrix} +C \\ \# \end{Bmatrix} \end{cases}$$

However, there are deviations from the above general pattern. In some vocalic contexts the GV alternation seems to be suspended. We consider this problem next.

1.1.6. Suspensions of ghost vowel alternations

1.1.6.1. Morphophonologically-conditioned suspensions

The suspension of t vowel alternations relative to a specific morphological category is found exclusively in the declension of masculine nouns (Ø-inflected GV roots). As has been seen in 0 (iii-v), the following inflectional affixes, even though vocalic, suspend the syncopation of a ghost vowel in the preceding syllable:

- the postpositive masc.sg. definite article (objective -[ə] and non-objective -*ăt*), cf. (17).
- the count plural affix -*a*, cf.(19)
- the vocative inflection -*o* for masc. sg. nouns, cf. (15)

Unsurprisingly for a morphophonological process (Dressler 1985:85), in all three cases categorical, or random, lexical exceptions to suspension are found; see (18) for the def. article, (20) for the count pl. and (16) for the -*o*-vocative. These suspensions of GV syncopation must be considered to be part of the respective morphological rule: they cannot be accounted for by reference to the phonological structure.

1.1.6.2. Phonologically-conditioned suspensions

1.1.6.2.1. GV roots that select the GV suffix -en/-n-: suspended syncopation

What happens if the syllable immediately following a ghost vowel itself contains a ghost vowel? In the great majority of cases, the syncopation of the first ghost vowel is suspended. This happens in the case of adjectives derived with the GV suffix *-en*/*-n-*, when the nominal root with which it combines is itself a GV morpheme. This suspension of the GV alternation is characteristic of V-inflected feminine GV roots (see 0) and one neuter GV root (37) that manifest their root GV only in the context of a following GV *-en*/*-n-* suffix.

The suspension is systematic also with Ø-inflected GV roots. (64) illustrates some -EN adjectives that contain two successive syllables with ghost vowels. In the masc.sg., the root GV does not syncopate before the phonetically realized GV of the suffix.

(64) ǎgăl+en [*ăgl+en] 'corner' adj. masc.sg.(< ǎgăl 'corner' noun masc.sg., ǎgl+i, pl.), ǎgăl+n+a, fem., ǎgăl+n+o, neut., cf. also in compounds: prav+o+ǎgăl+en 'rectangular' masc.sg., pravo+ǎgăl+n+a, fem., tri+ǎgăl+en 'triangular' masc.sg., tri+ǎgăl+n+a, fem.
fi̇ltăr+en [*filtr+en] 'filter' adj. masc.sg. (< fi̇ltăr 'filter' noun masc.sg., fi̇ltr+i, pl.), fi̇ltăr+n+a, fem.
ri̇tăm+en [*ritm+en] 'rhythmic' masc.sg. (< ri̇tăm 'rhythm', ri̇tm+i, pl.), ri̇tăm+n+a, fem.
là̀kăt+en [*lakt+en] 'elbow' adj. masc.sg. (< là̀kăt 'elbow', là̀kt+i, pl.), là̀kăt+n+a, fem.
nò̀kăt+en [*nokt+en] 'nail' adj. masc.sg. (< nò̀kăt 'nail', nò̀kt+i, pl.), nò̀kăt+n+a, fem.
pè̀sen+en [*pesn+en] 'song' adj. masc.sg. (< pè̀sen 'song' noun fem.sg., pè̀sn+i, pl.), pè̀sen+n+a, fem.
kotè̀l+en [*kotl+en] 'boiler' adj. masc.sg. (< kotè̀l 'cauldron' sg., kotl+i̇̀, pl.), kotè̀l+n+o 'steamshop' neut. substantivized adj.
fà̀kel+en [*fakl+en] 'torch' adj. masc.sg. (< fà̀kel 'torch', fakl+i, pl.), fà̀kel+n+a, fem.

Iin this environment, in our view, the suspension of the GV syncopation is regularly phonologically-conditioned. Alternatively, th non-suspension (i.e. the occurrence) of

syncopation in a limited set of lexical items is the marked case. The cases of non-suspension are those where the non-GV suffix *-en*/*-en-* is selected.

1.1.6.2.2. GV roots that select the -en/-en- suffix: regular syncopation

Ø-inflected nominal roots that select the *-en*/*-en-* suffix are listed below:

(65) ògăn 'fire' — ògn+en [*ògăn+en], 'fire' adj. masc.sg., ògn+en+a, fem.
pǎkăl 'hell' — pǎkl+en [*pǎkăl+en], 'hellish' masc.sg., pǎkl+en+a, fem.
vìxăr 'windwhirl' — vìxr+en [*vìxăr+en], adj. masc.sg., vìxr+en+a, fem.
mìsăl 'thought' — mìsl+en [*mìsăl+en], adj. masc.sg., mìsl+en+a, fem.
neprijàzăn 'enmity' — neprijàzn+en [*neprijàzăn+en], adj. masc.sg., neprijàzn+en+a, fem.

Two alternative -EN adjectives are derived from *vjàtăr* 'wind', one with the GV suffix *-en*/*-n-*, the other with the non-GV suffix *-en*/*-en-*:

(66) vjàtăr 'wind' — vjàtăr+en 'wind' adj., vjàtăr+n+a, fem.
— vètr+en[26] 'wind' adj., vètr+en+a, fem.

All neuter GV roots, cf. (36), except *srebr+ò* 'silver', cf. (37), select the non-GV adjectivizing suffix *-en*/*-en-*.

(67) stăkl+ò 'glass' — stǎkl+en [*stăkăl+en], 'glass' adj. masc.sg., stǎkl+en+a, fem.
rebr+ò 'rib' — rèbr+en [*rebăr+en], 'rib' adj. masc.sg., rèbr+en+a, fem.
masl+ò 'butter' — màsl+en [*masăl+en], 'butter' adj. masc.sg., màsl+en++a, fem.
pism+ò 'letter' — pìsm+en [*pisăm+en], 'written' adj. masc.sg., pìsm+en+a, fem.

All V-inflected GV roots in (67), as well as the Ø-inflected roots in (65), end in a 'consonant + sonorant' cluster when their ghost vowel (a schwa in all cases) is syncopated. Therefore, they could be interpreted as CS-roots like those in 1.1.4.3.3., if we assume that the schwa which appears in their derivatives before a consonantal

[26] Here [a] in the stem changes into [e] before a front vowel in the next syllable and [v^{j}] depalatalizes before a front vowel.

suffix, e.g. the diminutives in (36), and in Ø-inflected forms like those in (65) is epenthetic (not underlying).

1.1.6.3. GV roots in combination with the GV suffix -ec/-c-: two alternative patterns

In derivative,s there are also cases of non-suspension of the ghost vowel alternations: in derived nouns where the GV suffix *-ec*/*-c* is added to a GV root.
Some adjectival roots ending in a CS cluster (e.g. -dl, -gl, -br, -dr, -tr, -tv) exhibit a ghost vowel [**ə**] in their root:

(68) bѐgăl 'cursory' masc.sg., bѐgl+ij+[**ə**], def.
mѝdăr 'wise' masc.sg., mѝdr+a, fem.
mѝrtăv 'dead' masc. sg., mѝrtv+i, pl.

When the suffix -EC with a ghost vowel (see 1.1.4.1) is added to the above adjectival roots, contrary to what happens with the -EN derivatives in (64), the root GV syncopation in the masc.sg. is not suspended (69).

(69) begl+ѐc 'fugitive' [*begăl+ѐc]
mădr+ѐc 'wise man' [*mădăr+ѐc]
mărtv+ѐc 'deceased' [*mărtăv+ѐc]

These ghost vowels that are not sensitive to the suspending effect of a following ghost are all [**ə**]. Hence, their phonetic content is predictable: it coincides with the default vowel in the Bulgarian phonemic system. Moreover, these [**ə**]-ghosts appear always in roots that can be interpreted as ending in a CS cluster (if we accept that [v] is sonorant in Bulgarian, see 1.1.3.2). Insofar as they appear systematically in word-final position or before a consonant, see (70), they could be analyzed as triggered by epenthesis. Thus, not present in the lexical representation of the root morpheme, they avoid the suspending effect of a following ghost.

(70)

bѐgăl 'cursory' masc.sg.	begăl+c+ѝ 'fugitive' pl.
mѝrtăv [mѐrtəf] 'dead' masc.sg.	mărtăv+c+ѝ [mərtəfcѝ] 'deceased' pl.
mѝdăr 'wise' masc.sg.	mădăr+c+ѝ 'wise men' pl.

There are two alternative plural forms for nouns derived with the suffix -EC (*-ec*/*-c-* or *-ec*/*-ec-*) from CS-roots (Stojanov 1983: 50 & 107, notes):

• either the GV of the suffix is regularly deleted (see 1.1.4.1) before the vocalic plural desinence *-i* and a schwa manifests itself to split up the CS cluster;
• or the ghost vowel of the suffix is retained and there is no schwa insertion.

Both plurals, see (71), avoid the sequence 'consonant + sonorant + consonant' that would result if neither repair strategy were applied.

(71)

mădr+èc 'wise man'	mădăr+c+ì & mădr+ec+ì, pl.
begl+èc 'fugitive'	begăl+c+ì & begl+ec+ì, pl.
podl+èc 'scoundrel'	podăl+c+ì & podl+ec+ì, pl.
xrabr+èc 'brave man'	xrabăr+c+ì & xrabr+ec+ì, pl.
xitr+èc 'sly person'	xităr+c+ì & xitr+ec+ì, pl.
mărtv+èc 'deceased'	mărtăv+c+ì & martv+ec+ì, pl.

According to Stojanov (1983:107, note), the forms showing the first alternative are to be preferred. But it seems that usage favours one or the other form on the basis of idiosyncratic properties of each noun. The orthographic dictionary (Georgieva 1983) reflects this differentiation: it cites only one form for some of the plurals: *mărtăvcì*; *podlecì, xitrecì, xrabrecì*. The dictionary gives both variants for *begălcì*/*beglecì* and *mădrecì*/*mădărcì*[27]. However, at least two of the three nouns that prefer the plural form with suffixal GV syncopation (i.e. with syncope of [e]) and schwa insertion, namely *begălcì* and *mărtăvcì*, seem to be plural-dominant, which is not the case for the nouns that favour the other form (with no suffixal syncopation and no schwa insertion).

The alternative plurals can be attributed to the existence of two alternative lexical representations for nouns composed of CS-root and -EC suffix, like those in (71): the first with a GV *-ec*/*-c-* suffix and the second with a non-GV *-ec*/*-ec-* suffix, cf. 1.6.4.

The noun *nìkakv+ec* 'good-for-nothing' can be added to those listed by Stojanov. The orthographic dictionary gives only one plural for this noun – with a deleted [e] in the suffix and an epenthetic [**ə**] in the root: *nìkakăv+c+i*.

[27] The orthographic dictionary (Georgieva 1983) gives two entries for *mădrèc* and the form *mădărcì* is listed only with the second entry, most probably the one meaning 'wisdom-tooth', for only the latter admits the count plural. Being a personal noun, *mădrèc* 'wise man' has no count plural.

1.2. Data on liquid-schwa metathesis

Metathesis in Bulgarian involves the alternation between 'liquid + schwa' (Lă) and 'schwa + liquid' (ăL) sequences in inflection and derivation.
As far as metathesis is concerned, two problems, parallel to those for GV syncopation, are to be distinguished:

(72) The distribution of roots that contain a 'liquid/schwa' sequence ({L; ă}), i.e. 'liquid + schwa' (Lă) or 'schwa + liquid' (ăL), in two paradigms: the non-metathesizing paradigm vs. the metathesizing paradigm.

(73) The distribution of metathesized vs. non-metathesized allomorphs within the metathesizing paradigm.

The morphemes in (74) belong to the metathesizing paradigm, while those in (75) never undergo metathesis, even in contexts where a metathesizing morpheme would metathesize.
Our claim is that (72) is lexically-conditioned, while (73) is phonologically-conditioned, except in the case of imperfectivization of prefixed verbs where a morphophonological suspending effect is observed (1.2.7.2).

(74)	grə̀k 'Greek'	gə̀rk+[ə], def., gə̀rc+i, pl.
	grə̀m 'thunder' noun sg.	gărm+[ʲ+ə̀] 'thunder' verb
	mlə̀k 'shut up' interj.	za+mălč+[ə̀] 'shut up' pfv. pres.1p. sg.
(75)	strə̀k 'morsel'	strə̀k+[ə], def., strə̀k+ove, pl.
	krə̀g 'circle' noun sg.	krăž+[ə̀] 'circle' verb
	plə̀t 'flesh'	vă+plăt+[ʲ+ə̀] 'incarnate'

1.2.1. Ø-inflected roots with a sequence 'liquid/schwa'

In monosyllabic forms with only one consonant following the 'liquid/schwa' sequence both orders occur: *Lă* and *ăL*. However, roots that select the *ăL* sequence when found as Ø-inflected, generally belong to the non-metathesizing paradigm, see (76). Only two of them exhibit metathesis, and in this case it is restricted to derivation; see (77).

(76) smə̀rt 'death' — smărt+tà, def., smə̀rt+n+i 'mortal' pl., smə̀rt+n+ost 'mortality'
xə̀lm 'hill' — x ə̀lm+če, dimin.

(77) dȁlg 'debt'—dȁlg+ove, pl.
dȁlg — dlȁž+en 'obliged' masc. sg., dlȁž+n+a, fem. vs. dȁlž+[ə̀] 'owe' verb ipfv.
tȁrg 'auction'—tȁrg+ove, pl.
tȁrg — tȁrž+en 'auction' adj. masc. sg. vs. trȁž+n+a, fem.

Roots that select the order *Lă* may belong either to the metathesizing or the non-metathesizing paradigm. A limited number of them bave differently with inflection and derivation: metathesis applies only in derivation or only in compounding, but not in inflection:

(78) prȁč 'male goat'—prȁč+ove, pl.
prȁč — părč+òtina 'goatish smell'
trȁn 'thorn'—trȁn+i, pl., trȁn+est 'thorny'
trȁn — tărn+o+kòp 'pickaxe'

But as far as regular metathesizing roots are concerned (i.e., roots that systematically metathesize with both inflection and derivation), the sequence exhibited by the Ø-inflected root is always *Lă*, see (80) and (82) below.

1.2.2. Domain of metathesis

Metathetic alternations like those in (74) occur only within the phonological word. The conditioning context for metathesis of 'liquid/schwa' never goes beyond the word boundaries. We can test this by adding the clitic form *e* 'be' 3p.sg.pres. of the copula/auxiliary to the alternating forms listed in (74):

(79) Grȁk e 'He is Greek', *Gȁrk e
Grȁm e, kakvò da e? 'It's a thunder, what could it be?' *Gȁrm e, …
'Mlȁk' e kàzal, kakvò drùgo? 'He has said "shut up", what else?',
*Mȁlk e kàzal …

As can be seen from (79), the vowel that metathesizes with [r] or [l] in (74) before a vocalic inflection (-[ə] or *-i*), does not metathesize before the vocalic clitic form *e*.

1.2.3. Metathesis with inflection

With inflection only the rhotic [r] is involved in metathesis with [ə]. Metathesis of the lateral [l] is limited to derivation.

1.2.3.1. Metathetic root + Vocalic inflection

1.2.3.1.1. In noun declension

Vocalic inflectional suffixes can trigger metathesis only in Ø-inflected roots.
Here are some masculine noun metathetic roots:

(80) vrə̀x 'top' — vărx+ovè, pl., vărx+[ə̀], vărx+ə̀t, def., və̀rx+a, count pl., və̀rx+o, vocative (with personification)
grə̀b 'back' — gărbovè, pl., gărb+[ə̀], gărb+ə̀t, def., gə̀rb+a, count pl.
grə̀k 'Greek' — gə̀rc+i, pl. (with k —> c by 2nd Velar Pal.), gə̀rk+[ə], gə̀rk+ăt , def., gə̀rk+o, voc.
grə̀m 'thunder' — gə̀rm+ove, pl., gărm+[ə̀], gărm+ăt, def., gə̀rm+a, count pl.

In (80) metathesis applies without exception before all vocalic inflections in masc. noun declension: the plural inflections *-ove*, *-i*, the def. sg. postpositive article *-a* [ə], *-ăt* [ət], the count plural inflection *-a* [a], the vocative affix *-o*.
The masculine noun root *grə̀m* 'thunder' exhibits two sets of forms for the plural and the count plural: with and without metathesis (81).

(81) gə̀rm+ove & grə̀m+ove[28], pl., dvà gə̀rm+a & dvà grə̀m+a[29] 'two thunders'.

There are also some feminine noun Ø-inflected roots that metathesize before the plural inflection *-i* (82) and in derivation (90).

(82) vrə̀v 'twine' — və̀rv+i, pl.
grə̀d 'bosom' — gărd+ì, pl.
krə̀v 'blood' — kə̀rv+i, pl.
skrə̀b 'sorrow' — skə̀rb+i, pl.

[28] The alternative forms for the normal plural are found both in the orthographic dictionary (Georgieva & Stankov 1983) and in the orthoepic dictionary (Pašov & Părvev 1975).

[29] Two alternative count plurals are given only in the orthoepic dictionary (Pašov & Părvev 1975).

1.2.3.1.2. In adjectival declension

The ordinal numeral *prȃv* 'first' can be added to the list of metathetic roots (83). It metathesizes before all vocalic inflections that characterize adjectival (and ordinal numeral) declension in Bulgarian: the fem. and neut. sg. endings *-a*, *-o*; the postpositive masc.sg. def. article *-ija(t)*, the plural inflection *-i*.

(83) prȃv 'first' masc.sg.— pȃrv+a, fem., pȃrv+o, neut., pȃrv+ija(t), masc.sg. def., pȃrv+i, pl.

1.2.3.1.3. In verb conjugation

One verb root exhibits metathesis between the imperative and the indicative (84). Prefixed forms of the verb are also involved in the alternation.

(84) drȃž 'hold' imper. sg. — dărž+[ə̀], 1p.sg. pres.
po+drȃž 'hold for a while' imper.sg. — po+dărž+[ə̀], 1p.sg.pres.
za+drȃž 'withhold' imper. sg.— za+dărž+[ə̀], 1p.sg.pres.

1.2.3.2. Metathetic root + Consonantal inflection

Before a consonantal inflection, a metathetic root exhibits no metathesis, in contrast to vocalic inflections.

1.2.3.2.1. In noun declension

In noun declension, the only consonantal inflection is the fem.sg. definite article -tà. Examples are given in (85), where we first list the definite forms for the nouns in (82) and then we add two uncountable feminine nouns: they have no plural, but exhibit metathesis with derivation.

(85) vrăv+tà, grăd+tà, krăv+tà, skrăb+tà
glȃč 'clamor' (cf. gălč+[ə̀] 'scold') — glăč+tà, def.
strȃv 'bait' (cf. na+stărv+èn 'fierce') — străv+tà, def.

1.2.3.2.2. In verb conjugation

In conjugation, there is only one instance of metathetic root adjacent to consonantal suffix: when the irregular truncated inperative of dărž+[ə̀] 'hold' takes the pl. inflection -*te*:

(86) drə̀ž 'hold' imper. sg. — drə̀ž+te 'hold' imper. pl.

Otherwise, metathesis is not to be observed with conjugation. This has been noted by Koorbanoff: "Given a certain configuration in one form of a verb, be it CLăCC (most verbs in -na), CăLCV (the most common pattern), CăLCC (frequently in derived imperfectives) or CLăCV (limited), that pattern is maintained throughout the paradigm, including all tenses, participles and other deverbative formations." (Koorbanoff 1992: p.27-8) The explanation is the same as for the absence of GV alternations with conjugation (1.1.2.1.3.2). Below we demonstrate how a metathetic root — *grə̀m* 'thunder', *gărm*+[ʲ+ə̀], 'shoot', see (87) — systematically happens to find itself in pre-consonantal position in conjugation with the verbalizing suffixes -*n*- (88) and -*va*- (89).

(87) grə̀m 'thunder' — gărm+[ʲ+ə̀], same conjugational class as čə̀st+[ʲ+ə], gnezd+[ʲ+ə̀], see (24)

(88) grə̀m+n+[ə] pfv. (< grə̀m 'thunder')

	present tense	*aorist*	*imperfect*	*imperative*
1p.sg.	grə̀m+n+[ə]	grə̀m+n+a+x	grə̀m+n+e+x	
2p.sg.	grə̀m+n+e+š	grə̀m+n+a	grə̀m+n+e+še	grăm+n+ì
3p.sg.	grə̀m+n+e	grə̀m+n+a	grə̀m+n+e+še	
1p.pl.	grə̀m+n+e+m	grə̀m+n+a+xme	grə̀m+n+e+xme	
2p.pl.	grə̀m+n+e+te	grə̀m+n+a+xte	grə̀m+n+e+xte	grăm+n+è+te
3p.pl.	grə̀m+n+[ə]t	grə̀m+n+a+xa	grə̀m+n+e+xa	

grə̀m+n+a+l, aor.part. masc.sg. grə̀m+n+e+l, ipft.part. grə̀m+n+a+t, passive part.

(89) grȁm+va+m, ipfv. (< grȁm 'thunder')

grȁm+va+m, pres. 1p.sg.	grȁm+va+x, aor. & ipft. 1p.sg.
grȁm+va+š, 2p.sg.	grăm+và, aor. 2&3p.sg.
grȁm+va, 3p.sg.	grȁm+va+še, ipft. 2&3p.sg
grȁm+va+me, 1p.pl.	grȁm+va+xme, aor. & ipft. 1p.pl.
grȁm+va+te, 2p.pl.	grȁm+va+xte, aor. & ipft. 2p.pl.
grȁm+va+t, 3p.pl.	grȁm+va+xa, aor. & ipft. 3p.pl.
grȁm+va+j, imper.sg.	grȁm+va+j+te, imper. pl.
grȁm+va+l, aor. & ipft. part.	grȁm+va+št, pres.part.
grȁm+va+jki, gerund	grȁm+va+ne, verbal noun

1.2.4. Metathesis with derivation

1.2.4.1. Ø-inflected metathetic root + Vocalic derivational suffix

First, consider derivatives from roots containing '[r]/schwa' sequences already presented in (80), (82), (83) and (84):

(90) vrȁx 'top' — vărx+òven 'supreme' adj. masc. sg.
grȁb 'back' — gȁrb+av 'humpbacked', gȁrb+ica 'hump', za+gȁrb+[ʲ+**ə**] 'turn one's back to' pfv., iz+gȁrb+en 'humped'
grȁk 'Greek' noun masc. — gărk+ìn[ʲ+a] 'female Greek', gărč+èj+[**ə**] se 'follow Greek fashions'
grȁm 'thunder' — gărm+èž'shot', gărm+[ʲ+**ə̀**] 'shoot, thunder' verb ipfv.
skrȁb 'sorrow' noun — skărb+[ʲ+**ə**] 'sorrow' verb ipfv.
strȁv 'bait' — na+stărv+[ʲ+**ə̀**] 'enrage' verb pfv.
prȁv 'first' — părv+ìčen 'primary', părv+enèc 'winner'
drȁž 'hold' imper. sg. — dărž+ànie 'behaviour', dărž+elìv 'hardy, enduring'

One exceptional form is *grăm+ovìt* 'thunderous' with no metathesis, but its root exhibits variation also in inflection; see (81). The derivative seems to take the available non-metathesizing allomorph of the root.

All roots that exhibit metathesis before vocalic inflections do so before vocalic derivational suffixes.

With derivation, also a number of roots containing a sequence "[l]/schwa" are involved in metathesis. They exhibit *lă* word-finally and *ăl* before a vocalic suffix:

glȁč 'clamour' — gălč+[ə̀] 'scold' ipfv. 1p.sg.pres.
mlȁk 'shut up' interj. — mălč+[ə̀] 'be silent' ipfv. 1p.sg.pres., mălč+à+ni+e 'silence', mălč+a+lìv 'taciturn' masc. sg.

Interjections derived by truncation from verbs meaning a sound exhibit metathesis. In the interjection, where the root is at the word-end, the sequence is realized without exception as *Lă*:

(91) xȁlc+a+m 'hiccup' ipfv. 1p.sg.pres. — xlȁc 'hiccup' interj.
skȁrc+a+m 'squeak' ipfv. 1p.sg.pres. — skrȁc, interj.
kȁlc+a+m 'mince' ipfv. 1p.sg.pres. — klȁc, interj.
mlȁk+n+[ə] 'shut up' pfv. 1p.sg.pres. — mlȁk, interj. (old imper.sg., but synchronically it has no imper.pl. counterpart; cf. mlăk+n+ì, imper. sg., mlăk+n+è+te, pl.)
prȁc+n+[ə] 'fart' pfv. semelfactive 1p.sg.pres. — prȁc, interj.

1.2.4.2. Ø-inflected metathetic root + Consonantal derivational suffix

(92) vrȁx 'top' — vrȁx+če, dimin.
krȁv 'blood' — krăv+čìc+a, dimin.
vrȁv 'twine' — vrăv+čìc+a, dimin.
grȁb 'back' — grăb+nȁk 'backbone'
grȁk 'Greek' — grȁc+k+i 'Greek' adj.
grȁm 'thunder' — grȁm+n+[ə] 'shoot, thunder' pfv.
glȁč 'clamour' — glȁč+k+a 'clamor'
drȁž 'hold' imper. sg. — drȁž+k+a 'handle', iz+drăž+lìv 'tenacious'
mlȁk 'shut up' interj. — mlȁk+n+[ə] 'shut up' pfv., mlȁk+va+m 'shut up' ipfv.

Some lexical exceptions to metathesis before a consonantal derivational suffix are probably due to Russian influence in borrowings (93).

(93) po+vȁrx+nost 'surface' (cf. Rs. povèrxnost´), po+vărx+nin+à 'surface, area'— vrȁx 'top'
o+skărb+lènie 'insult' (cf. Rs. oskorblènie) — skrȁb 'sorrow'
bez+mȁlv+n+o 'speechlessly' (cf. Rs. bezmòlvno) — mălv+à 'rumour',
ne+do+mlȁv+k+a 'understatement'

Another exception, which cannot be attributed to Russian influence, is:

pod+smӑ̀rk+na 'sniffle' pfv. — smrӑ̀k+na 'sniff' pfv.

1.2.4.3. V-inflected metathetic root + Consonantal derivational suffix

For the most part, these are cases of diminutives derived by means of the suffix *-c+e* from *o*-inflected neuter noun roots:

(94) kălb+ò 'globe', kălb+à, pl. — klăb+c+è 'globe' dimin., klăb+c+à, pl.
zărn+ò 'grain', zărn+à, pl. — zrăn+c+è 'grain' dimin., zrăn+c+à, pl.
dărv+ò 'wood', dărv+à, pl. — drăv+c+è 'a small piece of wood', drăv+c+à, pl.

Also some feminine V-inflected nominal roots metathesize before consonantal derivational suffixes:

(95) vărb+à 'willow', vărb+ì, pl. — Vrӑ̀b+nica 'Palm Sunday'
sărn+à 'doe', sărn+ì — srăn+dàk 'deer'

sălz+à has a non-metathesizing root like *jàbălk+a* (96). The *-en*/*-n-* adjective of *sălz+à* exhibits metathesis, whereas that of *jàbălk+a* is without alternation:

(96) sălz+à 'tear' — sălz+lìv 'tearful'
jàbălk+a 'apple' — jàbălč+nik 'apple pie'
sӑ̀lz+en 'lachrymal' masc.sg. — slӑ̀z+n+a, fem.
jàbălč+en 'apple' adj. masc.sg. — jàbălč+n+a, fem.

1.2.4.4. Metathesis in V-suffixed derivatives vs. C-suffixed derivatives

Some metathesizing roots do not exist as bare stems and their alternation can be observed only in derivatives with vocalic vs. consonantal suffixes:

(97) sӑ̀rb+in 'Serb', sӑ̀rb+i, pl. — srăb+kìn[ʲ+a] 'female Serb', srӑ̀b+sk+i 'Serb' adj. masc.sg.
pӑ̀rž+[ə] 'fry' ipfv. 1p.sg. pres. — prӑ̀ž+ka 'crackling'
pӑ̀ln+[ʲ+ə] 'fill' ipfv. 1 p.sg. pres. — plӑ̀n+k+a 'filling' noun fem.sg.
sărd+ìt 'grumpy' — srӑ̀d+l´o 'grumbler'

The pattern of (97) is productive in derivation of semelfactive and inchoative *-n-* suffixed perfectives (and the respective secondary *-va-*suffixed imperfectives) from third-conjugation *-a-*suffixed verbs (98), but also from first- and second-conjugation primary imperfectives (99).

(98) mȁrd+a+m 'move' ipfv.. — mrȁd+n+[ə], pfv. semelfactive, mrȁd+va+m 'move' sec. ipfv.
gȁlt+a+m 'swallow' ipfv. — glȁt+n+[ə], pfv. semelfactive, glȁt+va+m, sec. ipfv., glȁt+k+a 'gulp' noun fem.sg.
bȁrk+a+m 'thrust one's hand' ipfv. — brȁk+n+[ə], pfv. semelfactive, brȁk+va+m, sec.ipfv.
na+xȁlt+a+m 'burst in' pfv. — xlȁt+n+[ə] 'sag' pfv., xlȁt+va+m, ipfv.

(99) palz+[ʲ+ȁ] 'creep' ipfv.— plȁz+n+[ə], pfv., plȁz+va+m, sec. ipfv.
vărt+[ʲ+ȁ] 'turn' ipfv. — vrȁt+n+[ə], pfv. semelfactive, vrȁt+va+m, sec. ipfv.
kălv+[ȁ] 'peck' ipfv, kălv+ȁč 'woodpecker' — klȁv+n+[ə], pfv. semelfactive, klȁv+va+m, sec. ipfv.[30]

Some verb roots exhibiting an alternation between *-n-* and *-št-* in pfv. vs. ipfv., metathesize *ăL* to *Lă* before *-št-* with concomitant deletion of [n].

(100) vȁrn+[ə] 'give back' pfv. — vrȁšt+a+m, ipfv.
obȁrn+[ə] 'reverse' pfv. — obrȁšt+a+m, ipfv.
pre+gȁrn+[ə] 'hug' pfv. — pre+grȁšt+a+m, ipfv.
po+gȁln+[ə] 'engulf' pfv. — po+glȁšt+a+m, ipfv.

1.2.5. Metathesis with compounding

1.2.5.1. Metathetic root (Root 1) + Linking vowel + Root 2

Besides some regular cases, where metathesis applies before the linking vowel *-o-* (101), there are numerous exceptions in compounds whose first root happens to be metathetic (102).

[30] The geminate in the secondary imperfective *klȁvvam* results from *n*-deletion, see (42), which simplifies the consonantal cluster: vnv > vv.

(101) părv+o+stèpen+en 'first-rate' (< prȁv 'first', pȁrv+a, fem. & stèpen 'grade, rate'), dărv+o+dèl+ec 'carpenter' (< dărv+ò 'wood', drăv+cè, dimin. & dèl+o 'act')

(102) grăm+o+glàs+en 'loud-voiced', grăm+o+otvòd 'lightning-rod'; krăv+o+darìtel 'blood donor', krăv+o+žàden 'bloodthirsty', grăd+o+bòlen 'consumptive' (< grȁd 'bosom' & bòl+en 'ill')

1.2.5.2. Root 1 + Linking vowel + Metathetic root (Root 2)

Compounds of this type are mostly adjectives or nouns derived from adjectives where the second root is nominal. In some cases metathesis applies regularly:

(103) ostr+o+vrȁx 'pointed, peaked' (< òstăr 'pointed' & vrȁx 'top') — ostr+o+vȁrx+i, pl.
dv+u+grȁb 'two-humped' (dvà 'two' & grȁb 'back') — dv+u+gȁrb+a, fem.

However, exceptions to metathesis in compounds before a vocalic suffix are frequent:

(104) tesn+o+grȁd 'narrow-minded' (< tèsen 'narrow' & grȁd 'bosom') masc.sg., tesn+o+grȁd+a, fem.
păln+o+krȁv+ie 'plethora' (< pȁlen 'full' & krȁv 'blood')
xladn+o+krȁv+ie 'coolness' (< xlàden 'cool' & krȁv, 'blood')
tesn+o+grȁd+ie 'narrow-mindedness'

1.2.6. The general pattern for metathesis

From our survey of metathetic alternations with inflection (cf. 1.2.3), derivation (cf. 1.2.4) and compounding (cf. 1.2.5), it results that metathesizing roots exhibit the sequence *ăL* before a vocalic (inflectional or derivational) suffix, whereas, when the same roots are found before a consonantal (inflectional or derivational) suffix or at the word-end (if Ø-inflected), the sequence is turned to *Lă*:

$$\{ L ; ă \} \longrightarrow \begin{cases} ăL \;/\; \underline{\quad} \; C + V \\ Lă \;/\; \underline{\quad} \; C \begin{Bmatrix} + C \\ \# \end{Bmatrix} \end{cases}$$

A number of lexical exceptions have been noted: mostly in compounding, see (102) and (104), but also in (76), (77), (78), (93) and (96).
Some systematic deviations from the above general pattern can also be observed: in some specific contexts the metathetic alternation seems to be suspended. Now we go on to the analysis of the conditioning factors for these suspensions.

1.2.7. Suspensions of metathesis

1.2.7.1. No suspensions in the declension of masc. nouns

The inflections that suspend GV alternations in masculine nouns (cf. 1.1.6.1) have no effect on metathetic roots. Metathesis occurs regularly even before these inflections: the masc. sg. definite article, the count plural suffix, the vocative suffix *-o*; see (80).

1.2.7.2. Morphophonologically-conditioned suspension before the imperfectivizing suffix *-va-*

The only affix that may exert a suspending effect on metathesis is the suffix *-va-* that derives imperfective verbs from perfectives. The *-va-* suffix suspends metathesis when the verb is prefixed. Consider the following triplets:

	primary (non-derived) imperfective verb	*prefixed perfective verb*	*derived imperfective verb*
	I	II	III
a	skǎ̀rc+a+m 'squeak'	iz+skǎ̀rc+a+m	iz+skǎ̀rc+va+m [*iz+skrǎ̀c+va+m]
b	kǎ̀lc+a+m 'mince'	na+kǎ̀lc+a+m	na+kǎ̀lc+va+m [*na+klǎ̀c+va+m]
c	xvărč+[ə̀] 'fly'	pre+xvărč+[ə̀]	pre+xvǎ̀rč+a+m
d	pălz+[ʲ+ə̀] 'creep'	iz+pălz+[ʲ+ə̀]	iz+pălz+[ʲà]va+m

In *-va-*suffixed imperfectives (IIIa-b) derived from prefixed perfectives (IIa-b) the sequence *ăL* appears systematically instead of the expected *Lă* before a consonantal suffix, i.e., metathesis is suspended.
Other triplets are obtained if the same primary imperfectives are taken together with the corresponding semelfactive *-n-*suffixed perfectives and their derived, but non-prefixed, imperfective counterparts, e.g.:

	primary (non-derived) imperfective verb	*semelfactive perfective verb*	*derived imperfective verb*
	I	IV	V
a	skǎ̀rc+a+m 'squeak'	skrǎ̀c+n+[ə]	skrǎ̀c+va+m
b	kǎ̀lc+a+m 'mince'	klǎ̀c+n+[ə]	klǎ̀c+va+m
c	xvărč+[ȁ] 'fly'	xvrǎ̀k+n+[ə]	xvrǎ̀k+va+m
d	pălz+[ʲ+ȁ] 'creep'	plǎ̀z+n+[ə]	plǎ̀z+va+m

The imperfectives (Va-d) derived from semelfactive perfectives (IVa-d), which are not prefixed, employ the imperfectivizing suffix *-va-* with the concomitant loss of the semelfactive *-n-*.

Thus, there are two conditions for suspension of metathesis:

- the verb must be derived with the *-va-* suffix;
- it must be prefixed.

If the first condition is not satisfied, metathesis is not suspended. As has been noted by Scatton (1974:88), the imperfectivizing suffix *-va-* is used almost exclusively with roots that are inherently stressed in the perfective.[31] If the root of a prefixed perfective verb is inherently stressless, i.e., the stress is on the verbalizing suffix, other imperfectivizing suffixes are used: *-a+m*, -[ʲa]+*m*, *-àva+m*, -[ʲà]*va+m*. Being vocalic, the latter do not suspend metathesis, see IIIc-d and the following additional examples:

za+dărž+[ȁ] 'retain' pfv. — za+dǎ̀rž+a+m, sec.ipfv.
iz+gălč+[ȁ] 'chide' pfv. — iz+gălč+à̀va+m, sec.ipfv.
pro+dălž+[ȁ] 'continue' pfv. — pro+dălž+à̀va+m, sec.ipfv.

If the second condition is not satisfied (the verb is not prefixed), there is no suspension of metathesis before *-va-*:

(105) vǎ̀rž+[ə] 'tie, bind' pfv. — vrǎ̀z+va+m 'tie, bind' ipfv.

When both conditions are satisfied, metathesis is systematically suspended:

(106) pre+pǎ̀rž+[ə] 'fry' perf. — pre+pǎ̀rž+va+m, sec.ipfv.
o+stǎ̀rž+[ə] 'scrape off' perf. — o+stǎ̀rg+va+m, sec.ipfv.
za+vǎ̀rž+[ə] 'bind' pfv. — za+vǎ̀rz+va+m, sec.ipfv.

[31] One exception is kač+[ȁ] 'carry up' — kà̀č+va+m.

Even if there is no primary imperfective, an imperfective derived from a prefixed perfective by means of the *-va-* suffix suspends metathesis:

raz+gə̀rd+[ʲ+ə] 'bare the bosom of' pfv. — raz+gə̀rd+vam, ipfv.
na+tə̀rt+[ʲ+ə] 'bruise' pfv. — na+tə̀rt+vam, ipfv.

All conjugational forms, including verbal nouns, from prefixed imperfectives suspend metathesis: iz+skə̀rc+va+ne 'squeaking', na+kə̀lc+va+ne 'mincing', na+tə̀rt+va+ne 'bruising'.

GV roots in secondary prefixed imperfectives always occur before vocalic suffixes, e.g., *u+dălž+àva+m* 'prolong, lengthen' [*u+də̀lg+va+m], cf. *də̀lăg* 'long', *də̀lg+a*, fem.; *u+venč+àva+m* 'crown' [*u+vè nč+va+m], cf. *ven+è c* 'wreath', *ven+c+ì*, pl. Therefore, the suspending effect that the *-va-* suffix exerts on metathesis cannot be tested with GV-alternation.

1.2.7.3. Phonologically-conditioned suspensions

1.2.7.3.1. Metathetic roots in combination with GV suffixes

When a metathetic root combines with the adjectivizing GV suffixes *-en*/*-n-* (107) or *-ăk*/*-k-* (108), metathesis is suspended in the masc.sg. of the adjective.

(107) krə̀v — krə̀v+en 'blood' adj., krə̀v+n+a, fem.. vs. kărv+[ʲ+ə̀] 'bleed'
vrə̀x — vrə̀x+en 'top' adj., vrə̀x+n+a, fem. vs. vărx+ò ven 'supreme'
skrə̀b — skrə̀b+en 'sorrowful', skrə̀b+n+a, fem. vs. skărb+[ʲ+ə̀] 'sorrow' verb ipfv.
strə̀v — strə̀v+en 'rapacious', strə̀v+n+a, fem. vs. na+stărv+[ʲ+ə̀] 'enrage' verb pfv.
dlə̀ž+en 'obliged', dlə̀ž+na, fem. vs. dălž+[ə̀] 'owe'
krə̀š+en 'lively', krə̀š+n+a, fem. vs. raz+kə̀rš+[ə] se 'stretch'
mrə̀s+en 'dirty', mrə̀s+n+a, fem. vs. mărs+[ʲ+ə̀] 'dirty' verb ipfv.
krə̀m+en 'fodder', krə̀m+n+i, pl. vs. kărm+à 'fodder', kə̀rm+[ʲ+ə] 'suckle, nurse' verb ipfv.

(108) grə̀m+ăk 'loud', grə̀m+k+a, fem.—gărm+[ʲ+ə̀] 'thunder' verb ipfv.
prə̀x+ăk 'crumbly ', prə̀x+k+a, fem.—pə̀rx+a+m 'flutter' ipfv.

1.2.7.3.2. -en/-en- adjectives from metathetic CS-roots

Other metathetic roots, including neuter roots listed in (94), select the non-GV allomorph of the suffix -en/-en-. In this case metathesis applies regularly in the masc.sg. of the adjective before the stable [e] vowel:

(109) vrȃv 'twine' — vȃrv+en 'twine' adj. masc. sg., vȃrv+en+a, fem.
dărv+ò 'wood', drăv+nìk 'chopping log', drăv+cè 'a small piece of wood' — dȃrv+en 'wooden', dȃrv+en+a, fem.
zărn+ò 'grain', zrăn+c+è, dimin. — zȃrn+en 'grain' adj. masc.sg., zȃrn+en+a, fem.
sărn+à 'doe', srăn+dàk 'deer' — sȃrn+en, adj., sȃrn+en+a, fem.

All roots in (109) end in a sonorant in a voiced labiodental [v] or in a nasal [n].
They all manifest a sequence *Lă* when found at the word-end, cf. *vrȃv*, or before a consonantal suffix, cf. *drăv+nìk*, *zrăn+c+è*.

1.2.7.4. Metathetic root + Ø-inflected GV -*ec*/-*c*- suffix: regular metathesis

Metathetic roots are subjected to a special effect exerted by the realized ghost of the Ø-inflected form -*ec* of the GV suffix -*ec*/-*c*-.
When phonetically realized, the ghost [e] of the suffix -*ec* does not suspend metathesis. We saw that this is the case with syncopation in GV roots also. Syncopation is not suspended by the -*ec* suffix; cf. (65). But this can be attributed to the fact that all GV roots that occur before the -*ec*/-*c*- suffix are CS-final. Moreover, they only optionally select the GV allomorph of the -EC suffix, cf. *begl+èc*, *begl+ec+ì* is possible beside *begl+èc*, *begăl+c+ì*, cf. (67).
As far as metathetic roots are concerned, the situation is different. They never select the non-GV -*ec*/-*ec*- allomorph of the -EC suffix, even when CS-final (110). Before the Ø-inflected -*ec*, we do not find the expected *Lă*, but the *ăL* sequence normally not found before a GV suffix; cf. (107) and (108).
Thus, the pattern of -*ec*/-*c*- derivatives from metathetic roots is different from that of -*en*/-*n*- (107) and -*ăk*/-*k*- (108) derivatives from the same roots. There seems to be a special effect that the ghost vowel of -*ec* exerts on metathetic roots. The sequence we find before -*ec* is *ăL* (110), normally found before suffixes beginning with a stable vowel, cf. 1.2.6.

When the ghost [e] of *-ec*/*-c-* is syncopated, i.e. before the vocalic plural inflection, the special effect on metathesis does not occur. In the plurals we find the regular *Lă* sequence.

(110) gărn+ѐc 'big pot' (cf. grăn+čѐar 'potter') [*grăn+ec], grѐ̆n+c+i 'pottery' pl.
sărn+ѐc 'deer' (cf. srăn+dѐak 'deer') [*srăn+ec], srăn+c+ѝ, pl. (cf. the orthographic dictionary, Georgieva & Stankov 1983)
samo+dѐ̆rž+ec 'autocrat' (cf. drѐ̆ž 'hold' imper.sg.) [*samo+drăž+ec], samo+drѐ̆ž+c+i, pl.

1.2.7.5. Special effect of other GV suffixes on some metathetic roots

Some metathetic roots seem to be lexically marked to undergo the special effect described in 1.2.7.4 (as due to the suffix *-ec*) also before the other GV suffixes, namely *-en*/*-n-* and *-ăk*/*-k-*. As in (110), metathesis of these roots is not suspended by a following realized ghost vowel in the suffix:

(111) tѐ̆rž+en 'auction' adj.—trѐ̆ž+n+a, fem.
sѐ̆lz+en 'lachrymal'—slѐ̆z+n+a, fem.
dѐ̆rz+ăk 'audacious'—drѐ̆z+k+a, fem.

Compare (111) with the following derivatives in (112), where the roots are not lexically marked to undergo the special effect:

(112) krѐ̆š+en 'lively', krѐ̆š+n+a, fem.
dlѐ̆ž+en 'obliged', dlѐ̆ž+n+a, fem.
grѐ̆m+ăk 'loud', grѐ̆m+k+a, fem.

Without the special effect the masc.sg. forms of the adjectives in (111) would be: *trăž+en, *slăz+en, *drăz+ăk, like those in (112). The forms *sѐ̆lz+en*, *sѐ̆lz+n+a* constitute an alternative paradigm for the *-en*/*-n-* adjective from *sălz+ѐa* 'tear', whose root behaves as non-metathetic in other derivatives also, cf. (96).

1.3. Ghost vowels and stress in Bulgarian

1.3.1. The Bulgarian stress system.

According to the stress taxonomy of Roca (1992), based on Halle & Vergnaud (1987), Bulgarian is a language with a purely lexical accent system. Some syllables are provided with a lexical accent underlyingly, others not.[32]

In Bulgarian some morphemes are inherently stressed and others are inherently stressless. Depending on their accentual properties, nominal, adjectival and verbal roots in Bulgarian fall into two paradigms: stressed roots and stressless roots. Suffixes (derivational and inflectional) are also either stressed or stressless. Inherently stressed roots and suffixes include a syllable provided with a lexical accent. As for inherently stressless roots and suffixes, none of their syllables have a lexical accent.

Inherently stressed roots give rise to fixed accentual paradigms, where stress is on the same syllable of the stem throughout the paradigm.[33]

Inherently stressless roots give rise to paradigms where stress is on the suffix (on one of the suffixes) [34]. But there may be stress-shifts to the root if an inherently stress-retracting suffix is added.

Scatton's analysis of the Bulgarian verbal system (Scatton 1975:135sq.) distinguishes between "stem-stressed" verbal stems, that can be "root-stressed" or "suffix-stressed", and "stressless" verbal stems. The former, but not the latter are "phonemically marked for stress".

When suffixes without lexical accent are added to roots, the accentuation of the word is determined by the stress type of the root:

- if the root is stressed, the stress in inflected/derived forms remains unchanged, see (113)
- if the root is stressless, the inflected/derived form receives stress on the suffix, see (114)

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[32] The Macedonian stress system, analyzed in Roca (1992), is a mixed system: partly a covert rhythmic system (as opposed to overt rhythmic systems where all secondary stresses are phonetically realized) and partly a lexical accent system.

[33] Inherently stressed roots correspond to the thematically stressed or "acute" stems in traditional descriptions (cf. Stankiewicz 1993).

[34] Inherently stressless roots correspond to desinentially stressed or "oxytone" stems in traditional descriptions (cf. Stankiewicz 1993).

(113)	a	/xlȁb/	xljȁb 'bread'	xljȁb+ove, pl.	xlȅb+ec, dimin.
	b	/gə̀b/	gə̆b+a, 'mushroom'	gə̆b+i, pl.	gə̆b+ičk+a, dimin.
	c	/cvȅt/	cvȅt+e 'flower'		cvȅt+enc+e, dimin.
	d	/sȉnʲ/	sȉn 'blue'	sȉn+ij+[ə], def. sȉn[ʲ]+a, fem.	sȉn+ičăk, dimin.
	e	/mȉn/	mȉn+[ə] 'pass' 1p.sg. pres.	mȉn+a+x, aor.	mȉn+e+x, ipft.
	f	/prȁv/	prȁv+[ʲ+ə] 'make' 1p.sg.pres.	prȁv+i+x, aor.	prȁv+e+x, ipft.
(114)	a	/snäg/	snjȁg 'wind'	sneg+ove, pl.	snež+ȅc, dimin.
	b	/žen/	žen+ȁ, 'woman'	žen+ȉ, pl.	žen+ȉčk+a, dimin.
	c	/mor/	mor+ȅ 'sea'		mor+ȅnc+e, dimin.
	d	/sam/	sȁm 'sole'	sam+ȉj+[ə], def. sam+ȁ, fem.	sam+ȉčăk, dimin.
	e	/kov/	kov+[ə̀] 'forge' 1p.sg. pres.	kov+ȁ+x, aor.	kov+jȁ+x, ipft.
	f	/smen/	smen+[ʲ+ə̀] 'change' 1p.sg.pres.	smen+ȉ+x, aor.	smen+jȁ+x, ipft.

The process of suffixation may remove an inherent stress from the root. This happens when an inherently stressed suffix, e.g. the agentive nominalizing suffix - ȁč, is added to a root with a lexical accent:

/čȉst/	čȉst+[ʲ+ə] 'clean', 1p.sg.pres.	čȉst+i+x, aor.	čist+ȁč 'cleaner'
/pȁz/	pȁz+[ʲ+ə] 'keep', 1p.sg.pres.	pȁz+i+x, aor.	paz+ ȁč 'guard'

1.3.2. Additional lexical marks regarding stress

In pure lexical accent systems, there are often additional lexical marks regarding stress on certain specific morphemes (cf. Halle 1973 for Russian).

In Bulgarian, some inflectional suffixes systematically produce forms with pre-final stress. Daniels (1976:332) gives a list of endings that can never receive stress, even when all the remaining morphemes in the word are lexically stressless. In Daniels' interpretation such inflectional suffixes bear a special lexical mark that prevents them from receiving phonetic stress. These are the count plural ending *-a*, the vocative

endings (for masculine and feminine nouns) and, with some exceptions[35], the definite articles. Some of the above inflectional suffixes behave as stress-retracting: they provoke a stress-shift to the root in a paradigm where stress is normally found on the suffix:

zvjà̀r 'beast'	zver+ovè̀, pl.	zvjà̀r+[ə], def.
	zver+čè̀, dimin.	zvjà̀r+a, count pl.
bò̀g 'God'	bog+ovè̀, pl.	bò̀g+[ə], def.
		bò̀ž+e, vocative

The masculine singular definite article -[ə(t)] is normally inherently unstressable and it produces stress-shift to the stem. However, a limited set of stressless monosyllabic masculine nouns are specially marked to neutralize the stress-retracting property of the definite article, e.g. *sneg*+[ə̀] 'snow' def., *krak*+[ə̀] 'leg' def.

1.3.3. Stress patterns with ghost vowels

In (114a) we saw that a monosyllabic masculine noun root can be stressless. As for polysyllabic noun roots, the great majority are inherently stressed in Bulgarian, i.e., one of their syllables is provided with a lexical accent. That is why the plural inflection *-i* never receives phonetic stress with polysyllabic masculine roots:

(115)	lè̀bed 'swan'	lè̀bed+i, pl.
	komì̀n 'chimney'	komì̀n+i [*komin+ì̀], pl.

However, the plural *-i* is systematically stressed in the cases of ghost vowel syncopation when the corresponding singular form bears stress on the ghost vowel. As can be seen in (116a), stress-shift to the right occurs before some other inflectional and derivational suffixes also, namely, in the feminine and in diminutives.

[35] As reported by Mayer (1987:144), the Bulgarian definite article is stressed in some masculine monosyllabic nouns, e.g. sneg+[ə̀] 'snow' def., and in certain categories of words, namely in feminine singular Ø-inflected nouns, e.g. *pesen+tà* 'song' def., *krăv+tà* 'blood' def. (cf. *žen+à+ta* 'woman' def., where the stem is V-inflected), and in most cardinal numerals, e.g. *sè̀dem* 'seven' with stem stress, *sedem+tè̀*, def.

(116)	a	dobə̀r 'good'	dobr+ì, pl.	dobr+à, fem.	dobr+ìčăk, dimin.
	b	petèl 'cock'	petl+ì, pl.		
	c	vjàtăr 'wind'	vetr+ovè, pl.		vetr+èc, dimin.

Words that exhibit a stressed ghost vowel in their Ø-inflected form, always shift stress to the suffix in inflected and derived forms: they are inherently stressless roots.
Compare (116) with the stress patterns of GV roots where stress in the singular is not on the syllable containing the ghost vowel (117). There is no stress-shift in inflected and derived forms of such roots:

(117)	a	xìtăr 'clever'	xìtr+i, pl.	xìtr+a, fem.	xìtr+ičăk, dimin.
	b	săblàzăn 'temptation'	săblàzn+i, pl.		
	c	və̀zel 'knot'	və̀zl+i, pl.		

Metathetic roots can also be either inherently stressed or stressless:

(118)	a	krə̀v 'blood'	kə̀rv+i, pl.
	b	grə̀d 'bosom'	gărd+ì, pl.

Stressless Metathetic roots, like stressless GV roots, shift the stress to the plural *-i*, as in (118b) above.

1.4. Interaction of ghost [e]'s with palatalization

1.4.1. Restrictions for palatalization in Bulgarian

All consonants (obstruents and sonorants) except the [–anter] coronals, i.e. [š], [ž], [č] and [ʒ] can be underlyingly palatalized.
Underlying palatalized consonants, see (119), always surface as plain, non-palatalized consonants at the word-end (i), before another consonant (ii) and before front vowels (iii).

(119)		(i)	(ii)	(iii)
	ogn[ʲ]+òve, pl. ogn[ʲ+à]r, 'stoker' ògăn[ʲ+ə], def.	ògăn 'fire'	ògăn+če, dimin.	ògn+en, adj. ogn+ìšt+e,'fireplace'
	kon[ʲ+à]r, 'groom' kon[ʲ+ù]šn+a, 'stable' kòn[ʲ+ə], def.	kon 'horse'	kòn+sk+i, adj. kòn+če, dimin.	kòn+en, adj. kon+è, pl.
	kràl[ʲ+ə], def. kral[ʲ+ù], vocative	kral[ʸ] 'king'	kràl[ʸ]+sk+i, adj.	kral+è, pl. kral+ìc+a, 'queen'

The non-palatalized /l/ or depalatalized /lʲ/ is velarized: [lʸ]. This is not the case before front vowels.
On the surface, consonant palatalization in Bulgarian is distinctive only word-internally before a back vowel.

1.4.2. Interaction of Velar/Affricate Palatalization with ghost [e]'s

First Velar Palatalization (1st Velar Pal.) turns velars into postalveolars mostly before front vowels, but also before some consonantal derivational suffixes (e.g. -k+a: knìg+a 'book' — knìž+k+a, dimin.). In addition, the voiceless stop is affricated.

1st Velar Pal.

$$\begin{Bmatrix} k \\ g \\ x \end{Bmatrix} \longrightarrow \begin{Bmatrix} č \\ ž \\ š \end{Bmatrix} \; / \; \underline{\quad} \; \text{front V}$$

Second Velar Palatalization (2nd Velar Pal.) turns velars into alveolars before the front vowel of the plural inflection *-i* in nouns only. Here too, the voiceless stop undergoes affrication.

bằbrek 'kidney'	bằbrec+i, pl.
kovčèg 'coffin'	kovčèz+i, pl.
siromàx 'poor man'	siromàs+i, pl.

2nd Velar Pal.

$$\begin{Bmatrix} k \\ g \\ x \end{Bmatrix} \longrightarrow \begin{Bmatrix} c \\ z \\ s \end{Bmatrix} \; / \; \_\_ \; \text{front V} \;]_{\text{N : pl.}}$$

Affricate Palatalization (Affricate Pal.) turns the alveolar affricate into postalveolar before a front vowel.

Affricate Pal.

c —> č / ___ front V

Even though not surfacing, the front ghost [e] of the *-en*/*-n*- suffix causes palatalization of a preceding velar or affricate (120). Therefore, 1st Velar Pal. and Affricate Pal. must have taken place before the deletion of [e].

(120)	mràk 'dark' noun	mràč+n+a, adj. fem.sg.	mràč+en, masc.
	rek+à 'river'	rèč+n+a, adj.fem.sg.	rèč+en, masc.
	sn[ʲà]g 'snow'	snèž+n+a 'snowy' fem.	snèž+en, masc.
	strà x 'fright'	straš+n+a 'frightful' fem.	straš+en, masc.
	sm[ʲà]x 'laughter'	smèš+n+a 'ridiculous' fem.	smèš+en, masc.
	mèsec 'month'	mèseč+n+a 'monthly' fem.	mèseč+en, masc.

1.5. Ghost [e]'s and the ä-alternation

The *ä*-alternation of the Bulgarian literary language is a lexically restricted alternation conditioned by phonological factors. It comes from the characteristic North-Easthern Bulgarian treatment of the Proto-Slavic vowel **ä* [36] "jat´", a low front tense vowel. When stressed, it gave [ʲa], i.e. [a] with palatalization of the preceding consonant, elsewhere, [e]. Such [ʲa]'s coming from *ä* yielded a synchronic alternation: they turn into [e] if the next syllable contains a front vowel, a palatalized consonant (i.e. a consonant that has a coronal specification under its V-place node) or a [–anter] coronal.

[36] Other notations for this vowel in Slavic historical phonology are *ě and *æ.

The ghost vowel [e] triggers almost systematically the change of [ʲa] (< *ä) in the preceding syllable to [e]. This occurs even in cases where the ghost [e] syncopates before a vocalic suffix:

(121)	m[ʲà]st+o	mèst+en	mèst+n+a	mest+à
	'place' sg.	'local' masc.sg.	'local' fem.	'place' pl.

In (121) the *ä*-alternation in both the third and fourth forms occurs before the back vowel [a]. In the last form [ʲa] becomes [e] because of the stress-shift: *ä* is never realized as [ʲa] in unstressed syllables. However in the third form *ä* is stressed. Here, the occurrence of [e] in the surface form seems to be due only to the GV alternation in the suffix containing the front ghost vowel, cf. the masc. sg. *mest+en*. Consider now:

(122)	rjàd+ăk	rjàd+k+ost	rèd+k+i	raz+red+[ʲ+ə̀]
	'rare' masc.sg.	'rareness'	'rare' pl.	'rarify'

In *rèd+k+i*, we cannot claim that the occurrence of [e] instead of [ʲa] is due to the GV alternation in the suffix, because the ghost vowel that is involved here is the back vowel [ə] (cf. *rjàd+ăk*). The *ä*-alternation seems to take place because the alternating [ʲa] finds itself in the syllable preceding the front vowel [i] in the surface form.

1.6. Generalizations

1.6.1. GV-alternating vs. Metathetic roots

From the presentation of data in 1.1. and 1.2 it results that GV-alternation and Metathesis exhibit considerable symmetry, but also some asymmetry:

- Both occur only within word boundaries.
- Both occur before vocalic (inflectional and derivational) suffixes, but not before consonantal (inflectional and derivational) suffixes or at the end of words. The formulas we arrived at in 1.1.5 and 1.2.6 are repeated below:

$$\text{GV} \longrightarrow \begin{cases} \text{Ø} \;/\; \underline{\quad} \;\; \text{C} + \text{V} \\ [\text{V}] \;/\; \underline{\quad} \;\; \text{C} \left\{ \begin{matrix} +\text{C} \\ \# \end{matrix} \right\} \end{cases}$$

$$\{ L ; ă \} \longrightarrow \begin{cases} ăL \;/\; \underline{\quad} \; C + V \\ Lă \;/\; \underline{\quad} \; C \begin{Bmatrix} + C \\ \# \end{Bmatrix} \end{cases}$$

GV alternations are suspended by some vocalic inflectional suffixes in masculine noun declension (see 1.1.6.1), while metathesis is suspended before the consonantal imperfectivizing suffix *-va-* when added to prefixed perfective stems (1.2.7.2).

- Both show lexical exceptions in derivation; see 1.1.3.3 for GV roots and (76), (77), (78), (93), (96), (102) and (104) for metathesis. Lexical exceptions are more frequent with metathesis than with GV-alternation.
- Both are more frequent with Ø-inflected roots than with V-inflected roots. GV alternation and metathesis of V-inflected roots are limited to derivation; see 1.1.2.2.3 and 1.2.4.3.

Metathesis of [l] / schwa occurs only in derivation, whereas metathesis of [r] / schwa occurs in both inflection and derivation.

- With inflection, both GV-alternation and metathesis are much more frequent in noun declension than in verb conjugation.
- Both are suspended before a ghost vowel in the following syllable (in the suffix); see 1.1.6.2 for GV alternation and 1.2.7.3 for metathesis.
- Both GV-alternating (see 1.1.6.2.2) and metathetic (see 1.2.7.3.2) roots ending in 'consonant + sonorant' (CS-roots) may select the non-GV allomorph of the adjectivizing suffix *-en*/*-en-*. In both types of CS-roots, a schwa is regularly inserted before a consonantal suffix or word-finally, cf. (36), (70) and (109).
- GV-alternating CS-roots may combine optionally with the GV allomorph *-ec*/*-c-* of the -EC suffix, cf. (71). Metathesizing roots unexceptionally select the same allomorph (110).

Metathetic roots undergo a special effect before the GV of the uninflected *-ec* suffix (1.2.7.4). A limited set of metathesizing roots exhibit the same behaviour with other GV suffixes also (1.2.7.5).

Asymmetry is found mostly in the morphophonological suspending effects on GV syncopation and on metathesis: the vocalic inflections that suspend GV syncopation in noun declension (cf. 1.1.6.1) do not suspend metathesis. Conversely, the suspending effect of the *-va*-suffix with imperfectivization (cf. 1.2.7.2) can be observed only with metathesis.

Asymmetries between GV-alternating vs. Metathetic roots are at least partly phonologically-conditioned: in GV-syncopating roots the ghost vowel is followed mostly by a sonorant (see 1.1.3.2), while in metathetic roots, the metathesizing schwa is always preceded by a sonorant (a liquid) and can be followed by either an obstruent or a sonorant.

1.6.2. Inventory of underlying representations

The considerable parallels in the phonological properties of GV-alternating vs. Metathetic roots should be encoded by the same specific underlying structure in lexical representations of both types of roots. The claim is that metathetic roots, as well as GV-roots, contain ghost vowels. It will be claimed that not only GV-roots, but also metathetic roots contain a ghost vowel. Henceforth, I represent the underlying structure corresponding to a ghost vowel as <V>. The exact nature of <V> is discussed in the next chapter. In GV-alternating roots, <V> is [e] or [**ə**]; in metathetic roots, it is only [**ə**].

1.6.2.1. GV-alternating roots

It is now possible to specify the underlying representations that result from the analysis of the different subsets of data. This anticipates the phonological treatment in the next chapter, where stronger justification is provided for this treatment.
The underlying representation of Ø-inflected nominal roots that select the *-en*/*-n-* (hence -/<e>n/) suffix, cf. (64), must contain <**ə**> or <e>:

(123) /ə̀g<**ə**>l/, /fi̋lt<**ə**>r/, /ri̋t<**ə**>m/, /fə̀k<e>l/, /lə̀k<**ə**>t/, /pè̋s<e>n/

As for Ø-inflected nominal roots that select the *-en*/*-en-* (hence -/en/) suffix, cf. (65), and if masculine, the *-ove* plural restricted to monosyllables, cf. (13), their underlying representation should end in adjacent 'consonant + sonorant', i.e., not separated by a <V>; see (124)[37].
Thus, underlingly, the root *ògăn* 'fire' is monosyllabic: /ognʲ/. In this way, we see why it takes the *-ove* plural inflection, which never occurs with bisyllables. The schwa in the singular *ògăn* results from epenthesis triggered by the final sonorant.

[37] In the attested Old Church Slavonic (OCS) forms of the nouns listed in (124), the consonant and sonorant were contiguous, i.e. there was no jer between them: *ognĭ* 'fire', *vixrŭ* 'whirlwind', *myslŭ* 'thought'.

(124) /ògnʲ/, /pə̀kl/, /vìxr/, /mìsl/, /neprijàzn/

The noun *vjatăr* 'wind' gives two alternative -EN adjectives: one with the -/<e>n/ suffix, the other with the -/en/ suffix; see (66). Te are probably two alternative underlying forms of the root: resp. /vʲat<**ə**>r/ and /vʲatr/[38]. /vʲat<**ə**>r/ selects the /<e>n/ suffix, whereas /vʲatr/, ending in a CS cluster, selects the -/en/ suffix:

(125) vjatăr+en < /vʲat<**ə**>r+<e>n/, vjatăr+n+a < /vʲat<**ə**>r+<e>n+a/
vetr+en < /vʲatr+en/, vetr+en+a < /vʲatr+en+a/ (as for the alternation /ʲa/—[e], see 1.5)

V-inflected neuter nominal roots (except *srebr+ò*) select the -/en/ suffix, cf. (67). They are all CS-final, see (36). Therefore, their underlying forms should not contain a <V>:

(126) /rebr+o/, /stəkl+o/, /àgn+e/, /pism+o/

The schwa that manifests itself in the above roots before a consonantal suffix, cf. (36), will be considered epenthetic and triggered by the following sonorant:

(127) stăkăl+c+è < /stəkl+c+e/, àgăn+c+e < /àgn+c+e/, pisăm+c+è < /pism+c+e/

Among the neuter GV roots only *srebr+ò* 'silver' selects the -/<e>n/ suffix, cf. (37), and therefore its representation must be:

(128) /sreb<**ə**>r+o/

V-inflected feminine noun roots select the -/<e>n/ suffix, cf. (38); hence they must be represented with an underlying <**ə**> (129). Moreover, their final consonant is not a sonorant, but the obstruent [k], which cannot trigger schwa epenthesis.

(129) /klèt<**ə**>k+a/, /rešèt<**ə**>k+a/, /zagàd<**ə**>k+a/, /ocèn<**ə**>k+a/

As for verb roots that exhibit a GV alternation in present tense vs. aorist, cf. (33), we posit two allomorphs: /ber/, /per/, /mèl/, /stèl/, found in the present stem, and /br/, /pr/,

[38] The attested OCS form is *vätrŭ* with adjacent consonant and sonorant.

/ml/, /stl/, found in the aorist stem. Likewise, for kòl+[ʲ+ə] 'slay', cf. (35), the allomorph in the present stem is /kòl/, while the aorist allomorph is /kl/.

The *i* / Ø alternation in derived imperfectives vs. perfectives described in (43) will be attributed to allomorphy of the verb root: /pir/, /stir/, /vir/, /zir/, /mir/ vs. /pr/, /str/, /vr/, /zr/, /mr/. As for ex. (45), it can be considered a regular case of the ghost vowel <e> in combination with stem-final [n]-deletion. The lexical representation of the verb is: /kl<e>n/ for both the perfective (present and aorist stem) and the imperfective.

1.6.2.2. GV suffixes

The underlying form of the aorist participle's suffix should be /l/ (30). Thus, the surface schwa in the masc. sg. participle of C-stem verbs results from pre-liquid epenthesis.
The -EC suffix has two allomorphs, whose lexical representations should be /<e>c/ and /ec/; cf. (71) and 1.6.4 below.
For the -EN suffixes we posited respectively underlying /<e>n/ and /en/.
Two other GV adjectivizing suffixes have been listed; see 1.1.4.2. Their lexical representations must be /<**ə**>k/ and /ič<**ə**>k/, respectively.
We analyze *-estv+o* and *-esk+i* (cf. 1.1.4.4) not as coming from underlying */<e>stv+o/, */<e>sk+i/, but rather as vocalic allomorphs /estv+o/, /esk+i/ of the respective consonantal suffixes /stv+o/, /sk+i/.

1.6.2.3. Metathetic roots

The [C**ə**LC] realizations of metathetic roots before vocalic suffixes can be analyzed as resulting from the simultaneous syncopation of <**ə**> in an underlying /CL<**ə**>C/[39] and epenthesis of [**ə**] (the default vowel in Bulgarian) before the liquid.
Thus for metathetic roots that select a GV suffix, /<e>n/ or /<**ə**>k/, cf. (107) and (108), the underlying forms must be:

(130) /kr<**ə**>v/, /vr<**ə**>x/, /skr<**ə**>b/, /str<**ə**>v/, /dl<**ə**>g/[40], /gr<**ə**>m/, /pr<**ə**>x/

[39] Most OCS and Old Bulgarian attested written forms for words that later developed metathetic roots contain a jer letter, ŭ or ĭ, after the liquid, i.e. CLŭC, CLĭC. This is in accordance with the Proto-Slavonic rule of the open syllable requiring that every syllable ends in the nucleus. The nucleus could be a jer, i.e. a high lax vowel, or a syllabic liquid, orthograpically represented by Lŭ, Lĭ.

As for metathetic roots in (109), no <V> should be posited in the lexical representation:

(131) /vrv/, /drv+o/, /zrn+o/, /srn+a/

Because these roots are underlyingly CS-roots, they select the -/en/ suffix.

1.6.2.4. Allomorphy of roots

In cases of allomorphy like those in 1.1.3.3, two different lexical representations for the same root morpheme must be adopted. The inflected forms represent a deviation from the general pattern for GV syncopation given in 1.1.5. Thus, we posit a GV root (/gȁb<**ə**>r/, /pȉs<**ə**>k/) in derived forms and a stable vowel root (/gȁbər/, /pȉsək/) in inflected forms of the non-derived nouns:

gȁbăr+i < /gȁbər+i/, gabr+ȁk < /gȁb<**ə**>r+ȁk /
pȉsăc+i < /pȉsək+i/, pȉsk+a+m < /pȉs<**ə**>k+a+m/

Likewise, the various exceptions to metathesis of roots in inflection, derivation or compounding are to be related to two allomorphic lexical representations: one containing a stable vowel and another containing a <V>:

cf.(77) dằlg+ove, pl. < /də̀lg+ove/, dlằž+en < /dl<**ə̀**>g+en/
tằrg+ove, pl. < /tə̀rg+ove/, tằrž+en < /tr<**ə̀** >g+en/

cf.(78) prə̀č+ove, pl. < /prə̀č+ove/, părč+ò̀tin+a < /pr<**ə̀**>č+ò̀tin+a/
trə̀n+i, pl. < /trə̀n+i/, trə̀n+est < /trə̀n+est/, tărn+o+kò̀p < /tr<**ə̀**>n+o+kò̀p/

cf.(81) gằrm+ove < /gr<**ə̀**>m+ove/, grə̀m+ove < /grə̀m+ove/

cf.(93) po+vằrx+nost < /po+vərx+nost/ ≠ vrə̀x /vr<**ə**>x/
o+skărb+lȅnie < /o+skərb+lenie/ ≠ skrə̀b /skr<**ə**>b/
bez+mằlv+n+o < /bez+məlv+n+o/ ≠ mălv+ȁ /ml<**ə**>v+a/
pod+smə̀rk+n+a < /pod+smərk+n+**ə**/ ≠ smrə̀k+n+a /smr<**ə**>k+n+**ə**/

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[40] This is the GV allomorph found in derivation, while in inflection the stable vowel allomorph /dəlg/ is used, see (107).

cf.(96) sălz+en, slăz+n+a < /sl<**ə**>z+<e>n/, /sl<**ə**>z+<e>n+a/; sălz+lìv < /s**ə**lz+liv/

The second root allomorph for *sălz+à* 'tear', with a stable schwa, gives the following alternative -EN-adjectival forms:

sălz+en < /s**ə**lz+<e>n/, sălz+n+a < /s**ə**lz+<e>n+a/

Here the non-GV allomorph of the -EN suffix is selected because the root-final cluster /lz/ is not a CS cluster, but a sequence 'sonorant + obstruent'.
For the compounds listed in (102) and (104) we posit the allomorphs /gr**ə**m/ vs. /gr<**ə**>m/, /kr**ə**v/ vs. /kr<**ə**>v/, /gr**ə**d/ vs. /gr<**ə**>d/.

1.6.3. <V>-roots vs. CS-roots. -EN derivatives.

The roots in (123), (128), (129) and (130) share the property of selecting the -/<e>n/ suffix. The underlying forms adopted for them contain the same structure: a ghost vowel <V>.
Conversely, the roots listed in (124), (126) and (131) share the property of selecting the -/en/ suffix. Their representations also share the same structure: they all end in a 'consonant + sonorant' (CS) cluster.

Stem type			Lexical representations		Surface forms		
					Context 1	Context 2	Context 3
					____ +V	____ +{C, #}	____+EN
GV-altern. roots	A	<V>-roots	-/C<e>C/ -/C<ə>C/	(123) (128) (129)	-[CC]-	-[CeS] -[CəS]	-[CeS +en] -[CeS +n+a] -[CəS +en] -[CəS +n+a]
	B	CS-roots	-/CS/ ± -o, -e	(124) (126)	-[CS]-	-[CəS]	-[CS+en] -[CS+en+a]
Metath. roots	C	<V>-roots	-/CL<ə>C/	(130)	-[CəLC]-	-[CLəC]	-[CLəC+en] -[CLəC+n+a]
	D	CS-roots	-/CLS/ ± -a, -o	(131)	-[CəLS]-	-[CLəS]	-[CəLS+en] -[CəLS+en+a]

Table 1

Table 1 gives the synopsis of:

1) The 4 types of GV roots:

- A: <V>-roots that give rise to GV alternations
- B: <V>-roots that give rise to metathesis
- C: CS-roots that give rise to GV alternations
- D: CS-roots that give rise to metathesis

2) The 3 main contexts where the alternations occur, yielding different surface forms for the same root type:

- Context 1: before a vocalic suffix (inflectional or derivational)
- Context 2: before a consonantal suffix (inflectional or derivational) and word-finally
- Context 3: before the -EN adjectivizing suffix (where -EN can be -/en/ or -/<e>n/)

It can be seen that root types A and C give identical surface forms in contexts 2 and 3, whereas root types B and D give identical surface forms in contexts 1 and 3.

The following generalizations emerge:

(132) (i) <V>-roots of both types (root types A and C) exhibit identical surface forms (with retention of the ghost vowel) in Context 2 (__ +C, __ #) vs. Context 3 (__ +<e>n).

(ii) Context 1 has slightly different effects on root type A vs. root type C:

- in root type A: loss of the ghost vowel
- in root type C: loss of the ghost vowel + pre-liquid schwa insertion

(iii) As for roots containing underlying CS clusters (root types B and D), we find identical surface forms in Context 1 (__ +V) vs. Context 3 (__ +EN). These surface forms result from:

- in root type B: no change
- in root type D: pre-liquid schwa insertion

(iv) Context 2 (__ +C, __ #) for CS-roots is characterized by schwa insertion that splits up the CS cluster (root type B) or the LS cluster (root type D), yielding:

- in root type B: C**ə**S
- in root type D: CL**ə**S

(v) All schwa insertions are pre-sonorant:

- in context 2, root types B and D
- in context 1, root types C and D (pre-liquid schwa)
- in context 3, root type D (pre-liquid schwa)

It can also be seen that surface ghost [**ə**] can be derived in two different ways:

1) by retaining underlying <**ə**> as surface [**ə**] :

- root type A
- root type C (Context 2)

2) by epenthesis :

- root types B and D
- root type C (Contexts 1 and 3)

On the other hand, surface ghost [e] always results from retention of the first type: <e> —> [e].

A phonological analysis of GV alternations in Bulgarian based on the above underlying representations should therefore be able to account for two processes:

- <V> —> V
- Ø —> [ə]

1.6.4. -EC derivatives from CS-roots. Allomorphy of the suffix.

To account for the existence of two alternative plurals for the nouns listed in (71), I assume that the -EC suffix has two allomorphs: -/ec/ and -/<e>c/. Unlike the -EN-derivatives, which obligatorily select the -/en/ allomorph with CS-roots, the -EC-derivatives from CS-roots can take both the non-GV allomorph -/ec/ and the GV allomorph -/<e>c/.
We posit the following lexical representations for the roots in these examples:

(133) /bègl/, /mə̀dr/, /pòdl/, /xràbr/, /xìtr/, /mə̀rtv/

Whatever allomorph of the -EC suffix that is chosen, the singular derivatives show the same surface forms:

(134) begl+èc < /bègl+èc/, mărtv+èc < /mə̀rtv+èc/, mădr+èc < /mə̀dr+èc/
(135) begl+èc < /bègl+<è>c/, mărtv+èc < /mə̀rtv+<è>c/, mădr+èc < /mə̀dr+<è>c/

By contrast, the plural forms of the -EC derivatives differ according to the suffixal allomorph that is chosen:

(136) begl+ec+ì < /begl+ec+i/, mădr+ec+ì < /mədr+ec+i/
(137) begăl+c+ì < /begl+<e>c+i/, mărtăv+c+ì < /mərtv+<e>c+i/

1.6.5. -EC derivatives from metathetic roots. The Fratricidal Ghost Effect.

Which underlying representations should we adopt for -EC-suffixed nouns derived from metathetic roots listed in (110)?
As for *sărn+èc*, we have already adopted the lexical representation /srn/ for its root, because it selects the -/en/ suffix (131). Because /srn/ is a CS-final root, we can attribute the unexpected metathesis in this form before a GV suffix to the CS (LS) cluster; the underlying forms are sg. /srn+<e>c/ and pl. /srn+<e>c+i/.

(138) /srn+<e>c/ > sărn+ȅc

(139) /srn+<e>c+i/ > srăn+c+ȉ

The metathetic root in the second -EC derivative — samo+dȁrž+ec — is not CS-final, the root-final cluster being [r ž]. Therefore, we cannot analyze the schwa in the plural — samo+drȁž+c+i — as related to the presence of a CS cluster. A possible solution is to posit an underlying ghost schwa (<**ə**>) in the lexical representation of the root, i.e. /dr<**ə**>ž /, and to assume that the latter is subsequently modified by the special effect of the -EC suffix described in 1.2.7.4. The effect can then be viewed as deletion of the root <V> in the presence of a suffixal <V>. In the unmarked case, the co-presence of a suffixal and a root ghost vowel involves the retention of both ghosts. We saw in (60) and (101)-(102) that syncopation and metathesis are suspended before the phonetically realized ghost vowel of the suffix in Ø-inflected forms. The suspension of the alternations means mutual reinforcement of the ghosts. By contrast, when a lexically-marked GV suffix like -EC combines with a <V>-root, this produces the opposite effect: the suffixal ghost eliminates the root ghost. We call this effect the Fratricidal Ghost Effect (FGE) and consider it to be due to a special lexical mark.

(140) /samo+dr<**ə**>ž+<e>c^{FGE}/ > /samo+drž+<e>c/ > samo+dȁrž+ec

Before a vocalic inflection, the -EC suffix has no FGE mark:

(141) /samo+dr<**ə**>ž+<e>c+i/ > samo+drȁž+c+i

The mark can be either on the suffix — -EC is a FGE suffix, i.e. a suffix marked to provoke the FGE — or on the root. A number of metathetic roots seem to be marked to undergo the FGE.

The lexically-marked FGE roots are listed in (111). Here too, the root <V> undergoes deletion before another <V> in the suffix and only if there is no vocalic inflection.

(142) /tr<**ə**>ž^{FGE}+<e>n/ > /trž+<e>n/ > tȁrž+en
/dr<**ə**>z^{FGE}+<**ə**>k/ > /drz+<**ə**>k/ > dȁrz+ăk
/sl<**ə**>z^{FGE}+<e>n/ > /slz+<e>n/ > sȁlz+en

The third -EC derivative from a metathetic root, *gărn+ȅc*, for which there is no -EN adjective, is derivable either like *samo+dȁrž+ec* or like *sărn+ȅc*.

Stem type			Lexical representation		Surface form in ____ +EC	
GV-alternating roots	A	<V>-roots		—		
	B	CS-roots	-/CS+<e>c/ -/CS+<e>c+i/	(135) (137)	sg. pl.	[CS+ec] [CəS+c+i]
			-/CS+ec/ -/CS+ec+i/	(134) (136)	sg. pl.	[CS+ec] [CS+ec+i]
Metathetic roots	C	<V>-roots	-/CL<ə>C+<e>c^{FGE}/ -/CL<ə>C+<e>c+i/	(140) (141)	sg. pl.	-[CəLC+ec] -[CLəC+c+i]
	D	CS-roots	-/CLS+<e>c/±-a,-e -/CLS+<e>c+i/	(138) (139)	sg. pl.	-[CəLS+ec] -[CLəS+c+i]

Table 2

Table 2 gives the surface forms for the 4 types of GV roots in the context before the -EC suffix. When added to GV-alternating roots, -EC can be either /<e>c/ or /ec/. Metathetic roots obligatorily select the GV allomorph /<e>c/. Thus, the surface forms in Table 2 differ from those for context 3 in Table 1 (before -EN) for two reasons:

- Stems of type B select the /ec/ allomorph only optionally, whereas the same root type obligatorily selects the /en/ suffix.
- Stems of type D select the /<e>c/ allomorph, while the same root type selects the non-GV /en/ suffix.

1.6.6. List of examples for testing the phonological models

Table 3 below gives examples for each type of root (A, B, C and D) in combination with the suffixes -EN (Table 1) and -EC (Table 2). These examples will be used to test the different phonological treatments for GV alternations in Bulgarian discussed in the following chapter.

Ex Nº	Stem type	context 1	context 2		context 3	
		__ +V	__ #	__ +C	__ +EN	__ +EN+V
		a	b	c	d	e
1	<V>-root	filtr+i /filt<**ə**>r+i/	filtăr /filt<**ə**>r/	filtăr+če /filt<**ə**>r+če/	filtăr+en /filt<**ə**>r+<e>n/	filtăr+n+a /filt<**ə**>r+<e>n+a/
		pesn+i /pes<e>n+i/	pesen /pes<e>n/	pesen+ta /pes<e>n+ta/	pesen+en /pes<e>n+<e>n/	pesen+n+a /pes<e>n+<e>n+a/
2	CS-root	misl+[ʲ+**ə**] /misl+ʲ+**ə**/	misăl /misl/	misăl+ta /misl+ta/	misl+en /misl+en/	misl+en+a /misl+en+a/
3	Metathetic <V>-root	kărv+av /kr<**ə**>v+av/	krăv /kr<**ə**>v/	krăv+ta /kr<**ə**>v+ta/	krăv+en /kr<**ə**>v+<e>n/	krăv+n+a /kr<**ə**>v+<e>n+a/
4	Metathetic CS-root	vărv+olic+a /vrv+olic+a/	vrăv /vrv/	vrăv+čic+a /vrv+čic+a/	vărv+en /vrv+en/	vărv+en+a /vrv+en+a/
					__ +EC	__ +EC+V
					f	g
5	CS-root + <e>c	begl+a /begl+a/	begăl /begl/	—	begl+ec /begl+<e>c/	begăl+c+i /begl+<e>c+i/
6	CS-root + ec				begl+ec /begl+ec/	begl+ec+i /begl+ec+i/
7	Metathetic <V>-root	dărž+[**ə**] /dr<**ə**>ž+ʲ+**ə**/	drăž /dr<**ə**>ž/	drăž+k+a /dr<**ə**>ž+k+a/	samo+dărž+ec -/dr<**ə**>ž+<e>c/	samo+drăž+c+i /dr<**ə**>ž+<e>c+i/
8	Metathetic CS-root	sărn+a /srn+a/	—	srăn+dak /srn+dak/	sărn+ec /srn+<e>c/	srăn+c+i /srn+<e>c+i/
9	Lexically-marked metathetic <V>-root	dărz+ost /dr<**ə**>z+ost/	—	drăz+n+a /dr<**ə**>z+n+**ə**/	dărz+ăk /dr<**ə**>z+<**ə**>k/	drăz+k+a /dr<**ə**>z+<**ə**>k+a/

Table 3

In (143) below we give the translation and morphology of all examples in Table 3. Stress is added also.

(143) (1b) f̀iltăr 'filter' masc.sg., (1a) f̀iltr+i, pl., (1c) f̀iltăr+če, dimin., (1d) f̀iltăr+en, adj. masc.sg., (1e) f̀iltăr+n+a, fem.
(1b) pès̀en 'song' fem.sg., (1a) pès̀n+i, pl., (1c) pesen+tà, definite sg.,
(1d) pès̀en+en, adj. masc.sg., (1e) pès̀en+n+a, fem.
(2b) mìsăl 'thought' fem.sg., (2a) mìsl+[ᴶ+ə] 'think' imperf. 1p.sg.pres.,
(2c) misăl+tà 'thought' definite sg., (2d) mìsl+en, adj. masc.sg., (2e) mìsl+en+a, fem.
(3b) krȁv 'blood' fem.sg., (3a) kȁrv+av 'bloody' masc.sg., (3c) krăv+tà, 'blood' definite sg., (3d) krȁv+en '(of) blood' adj. masc.sg., (3e) krȁv+n+a, fem.
(4b) vrȁv 'twine' fem.sg., (4a) vărv+olì̀c+a 'file, string', fem.sg.,
(4c) vrăv+čì̀c+a, 'twine' dimin. fem.sg., (4d) vȁrv+en '(of) twine' adj. masc.sg.,
(4e) vȁrv+en+a, fem.
(5b) bègăl 'cursory' masc.sg., (5a) bègl+a, fem., (5f) & (6f) begl+èc 'fugitive' masc.sg., (5g) begăl+c+ì & (6g) begl+ec+ì, pl.
(7a) dărž+[ə] 'hold' ipfv. 1p.sg.pres., (7b) drȁẑ'hold', imper. sg., (7c) drȁž+k+a, 'handle' fem.sg., (7f) samo+dȁrž+ec 'autocrat' masc.sg., (7g) samo+drȁž+c+i, pl.
(8a) sărn+à 'doe, female deer' fem.sg., (8c) srăn+dàk 'deer' masc.sg.,
(8f) sărn+èc 'deer', masc.sg., (8g) srăn+c+ì, pl.; cf. sȁrn+en '(of) deer', adj. masc.sg., sȁrn+en+a, fem.
(9a) dȁrz+ost 'audacity', (9c) drȁz+n+a 'dare' pfv. 1p.sg.pres., (9f) dȁrz+ăk 'audacious' masc.sg., (9g) drȁz+k+a, fem.