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Syllabic and trapped consonants in (Western) Slavic: different but still the same

1. Setting the scene: phonological hermaphrodites

Syllabic consonants are objects of wonder: they are phonological hermaphrodites. Neogrammarians used to call them "consonants in vocalic function" (Saussure's 1879 laryngeal theory is entirely based on this insight), and this is probably as close as one can get to reality. That is, syllabic consonants are consonants physiologically speaking - yet they behave as if they were vowels. There is no way of mixing these roles: as a sound, their body is *only* consonantal - not a bit of vocalicity in sight. As a phonological object, however, they are *only* vocalic - showing no consonantal behaviour at all. In other words, they are males physiologically, but whose behaviour is exclusively female. Except when they are followed by another female (i.e. a vowel), in which case their behaviour patterns with their physiological identity.

In fact syllabic consonants are the male counterpart of glides, which represent the opposite distribution of physiological properties and phonological behaviour: glides are female hermaphrodites. They belong to the female vocalic world, but endorse male consonantal function.

In this article, I develop a specific version of the well-known branching analysis for all hermaphrodites. That is, physiological properties determine the syllabic home of all individuals, while spreading defines their function: glides are vowels that have spread onto a consonantal position, while syllabic consonants are consonants which have colonised a vocalic slot.

The way in which syllabic consonants are approached below bears a number of peculiarities. For one thing, a catalogue of the specific synchronic and diachronic behaviour that syllabic consonants constantly display in Slavic and Germanic is established. This aims at giving as much, as varied and as detailed flesh as possible to the common-sense statement "syllabic consonants behave like vowels".

But the most important piece of evidence comes from the comparison with a closely related relative (both genetically and phonologically speaking): so-called *trapped consonants*. These occur most prominently in Polish,[1] and have been extensively discussed in the literature (foremost in the work by Jerzy Rubach) under the banner of extrasyllabicity. On Rubach's analysis (e.g. Rubach & Booij 1990a, Rubach 1997a), the [r] in Polish words such as *rdza*, *trwać*, *Piotr* "rust, to last, Peter" is extrasyllabic.

Word-internal extrasyllabicity is problematic in itself because of the largely consensual Peripherality Condition (e.g. Clements 1990:290,1997 Hayes 1995:57s): only objects at margins can be ignored by phonological structure-building devices, and hence be extrametrical, extraprosodic or extrasyllabic. In section 12, I will therefore propose an alternative analysis of the critical property of trapped consonants, their transparency with respect to voicing.

[1] But also in Czech (see section 3) and Romansch (Montreuil 1999). Another candidate is Georgian (Kartvelian): I strongly suspect the massive clusters that this language is famous for to be created to a large extent by trapped consonants. For example, what is usually called "syllabic" consonants in this language is transparent to voicing (i.e. the voice value of the adjacent consonants must agree, a typical feature betraying trapped consonants, see section 12). Relevant material is discussed for example in Butskhrikidze (2002) and Ritter (ms).

But this is not the major focus of the present study. Its primary contribution is a comparative record of syllabic and trapped consonants. I demonstrate that to all extents and purposes, trapped consonants show the exact opposite behaviour in regard of their syllabic relatives: every time the latter act as if they were a vowel, the former show regular consonantal behaviour.

Given this general picture, the ambition of this article is twofold. For one thing, it aims at establishing trapped consonants as an autonomous player in the phonological scene: one that is on a par with, and thus distinct from, other fundamental categories such as syllabic consonants, vowels and non-syllabic consonants. Second, I attempt at crossing the information that is conceded by syllabic and trapped consonants so that a consistent picture emerges. Any analysis of either syllabic or trapped consonants must come up with representations that somehow encode their absolute antagonicity. Building a theory of syllabic consonants without looking at their trapped mates must lead to partial and inaccurate results. And so does the isolated analysis of trapped consonants.

I start by introducing the distributional properties of trapped consonants, as well as their behaviour in comparison to their syllabic peers (sections 2 to 7). This part establishes a check-list of four properties which characterise syllabic and trapped consonants. In a second step, the classical way of representing syllabic consonants is reviewed ("syllabic consonants sit in Nuclei"), and an alternative is argued for ("syllabic consonants branch on a neighbouring empty Nucleus") (section 9). I then present a theory-internal argument in favour of a left-branching identity for syllabic, against a right-branching identity for trapped consonants (section 10). In section 11, this proposal receives support from the genesis of both types of consonants in Slavic. Finally, section 12 exposes the alternative to the standard extrasyllabic analysis of trapped consonants, and section 13 concludes.

2. Trapped consonants in Polish

Synchronically speaking, two patterns of trapped consonants must be distinguished in Polish: those that are lexically trapped and those that end up trapped because of a vowel-zero alternation. Table (1) illustrates the former situation for word-internal and word-final contexts.[2] Relevant Polish words and their Czech cognates are lined up in order to show that the consonants at hand occur in identical contexts in two neighbouring languages and yet are syllabic only in Czech. Biedrzycki (1978), Rowicka (1999a:231ss,2001) and Pawelec (1989) offer more data and further discussion.[3]

[2] Trapped consonants also occur word-initially. Rubach & Booij (1990a) have shown that their behaviour in this context is not quite the same as elsewhere. Although this calls for further study (see Scheer in press §354s), the present demonstration remains unaffected.

[3] There are no syllabic consonants in Polish. In their place, the trapped consonants under interest appear. Rubach (1974,1977:68ss) reports on the existence of syllabic consonants in fast speech, but this does not bear on the present discussion.

(1) lexically trapped consonants in Polish

a. word-internally

	Common Slavic	Polish	Czech	gloss (Polish)	gloss (Czech)
CrC	trъvati	trwać	trvat	to last	to last
CrzC	dvьri	drzwi	dveře	door	door
	grьměti	grzmieć	hřmět	to thunder	to thunder
	brьněti	brzmieć	brnět	to sound	to tickle
	chrьbьtъ	grzbiet	hřbet	back	back
	trъstina	trzcina	trstina	reed (plant)	reed (plant)
ClC	klьn-	klnę	klnout	I curse	to curse
	plьv-	plwocina	arch plvat > plivat	sputum	to spit

b. word-finally

	Common Slavic	Polish	Czech	gloss (Polish)	gloss (Czech)
Cr	bebrъ	bóbr	bobr	beaver	beaver
	větrъ	wiatr	vítr	wind	wind
Crz	pьpьrъ	pieprz	pepř	pepper	pepper
	vъnjœtrъ	wewnątrz	vnitř	inside	inner, inside
Cl	myslь	myśl	mysl	thought	sense

Cases where Polish trapped consonants arise through a vowel-zero alternation are identified under (2). The list aims at exhaustivity.

(2) Polish trapped consonants that are created by a vowel-zero alternation

	Common Slavic	Polish NOMsg	Polish GENsg	gloss
CrC	krъvь	krew	krwi	blood
	brъvь	brew	brwi	eyebrow
CrzC	krьstъ	chrzest	chrztu	baptism
ClC	plъtь	płeć	płci	sex
	slьza	łza < słza	łez GENpl	tear
CnC	česnъkъ	czosnek	czosnku	garlic
		pierwiosnek	pierwiosnka	primroses
	pě-snь	piosnka	piosnek GENpl	song
		piosenka		

The following section compares the behaviour of trapped and syllabic consonants in poetry and with respect to stress.

3. Syllabic, but not trapped consonants constitute syllabic peaks and can bear stress

Consonants are called syllabic when they assume a vocalic function: for instance, they bear stress and count in poetry. This is the case for Czech syllabic consonants such as in *krk, trvat, vlk, slza* "throat, to last, wolf, tear". When asked, natives invariably identify two peaks in these words, which also count as two units in poetry. In addition, syllabic consonants bear stress in Czech: stress is word-initial in this language. It thus regularly falls on the [r] of *krk*, *trvat*, and on the [ɬ] of *vlk*, *slza*.

We also know that syllabic consonants count just as much as vowels in Czech because of a bimoraic constraint that controls infinitives: a well-formed infinitive must either bear a long vowel, e.g. *znát* [znaat] "to know" (vs. *po-znat* [pɔznat] "to recognise"), two short vowels, e.g. *topit* [tɔpɪt] "to heat", or one short vowel and one syllabic consonant, e.g. *trvat* [trvat] "to last" (see Kastler 1995:26, Scheer 2001,2003).

By contrast, Polish trapped consonants never count in poetry, and natives recognise only one peak in words such as *trwać*, *krwi, bóbr, wiatr* "to last, blood GENsg, beaver, wind". Furthermore, trapped consonants are unable to bear stress. Polish has invariable penultimate stress (e.g. *málin* vs. *malína* vs. *malinámi* "raspberry GENpl, NOMsg, INSTpl"). However, words such as *trwáć* "to last" and *krwí* "blood GENsg" are stressed on the vowel, not on the trapped [r]. Were trapped consonants able to bear stress, they surely would in these examples. Stress also ignores word-final trapped consonants. The word *jésiotr* "sturgeon" for example is stressed on the first vowel. Were the final trapped consonant counted, the <o> would be tonic.

This picture is confirmed by Czech trapped consonants. In this language, [r] and [l] are trapped if and only if they occur word-initially before another consonant. Thus in words such as *rdít se*, *rzi*, *rty*, *lhát*, *lžíce* "to go red, rust GENsg, lips NOMpl, to lie, spoon",[4] the initial sonorant is trapped. As in Polish, it is not counted as a syllabic peak by either poetry or natives, and it may not be stressed. It was mentioned before that stress falls on the initial syllable in Czech. Hence, were the sonorant in the above words a stress-bearing unit, it would be tonic. As a matter of fact, it is not: in all cases mentioned, stress falls on the first vowel.

Finally, there is yet another category of trapped consonants in Czech: palatalised rhotics <ř> that are flanked by two consonants or occur in word-final position after a consonant. These environments, which make non-palatalised rhotics syllabic (cf. *krk*, *bratr* "throat, brother" etc.), produce trapped results with <ř>: *hřbitov*, *křtít*, *třpytit*, *hřbet, pepř, vnitř* "cemetery, to baptise, to glance, back (human), pepper, interior". As before in Czech and Polish, <ř> in these words does not count in poetry, natives do not identify it as a syllabic peak (*hřbitov* for example has two peaks), and it is unable to bear stress (stress always falls on the first vowel).

On the bottom line, thus, we can record a consistently opposite behaviour: syllabic consonants are visible for stress and in poetry, whereas trapped consonants are not. We will see on the following pages that this antipodal behaviour is also observed in regard of another test, the vocalisation of prefixes.

4. Czech syllabic consonants and prefixal vowel-zero alternations

Syllabic consonants also line up with full vowels in regard of another property: in case there is a vowel-zero alternation to their left, zero surfaces. This effect is also produced by true vowels.

Let us first consider the general picture of how Czech consonant-final prefixes behave (full detail is available in Scheer 1996,1997,1999,in press; the following data are representative for the entire language). Prefixes remain unvocalised if they are followed by CV-initial or C_1C_2V-initial roots. In the latter case, the full cluster C_1C_2 must also be root-initial (as in podø-brad-ek "double chin"). In case C_1 is root-initial, but C_2 root-final, i.e. when the root occurs in zero grade, the prefix is vocalised (e.g. pode-bør-at "to seize from below").

There are various ways of identifying the fact that the root occurs in zero grade. One is the existence of another form of the same root where a vowel overtly separates what appears to be the initial cluster. Such cases are shown under (3)a below.[5]

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[4] The exhaustive list of this class of words is available at www.unice.fr/dsl/tobias.htm, section "other stuff to download/ Slavic data".

[5] Glosses, line by line: "to seize from below pf, id. ipf, double chin, to tear up inf, id. 1sg, to crumble, prelude, game, to sweep away, to expel pf, id. ipf, to enrage, to prewash inf, id. 1sg, incentive, sleepless, dream, snowdrop, open adj. (flower), to go past act part., to crush, to underpin, wall, from below, bottomless, day."

(3)

	a. root provoking vocalised prefixes: two forms of the same root				b. root provoking non-vocalised prefixes
	zero grade		full grade		no occurrence of $\sqrt{C_1VC_2}$
$\sqrt{C_1C_2}$-	/$\sqrt{C_1øC_2}$/		/$\sqrt{C_1VC_2}$/		
√BR-	pode-brat	pf	pod-bírat	ipf	pod-bradek
√DR-	roze-drat	inf	roz-deru	1sg	roz-drobit
√HR-	přede-hra	noun NOMsg	her	noun GENpl	od-hrabat
√HN-	ode-hnat	pf	od-hánět	ipf	roz-hněvat
√PR-	ode-prat	inf	od-peru	1sg	vz-pruha
√SN-	beze-sný	adj	sen	noun NOMsg	pod-sněžník
√ŠL-	vze-šlý	adj	šel	past act part.	roz-šlapat
√ZD-	pode-zdít	inf	zed'	noun NOMsg	od-zdola
√DN-	beze-dný	adj	den	noun GENpl	—

The difference between the [br] of *pode-brat* "to seize from below" and the [br] of *pod-bradek* "double chin" is that the former, but not the latter, represents a root which occurs in zero grade: /pode-børat/ vs. /podø-bradek/.

Since the prefixal alternation depends on the vocalisation of the root, it is an interesting question to ask what happens when the root neither occurs in zero grade nor possesses any vowel at all. This is the case of roots that contain a syllabic consonant. Table (4) shows that prefixes are never vocalised when followed by a syllabic consonant.

(4) Czech: syllabic consonants provoke unvocalised prefixes

roz-drtit	to crush	od-vlhnout	to remove because of
roz-drbat	to scratch to pieces		humidity
roz-mrhat	to waste	od-chrchlat	to clear one's throat
roz-trhat	to tear up	od-krvit	to cause hypoxemia
roz-trpčit	to embitter	od-mrštit	to reject
roz-vrstvit	to pile up	od-škrtat	to cross out
roz-vrzat	to make wobbly	pod-hrnout	to gather up (dress)
roz-vrtat	to drill to pieces	pod-vrh	forgery
roz-vlnit	to churn up (sea)	před-prseň	parapet
od-frknout	to snort	před-krm	starter (dish)

Bearing this fact in mind, let us now examine the analogous situation in Polish.

5. Vocalisation of Polish prefixes before trapped roots

5.1. Morphology has got a word to say

The Polish situation is more complicated. Prefixal alternations occur in this language as well, but in addition to the phonological rule that governs the Czech picture alone, the vocalisation of Polish prefixes is subject to important morphological restrictions.

The vocalisation of Polish prefixes has been addressed in work by Laskowski (1975:34ss), Gussmann (1980a:42s,81s,1980b:148ss), Rubach (1984:186ss), Rubach & Booij (1984:17ss), Szpyra (1989,1992), Pawelec (1989), Rowicka (1999a:267ss,1999b). In fact, regular vowel-zero alternations in prefixes that obey the Czech pattern are found only in related perfective and imperfective (so-called derived imperfectives, "DI") forms of the same verb. This is demonstrated by the following examples.

(5) regular vowel-zero alternations in Polish prefixes[6]

prefix	perfective	imperfective	gloss
z(e)-	ze-rwać	z-rywać	to tear off
	ze-drzeć	z-dzierać	to tear off
	ze-brać	z-bierać	to gather
od(e)-	ode-mknąć	od-mykać	to open
	ode-tchnąć	od-dychać	to breathe
	ode-zwać	od-zywać	to speak
	ode-przeć	od-pierać	to beat off
	ode-słać	od-syłać	to send back
ob(e)-	obe-schnąć	ob-sychać	to dry
w(e)-	we-ssać	w-sysać	to suck in
	we-trzeć	w-cierać	to rub in
pod(e)-	pode-żreć	pod-żerać	to eat up
	pode-słać	pod-syłać	to send
roz(e)-	roze-rwać	roz-rywać	to tear apart

Outside of this specific morphological category, vocalised prefixes hardly ever occur. Some cases in point that I could come by are shown under (6) (Szpyra 1995:132s also offers discussion of exceptional vocalisation in Polish prefixes).

(6) Polish vocalised prefixes outside of the pf - ipf paradigm

vocalised prefix	related forms	gloss
roze-dnieć	dzień, dnia	to grow light, day NOMsg, GENsg
ode-mglać	mgła, mgieł	to de-vaporate, fog NOMsg, GENpl
roze-jm	na-jem, na-jmu	truce, rent (of a flat) NOMsg, GENsg
obe-jm	na-jem, na-jmu	embrace, rent (of a flat) NOMsg, GENsg
beze-cny		infamous
beze-ceństwo		infamy
pode-szwa	szew, szwu	sole, stitch NOMsg, GENsg

The vocalised prefix in the first column is attached to a root whose vowel alternates with zero itself. This may be seen when looking at column two, where the same root appears in vocalised and unvocalised form.

The vocalisation of the prefix is expected in these circumstances because alternating vowels are always vocalised when followed by another alternating item. This is the ground rule that governs Slavic vowel-zero alternations. It is known as Lower since classical generative times, see e.g. Gussmann (1980a), Rubach (1984).

For the time being, the only thing that needs to be borne in mind is the fact that two alternating vowels in a row are both expected to surface. This holds true regardless of the actual phonetic existence of the rightmost vowel: the <ie> of *pies* "dog NOMsg" is present when the following alternating vowel is expressed as in *pies-ek* "dog dim. NOMsg", but also in case it is absent as in *pies-øk-a* "id. GENsg". Therefore, the vocalisation of prefixes under (6) is regular. However, words such as under (6) represent only a small minority of cases. The unmarked pattern is the one shown under (7), where the non-vocalisation of prefixes is unexpected (as before, the second column allows to control the alternating character of the root vowel).

[6] Further illustration of this pattern can be found in Szpyra (1992:202s) and Rowicka (1999a:281s).

(7) unexpected non-vocalisation of prefixes in Polish

	vocalised prefix	related forms	gloss
a.	before expressed alternating vowels		
	pod-pieniek	pień, pnia	honey fungus, trunk NOMsg, GENsg
	pod-szewka	szew, szwu	lining, stitch NOMsg, GENsg
	bez-senny	sen, snu	sleepless, dream NOMsg, GENsg
	bez-denny	dno, den	bottom, bottom NOMsg, GENpl
	od-setek	sto, setka	percentage, hundred, hundred
	przed-dzień	dzień, dnia	the day before, day NOMsg, GENsg
b.	before unexpressed alternating vowels		
	od-wszyć	wesz, wszy	to de-louse, louse NOMsg, GENsg
	od-pchlić	pchła, pcheł	to de-flea, flea NOMsg, GENpl
	bez-cłowy	cło, ceł	duty-free, duty NOMsg, GENpl
	nad-dniówka	dzień, dnia	extra day's work, day NOMsg, GENsg
	w-śnić się	sen, snu	to start dreaming, dream NOMsg, GENsg
	roz-łzawić	łza, łez	to draw tears, tears NOMsg, GENpl

Hence, it must be concluded that the prefixal boundary at hand is "strong". This traditional description expresses the observation that the prefix escapes the influence of the root. In other words, there is no communication between the prefix and the root: the prefix does not "see" the root vowel.[7] Various implementations of this insight can be found in the literature.

Rubach (1984:186ss) develops a solution in the spirit of Lexical Phonology (see also Rubach & Booij 1984:17ss). He captures the phonological autonomy of prefixes by feeding them into the derivation on the last cycle, which makes them immune against the action of Lower.

Polish prefixes have also been analysed along the lines of so-called phonological domains (Kaye 1995, Gussmann 1998,2002:45ss). Domains are used for example by Gussmann & Kaye (1993), Cyran & Gussmann (1998,1999), Rowicka (1999a:267ss) and Szpyra (1989:215ss,1992, 1995:132s).

Whatever approach is favoured, it should be clear that the recurrently deviating non-vocalisation of prefixes is the result of morphological, rather than of phonological action. Put in theory-neutral terms, the prefix and the root "do not see each other" in these cases. But this also means, in turn, that the presence of a prefixal vowel in perfective-imperfective pairs as under (6) is an unerring witness of the fact that the prefix and the root "see each other" (i.e. form a single domain). In other words, the facts under (6) are the result of phonological forces alone, while those under (7) have been produced by joint phonological and morphological rule. Therefore, the cases where the prefixal vowel appears (6) are the phonologically regular ones on which we are entitled to ground a phonological reasoning.

5.2. How Polish prefixes behave before trapped consonants

Given these lengthy premises, it is interesting to observe the behaviour of prefixes in case they are attached to roots that bear a trapped consonant. The total record of such items that I could establish is shown under (8) below.

[7] Laskowski (1975:34ss) has suggested that the strength or weakness of the prefixal boundary depends on the type of derivation: prefixes behave regularly in verbal forms, but produce the irregular pattern in nouns. This falls foul of fact in a number of cases under (7). Nykiel-Herbert (1985) contends that the vocalisation of prefixes is a function of the number of morphological brackets that separate the prefix and the stem. This proposal also faces a number of conflicting evidence, cf. Szpyra (1989:211s).

(8) influence of trapped consonants on Polish prefixes

root	prefix + trapped root		gloss
a. vocalised prefix			
drg-	roze-drgać (się)	roze-drgany	become vibrating, id. adj
brn-	roze-brnąć		to flounder (pf)
brzm-	ode-brzmieć		to echo back
grzm-	ode-grzmieć		to echo (thunder)
b. unvocalised prefix			
trw-	roz-trwonić		to squander (pf)
trw-	roz-trwaniać		to squander (ipf)
trw-	z-trwożyć się	s-trwożyć	to become fearful (pf), id.
brzm-	roz-brzmieć	roz-brzmiewać	start to sound (pf), id. (ipf)
krzt-	od-krztusić	od-krztuszać	to cough up (pf), id. (ipf)
płć-	bez-płciowy		sexless, boring
krew	roz-krwawić	roz-krwawiać	to cause to bleed (pf), id. (ipf)
		bez-krwawy	bloodless (without casualty)
		bez-krwisty	bloodless (e.g. meet)
		s-krwawić	to stain with blood (pf)

We now know that the prefixes under (8)b do not reveal any property of the root since the prefix remains unvocalised for morphological, rather than for phonological reasons: the prefix and the root "do not see" each other. Therefore, the phonological behaviour of trapped consonants cannot be judged on the grounds of the unvocalised examples of (8)b.

By contrast, trapped consonants do betray their lateral identity under (8)a. We are sure that words of this kind constitute one single domain: did they not, the prefix would be mute. Hence, the root "sees" the prefix and therefore determines its vocalisation. The result, again, is the opposite of the Czech pattern. √CRC roots provoke vocalised prefixes in Polish, against an unvocalised result in Czech. Their sonorant is trapped in Polish, but syllabic in Czech. Hence, we must record once more that trapped consonants, unlike their syllabic cognates, do not behave like vowels.

6. Trapped consonants are transparent to voicing, syllabic consonants are not

The reason why Polish trapped consonants have received quite some attention in the generative literature, foremost in the work by Jerzy Rubach (Bethin 1984, Rubach & Booij 1987,1990a,b, Rubach 1996,1997a,b, Gussmann 1992), is their peculiar behaviour with respect to voicing.[8] That is, trapped consonants are transparent for voice assimilation: underlyingly voiced obstruents that precede word-final trapped consonants are devoiced by final devoicing although they are not word-final. The following table illustrates this fact.

[8] This is actually the very phenomenon on which Rubach's Derivational Optimality Theory (DOT) was originally built (e.g. Rubach 1997a,b,2000,2003).

(9) Polish: trapped consonants are transparent for voice assimilation I
word-final trapped consonants

	…TR#	…TR-V	spelling	gloss
a.	ka**t**r	ka**d**r-a	kadr GENpl, NOMsg	staff
	bu**p**r	bɔ**b**r-a	bóbr NOMsg, GENsg	beaver
	ʒu**p**r	ʒu**b**r-a	żubr NOMsg, GENsg	bison
	mu**k**w	mɔ**g**w-a	mógł masc., fem.	could
b.	mɛxaɲi**s**m	mɛxaɲi**z**mɨ	mechanizm NOMsg, NOMpl	mechanism
	mjɛli**s**n	mjɛli**z**n-a	mielizn GENpl, NOMsg	shallow water

The dental stop of a word like *kadra* "staff NOMsg" under (9)a is underlyingly voiced. This is demonstrated by its pronunciation [kadra]. In GENpl where the case-marker is zero, however, the stem-final cluster comes to stand in word-final position and is therefore subject to final devoicing, which is a general feature of Polish. As a result, the /d/ appears as [t]. Words like *mielizna* "shallow water NOMsg" under (9)b demonstrate the same behaviour for fricatives.

Trapped consonants show the same transparency word-internally. This is evidenced by the fact that flanking obstruents always agree in voicing. That is, the contrast in voicing is neutralised altogether in Polish TrT clusters[9]: $T_{[-voice]}$-r-$T_{[+voice]}$ or $T_{[+voice]}$-r-$T_{[-voice]}$ sequences are unheard of in the language. Table (10) below shows that the assimilation process that seeps through the liquid may be either regressive or progressive.

(10) trapped consonants are transparent for voice assimilation II
word-internal trapped consonants

	CRV	CRC	CRVC-C	spelling	gloss
a.		trfat͡ɕ		trwać	to last
b.		plfat͡ɕ		plwać	to spit
c.	krɛf	krf-i	krɛv-nɨ	krew NOMsg, krwi GENsg, krewny	blood, relative
d.	brɛf	brv-i		brew NOMsg, brwi GENsg	eyebrow
e.	jɛndrɛk	jɛntrka		Jędrka NOMsg, Jędrek GENsg	Andy dim

The words under (10)a,b are pronounced with an [f] whose underlying identity is probably /v/. Even though morphology does not allow to put them in a position where their voiced character will be expressed on the surface, spelt <w> and comparative evidence (e.g. Czech *trvat* [tr**v**at] "to last") hint at /v/. The alleged /v/ can be safely demonstrated for (10)c, though: the noun *krew-ny* [krɛ**v**nɨ] "relative" allows to observe /v/ on the surface. In NOMsg of the word "blood" *krew* [krɛf], the [f] can thus be regarded as the result of final devoicing. In GENsg, however, the /v/ is covered by a vowel and should therefore be able to appear as such. Its unexpected devoicing must be ascribed to the presence of the [k] that precedes the trapped [r]. The same holds true for (10)d, except that this time, the obstruent preceding the trapped consonant is voiced, which provokes the appearance of [v] in GENsg.

In all cases discussed thus far, the assimilation process is progressive. (10)e shows that trapped consonants are also transparent to voice assimilation in case this process is regressive. The TR cluster in *Jędrek* [jɛndrɛk] "Andy diminutive NOMsg" appears as [dr] and therefore must be recorded as underlyingly voiced. In the GENsg *Jędrka* [jɛntrka] of the same word, however, [tr] is observed. Devoicing must thus be ascribed to the absence of the alternating [ɛ], which puts the TR cluster in direct contact with the voiceless [k]. The voice value of [k] then rules over the entire TrT cluster.

[9] In this article, T is shorthand for any obstruent, R for any sonorant.

We already know that syllabic consonants always display opposite behaviour in regard of their trapped cognates. Therefore, it does not come as a surprise that their flanking consonants are entirely insensitive to the voice value of each other. As in Polish, voiced obstruents are devoiced in word-final position in Czech (e.g. *holub* [hɔlu**p**] vs. *holuba* [hɔlu**b**a] "pigeon NOMsg, GENsg"). However, the obstruent of final voiced TR clusters is not subject to this process: the direct cognates of the Polish examples under (9) are *bobr, žubr, mohl* [bɔ**b**r̩, ʒu**b**r̩, mɔ**ɦ**l̩] "beaver, bison, he could" where /b,ɦ/ appear unmodified on the surface.[10] In the same way, syllabic consonants are not transparent word-internally. Again, the direct Czech cognates of the Polish words under (10) are not incline at all to produce TrT clusters that agree in voicing: *trvat, krve* [tr̩**v**at, kr̩**v**ɛ] "to last, blood GENsg".

Hence, it must be concluded that the typical Polish transparency of sonorants in C__# and C__C is not just a consequence of the particular position that they come to stand in: their Czech cognates occur in the same environment without being transparent. Rather, transparency is a specific property of trapped consonants, which is not shared by their syllabic relatives.

The classical extrasyllabic analysis of trapped consonant transparency that Jerzy Rubach promotes will be discussed below in section 12.

7. Summary syllabic vs. trapped consonants

We thus face a consistent pattern across the board: syllabic consonants in Czech count in poetry, bear stress, provoke unvocalised prefixes and are not transparent to voicing. On the other hand, trapped consonants in Polish cannot be stressed, do not count in verse, trigger vocalised prefixes and are transparent to voicing. Any analysis of either trapped or syllabic consonants must take this absolute antagonicity into account. Let us now see how this situation could be interpreted.

8. What kind of animal is a syllabic consonant ?

8.1. The classical view: syllabic consonants sit in Nuclei

The null hypothesis that was practised in early generative endeavour is simplistic. It merely translates the fact that syllabic consonants assume vocalic function: alongside with vowels, they are assigned the feature [+syll]. The feature [±syll], replacing earlier [±voc], actually came into being because of the existence of syllabic consonants, cf. Chomsky & Halle (1968:354).

This approach was carried over to subsequent autosegmental structure where the feature [±syll] continues to be assigned on the grounds of pure observation: segments are [+syll] if and only if they constitute a sonority peak. The presence of [+syll], then, qualifies the segment in question for occupying a nuclear position (as opposed to segments that are [-syll]). Since it is very common that the same consonant in the same word is syllabic in one form but non-syllabic in another (e.g. English *bottle* [bɒtl̩] vs. *bottling* [bɒtlɪŋ]), the value for its feature [±syll] is manipulated by the derivation. Rubach (1977:52ss) for example operates with syllabicity-imposing and syllabicity-releasing rules. The former make a sonorant [+syll] after an obstruent and before another consonant or a word-boundary, while the latter turns [+syll] into [-syll] in the appropriate context. Also, resyllabification must be assumed because

[10] Note that the devoiced version of /ɦ/ would be [x], for example when the final *-l* is left out in colloquial style: *moh* [mɔx] "he could".

the [l] in *bottle* is supposed to be dominated by a Nucleus when it is syllabic, but sits in an Onset or a Coda in case it is non-syllabic.

All approaches to the syllabicity of consonants along these lines mention the unequal probability for different major classes to occur in Nuclei: in most languages, only sonorants (and within this group, preferably nasals) qualify for a nuclear existence; languages that allow for nuclear fricatives or even stops are extremely rare, if not inexistent (this issue is under debate, see for instance Dell & Elmedlaoui 1985,1988, Bagemihl 1991). In any event, there appears to be an implicational relationship to the effect that a language where less sonorous segments can occur in Nuclei necessarily admits more sonorous consonants in nuclear function as well.

The classical interpretation of syllabic consonants thus involves the feature [±syll], the existence of consonants in Nuclei, resyllabification and cross-linguistic probability counts. It is expressed by, among many others, Blevins (1995), Bell (1978), Clements (1990:293ss), Hall (2000:215ss), Gussenhoven & Jacobs (1998:28), Kenstowicz (1994:255s) and Carr (1993:55). The representations that result from this approach hardly rest on any phonological evidence (Rubach 1990 is a notable exception). The only principle that is applied reproduces the observational fact: "whatever constitutes a sonority peak sits in a Nucleus". This is taking into account just one side of the janus-faced object: its function. The physiological identity of syllabic consonants on the other hand, their consonanthood, is left unrecorded.

8.2. Why syllabic consonants do not sit in Nuclei

There is good reason to doubt this surface-based analysis of syllabic consonants. Not only does it neglect one of the two critical properties of hermaphrodite syllabic consonants. It also falls foul of one of the most fundamental autosegmental principles. Multilinear structure allows for interpreting high vowels and glides as one single phonological object, rather than as separate sets of underlyingly contrasting items. That is, the two phonetic objects [j] and [i] are phonologically identical. The only specification that is underlyingly present defines the high front tongue body position. Whether this object surfaces as a vowel [i] or a glide [j] is a matter of its association with syllabic constituents, rather than of an inherent contrast: it appears as the vowel [i] if it is attached to a Nucleus, while a consonant [j] is heard in case it is dominated by an Onset or a Coda. This position is perfectly consensual and generally considered as an important achievement of autosegmentalism. Since Kaye & Lowenstamm (1984), it has become orthodox textbook material, and most of the literature that interprets syllabic consonants as Nuclei also adheres: Kenstowicz (1994:23), Carr (1993:59,194ss), Hall (2000:106), Hayes (1989), Spencer (1996:96s).

Why should a given melody, then, enjoy contrasting phonetic interpretation according to the syllabic constituent that it belongs to in one case (high vowels vs. glides), but not in the other (syllabic consonants)? No phonetic effect is observed for liquids and nasals when they leave their consonantal home in order to be syllabified into a Nucleus: [l,r,n,m] enjoy identical pronunciation whether attached to an Onset, a Coda or a Nucleus. According to the autosegmental principle that vowelhood and consonanthood are a matter of association to syllabic constituents, rather than of melody, this should not be.

Fortunately enough, the literature also offers a different view on the matter. The alternative for the representation of syllabic consonants anchors them in a consonantal constituent. The effect of syllabicity, then, arises through their spreading onto a neighbouring Nucleus. This is also the reason why syllabic consonants show vocalic behaviour: they participate in the vocalic world because one of their legs belongs to a Nucleus. On this analysis, the alternations between syllabic and non-syllabic versions of the same consonant are a simple matter of the presence (syllabic interpretation) vs. the absence (non-syllabic interpretation) of spreading

onto an available neighbouring Nucleus. In sum, thus, consonants are consonants because they belong to a consonantal constituent. Their eventual syllabicity is a consequence of spreading. No resyllabification at any level is involved.

The following section develops this alternative. It is concerned with the obvious question that was carefully eluded in the preceding paragraph: do syllabic consonants expand on the preceding or on the following Nucleus?

9. Do syllabic consonants spread to their right or to their left ?

1 9.1. A fundamental argument for left-branchers: the complementary distribution of C̩ and əC

If syllabic consonants are a chunk of melody that belongs to an Onset but spreads onto a Nucleus, there are two options: either spreading is progressive, or it is regressive. Table (11) below shows both structures.

(11) two options for the representation of syllabic consonants

a. left-branching b. right-branching

Right-branching structures are argued for by Yoshida (1990,2003), Rowicka (1999a:261ss,2003), Blaho (2001,2004), Afuta (2002), Rennison (1999:333ss). On the other hand, left-branching structures are promoted for example by Harris (1994:224s), Hall (1992:35s), Wiese (1986,1996), Szigetvári (1999:117ss) and Toft (forth). The frame of an article does not allow for further discussion of the individual proposals and their correlation with the particular theories in which they are couched. The reader must be referred to Scheer (in press), where more detail is offered. Let us look, however, at the essence of the arguments that can be filtered out from the literature.

The number one argument is the complementary distribution of syllabic and non-syllabic versions of the same consonant in the same word. This pattern is recurrent in many languages: either the consonant is non-syllabic, in which case it is preceded by a schwa. Or it is syllabic, but then occurs without preceding schwa. This distribution establishes the equivalence "absence of schwa = syllabicity of consonants": either schwa is present, or the following consonant is syllabic. The argument thus is obvious: the *preceding*, rather than the following Nucleus, is involved in consonantal syllabicity. The relevant pattern occurs for example in English (Toft forth) and in German.

In the latter language, syllabic consonants enjoy about the same frequency and distribution as in English: [l] and all nasals, plus [r] in rhotic varieties, may be syllabic. Syllabic consonants typically occur in word-final position after consonants or arise when the vowel of a vowel-initial suffix is left out. However, this familiar pattern is completed by a peculiar feature of German: syllabic nasals agree in place with the preceding consonant. That is, an underlying /n/ will appear as [m̩,ŋ̍,n̩,ɲ̍,N̩] according to the place of articulation of the preceding consonant. Relevant configurations are created by suffixes that are made of schwa plus an underlying dental nasal. One case in point is the infinitive <-en> /-ən/ (see for example Hall 1992:193ss, Wiese 1996:222s, full detail appears in Scheer in press). Consider the behaviour of the nasal under (12) below.

(12) German infinitive *-en*

schwa present	schwa absent	spelling	gloss
geeb-ən	geeb-m̩	geben	"to give"
hɛlf-ən	hɛlf-m̩	helfen	"to help"
vɛt-ən	vɛt-n̩	wetten	"to bet"
zaag-ən	zaag-ŋ̍	sagen	"to say"
laχ-ən	laχ-N̩	lachen	"to laugh"

Each word may be pronounced either with or without schwa. In case schwa is present, the nasal is always dental and non-syllabic. By contrast, the nasal is syllabic and agrees in place with the preceding consonant if schwa is left out. In other words, consonantal syllabicity and the presence of a preceding vowel are in complementary distribution. The German pattern (unlike its English cognate, see Toft forth) eludes the (phonetic) debate on the eventual presence of a vocalic trace in syncopated forms since the syllabicity of the nasal is independently controlled by its homorganicity.

It thus appears that syllabic consonants arise through the syncope of a *preceding* vowel. This fact is fairly trivial. It is overtly encoded in English and German spelling systems.[11] Moreover, the vowel that used to precede syllabic consonants, and at present may surface in free variation, is always a schwa. We know independently that schwa is the second but last stage of the typical lenition trajectory on which vowels in unstressed position engage (in Germanic, but also elsewhere): full peripheral vowel > central vowel > zero.

2 9.2. Diachronic situation: syllabic consonants come into being because a *preceding* vowel is lost

The Germanic situation actually describes a scenario for a great many, if not for all languages: syllabic consonants are never diachronically primitive. They come into being because of an evolution that makes the melodic content of a neighbouring Nucleus fade away.[12] In case this emptied Nucleus occurs before a word-final consonant __C# or in a closed syllable __RTV, the consonantal cluster created is too heavy. One way of resolving this awkward situation is to provide new melodic content to the orphan empty Nucleus via spreading from a neighbouring consonant.

If syllabic consonants exist in order to deliver melodic content to an adjacent orphan Nucleus, in principle this could be done by preceding as well as by following consonantal melody-providers. Now the hard observational fact is that syllabic consonants always seem to be born through the syncope of a preceding, not of a following vowel.[13] This, of course, is but the diachronic version of the argument that was made in section 9.1 on the grounds of synchronic alternations. In languages like Slavic where the original preceding vowel has been lost definitively and may not appear optionally on the surface (anymore?), only diachronic evidence can establish the correlation between syllabic consonants and the syncope of a preceding vowel. But anyway, whether looking at synchronic alternations or at diachronic

[11] Bell (1978:166) reports on cases where syllabic consonants have come into being because a following vowel was lost. However, according to common (but highly undue) practice in the literature, he does not make any difference between syllabic and trapped consonants, to the effect that this statement needs to be verified for each language quoted. Be that as it may, the only source for syllabic consonants in English and German is the syncope of a *preceding* vowel.

[12] Bell (1978:165ss) confirms this statement on the grounds of a cross-linguistic record of 85 languages that bear what he takes to be syllabic consonants, which actually may well include trapped items as well.

[13] Again, this is certainly true for Germanic and Slavic (cf. below for the latter family). See note 11 on the possible universal validity of this statement.

evolution, the argument remains the same: this is the fundamental evidence for representing syllabic consonants as left-branching structures, rather than as right-branching items.[14]

Let us thus look at the genesis of syllabic consonants in Slavic. Its modern representatives Czech, Slovak and Serbo-Croatian display syllabic consonants. Only the liquids [r] and [l] can assume this function in these languages.[15] It is a well-known fact that Slavic syllabic consonants continue former vowel-liquid sequences (some literature appears under table (13)). The vowels at hand are so-called yers, which faded away since late Common Slavic. Yers come along in two flavours, one front "ь", the other back "ъ". They continue Indo-European short [i] and [u], respectively. Table (13) provides some illustration of the regular correspondences and the diachronic origin mentioned: a Common Slavic CyerRC sequence is continued by a syllabic consonant in Czech, Slovak and Serbo-Croatian, while Russian and Polish vocalise the yer (in a predictable way in the former, but in a rather complicated fashion in the latter language, see note 17).

(13) Common Slavic √CьRC-/ √CъRC-
= Czech, Slovak, Serbo-Croatian √C̩RC-
= Polish, Russian √CVRC-

CьRC-		> syllabic		> vocalised		
Common Slavic	Czech	Slovak	Serbo-Croatian	Polish	Russian	gloss
gъrdlo	hrdlo	hrdlo	grlo	gardło	gorlo	throat
mъrk-ъvь	mrkev		mrkva	marchew	morkov'	carrot
sъmьrtь	smrt	smrt'	smrt	śmierć	smert'	death
pьrvъ	prvý	prvý	prvi	pierwszy	pervyi	first
vьlna	vlna	vlna	vuna	wełna	volna	wool
vьlkъ	vlk	vlk	vuk	wilk	volk	wolf

The genesis of syllabic consonants in Slavic is described in greater detail for example by Stieber (1979:33ss,54ss), Rospond (1979:94ss), Długosz-Kurczabowa & Dubisz (1993:84ss), Nahtigal (1961:111ss), Panzer (1991:296ss), Carlton (1991:151ss), Vondrák (1924:180ss), Vaillant (1950:173ss), Meillet (1934:73ss), Mikkola (1913-50 II:200ss), Mann (1957:54). All authors take up the traditional 19th century description according to which "liquids took over the syllabic function from preceding vowels (yers) as they faded away".

It thus appears that the Slavic evidence is strictly parallel to the Germanic case which was discussed in section 9.1: in all instances, synchronic and diachronic alike, syllabic consonants come into being because a *preceding* vowel has been lost.

10. A theory-internal argument

This section is the only one in the present article where reference is made to the particular theory that I am working in: Government Phonology (Kaye et al. 1990, Kaye 1990, Harris 1994) in general and so-called CVCV (Lowenstamm 1996, Szigetvári 1999, Scheer 1999, in press) in particular. The core proposal of CVCV is that syllable structure is better represented by a network of lateral relations among segments than by traditional arboreal structure. For example, a Coda consonant will enjoy a lateral, rather than an arboreal definition: "Coda

[14] Left-branching structures have been proposed by Harris (1994:224s), Wiese (1986,1996) and others on these grounds (even if this fact fails to be made explicit on many occasions).

[15] With the exception of two words in Czech, *sedm* "seven" and *osm* "eight", which may be pronounced [sɛdm̩], [ɔsm̩] in high-style speech, but most commonly appear as [sɛdum], [ɔsum]. In Serbo-Croatian, only [r] can be syllabic since the lateral has vocalised in Codas, where it appears as [ɔ]. In syllabic position, however, the vocalisation produces [u] (see table (13)).

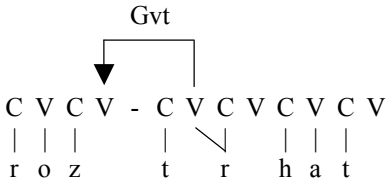
consonants occur before a governed empty Nucleus", rather than "Coda consonants belong to a constituent that is the sister of the Nucleus". The overall goal, then, is to achieve the lateralisation of structure and causality. A consequence of this approach is that a number of additional empty constituents are assumed that remain unpronounced (foremost empty Nuclei). Also, no syllabic arborescence is left at all: constituent structure consists of a strict sequence of non-branching Onsets and non-branching Nuclei. The arboreal function is taken over by the aforementioned lateral relations, which identify as Government (spoiling the segmental expression of its target) and Licensing (comforting the segmental expression of its target).

Given the limitations of an article, there is no hope to introduce the properties of the theory in any further detail. The only thing that needs to be understood in order to follow the argument is that vowel-zero alternations are supposed to be structure-preserving: the Nucleus where the vowel appears is always present, irrespectively of whether it is actually pronounced or not. Its phonetic expression is controlled by the status of the following Nucleus: in case it is contentful, it governs its preceding peer, which provokes the absence of the alternating vowel (Government spoils). If the following Nucleus is empty itself, it cannot act as a governor and hence its preceding peer escapes Government, which prompts its phonetic expression.

On these assumptions, reconsider the fact that Czech syllabic consonants provoke the non-vocalisation of prefixes (cf. section 4).

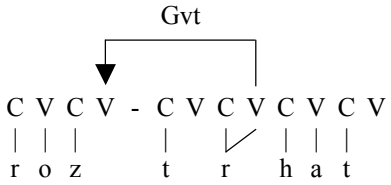
(14) who governs the prefixal Nucleus?

a. option 1: the Nucleus of a left-branching syllabic consonant



Czech roz**ø**-trhat "to tear up"

b. option 2: the Nucleus of a right-branching syllabic consonant



Czech roz**ø**-trhat "to tear up"

(14)a is well-formed provided that the empty Nucleus on the righthand side of the syllabic consonant is governed by the following [a] (all internal empty Nuclei must be governed). Nothing prevents the [a] from doing so. By contrast, the structure under (14)b where syllabic consonants are right-branching, is ill-formed because the empty Nucleus enclosed by the [t] and the [r] remains orphan (the detail is somewhat more complicated, see Blaho 2001,2004 and Scheer in press).

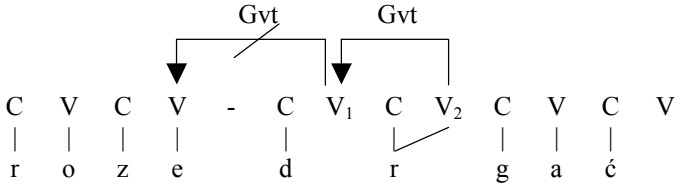
In other words, the Nucleus to the right of the syllabic consonant under (14)b acquires lateral actorship through the spreading of the consonantal melody. However, it is preceded by two empty Nuclei: the one located in the prefix and the one that precedes the syllabic consonant. Neither of these empty Nuclei appears on the surface, to the effect that whichever one is governed, the other will remain orphan.

If (14)b is ill-formed, (14)a must be the correct representation for syllabic consonants, which are thus left-branching. This result, achieved on the grounds of prefixal vowel-zero alternations in Czech, matches the synchronic and diachronic distributional evidence that has been discussed on the foregoing pages: syllabic consonants branch on the Nucleus to their left when the vocalic melody fades away.

Given this result, what could be the identity of the Polish trapped consonants? Recall from section 5.2 that they provoke the vocalisation of prefixes. Since we now have an idea of how these prefixal alternations work in presence of a following syllabic consonant, the status and identity of their trapped Polish cognates falls out automatically. That is, the presence of the

prefixal vowel tells us that its Nucleus is not subject to Government. Consider the relevant representation under (15) below.

(15) why trapped consonants provoke vocalised prefixes in Polish



roz**e**-drgać "to set vibrating"

The only reason for the presence of the prefixal vowel can be the fact that the following Nucleus, V_1, does not qualify for lateral actorship: it is unable to govern. In turn, this means that it must be struck by Government itself. Continuing this "every other" chain reaction, the Nucleus to its right, V_2, must be the origin of this Government. Therefore, V_2 has to be a sound governor and hence cannot be subject to Government itself. How could that be? Given what we know about syllabic consonants, the answer is straightforward: trapped consonants spread onto the following Nucleus, which acquires full lateral actorship for that reason.

Looking at the prefixal consequences of syllabic and trapped consonants through the prism of CVCV thus puts a name on both candidate structures of (11): left-branching consonants are syllabic, while those that colonise the following Nucleus are trapped.

11. Diachronic confirmation: syllabic consonants are born through the loss of a preceding, trapped consonant through the loss of a following vowel

This representation of syllabic and trapped consonants receives support from their diachronic identities: it so happens that Czech syllabic consonants have been born through the loss of the *preceding* vowel, while Polish trapped consonants have come into being because the *following* vowel has faded away. Here again, full demonstration of the philological detail, which is quite intricate in itself, would require many more pages than an article can offer (e.g. Stieber 1979:54ss, Nahtigal 1961:111s, Carlton 1991:151ss,249s, Vaillant 1950:173ss, Panzer 1991:296ss, Vondrák 1924:181). Once more, I have to refer the reader to Scheer (in press), where the overall picture is exposed.

The only thing that can be done here is to look at the bare diachronic source of syllabic and trapped consonants. Table (1) actually contains relevant Common Slavic evidence for the latter category: it may be seen there that Polish trapped consonants were always followed by a yer ("ъ" and "ь") in Common Slavic. The traditional Slavic literature refers to this pattern as trьt (and trъt, which I leave out for expository reasons). It was already mentioned earlier that yers were lost in late Common Slavic. The analysis, then, is very simple, actually embracing the 19th century common sense statement: the consonant takes over the syllabic function of vowels that die of senility. Modern autosegmental structure merely explains further what "taking over" actually means: the adjacent sonorant spreads onto the orphan empty (emptied) Nucleus.

The question now is what happens in tьrt clusters, i.e. when a Common Slavic yer *precedes* a liquid. Relevant data are provided under (16) below.[16]

[16] The 60-item list of (16) is a compilation of various etymological dictionaries and historical grammars that I have established. The sources include Havlová & Erhart (1989-2002), Bańkowski (2000), Brückner (1927), Machek (1957), Holub & Kopec"ný (1952), Rejzek (2001), Rospond (1979:95ss), Stieber (1979:33ss,54ss), Nahtigal (1961:111ss). The philological situation is rather complex and cannot be discussed at length here. The total number of roots that can be come by probably exceeds 60 a bit (yet not much).

(16) Czech √CR̥C- = Polish √CVRC-

Polish reaction	Common Slavic	Czech	Polish	Czech gloss	Polish gloss
CaRC: 34	gъr-dlo	hrdlo	gardło	throat	throat
	gъrt-tь	hrst	garść	(cupped) hand	(cupped) hand
	dьr-nъ	drn	darń	lawn	lawn
	sьr-na	srna	sarna	roe	roe
CieRC: 16	pьrsi	prsa	pierś	breast	breast
	sьrpъ	srp	sierp	sickle	sickle
CiRC: 4	vьlkъ	vlk	wilk	wolf	wolf
CeRC: 6	vьlna	vlna	wełna	wool	wool
	sьrdь-ce	srdce	serce	heart	heart
	pьlnъ	plný	pełny	full	full
Total: 60					

As may be seen, Polish produces pre-vocalised reflexes of CS tьrt items, i.e. simply "vocalises" the yer.[17] On the Czech side, however, syllabic consonants appear. When looking at the overall comparatistic situation of Western Slavic, thus, it appears that only Polish has separate continuators of CS tьrt and CS trьt: pre-vocalised vs. trapped, respectively. Czech on the other hand seems to have merged both CS patterns: syllabic reflexes are encountered on both sides.[18] Hence, there is certainly evidence for a right-branching status of trapped consonants, but it seems that nothing allows to decide between a right- and a left-branching identity for Czech syllabic consonants.

This, however, is but the impression when looking at the modern waters, which have been blurred by a secondary evolution. It is notorious in all diachronic grammars of Czech that the modern situation is the result of a movement which has taken place in historical times and can be followed step by step in written testimony. That is, Modern Czech syllabic consonants, when identified according to their origin, fall into so-called "primary" and "secondary", or "old" and "new" items. Old syllabic consonants go back to CS tьrt, while their younger peers that have emerged in historical times continue CS trьt. That is, the historical change that is transparent in Old Czech script transforms trapped into syllabic consonants and hence merges the CS contrast between tьrt and trьt: CS trьt > ocz trapped trt > mcz syllabic tṛt (e.g. Trávníček 1935:57s,111ss,226ss, Lehr-Spławiński & Stieber 1957:97ss, Komárek 1962:60s,82,97ss,127ss, Liewehr 1933:93s,162s).

Old Czech is thus the language which provides the direct opposition that we are looking for: syllabic consonants continue CS tьrt, while trapped consonants appear in place of CS trьt. Consequently, trapped and syllabic consonants must have cohabitated in Old Czech. This is indeed notorious: Trubetzkoy (1939:199) for example establishes a "correlation of syllabicity" because both types of consonants actually stood in phonemic opposition in Old Czech. This is guaranteed by the existence of a minimal pair: ocz syllabic dṛžěti (< CS dьržati, cf. pol dzierżyć, mcz držet) "to hold" vs. ocz trapped držěti (< CS drъžati, cf. pol drżeć, mcz extinct) "to tremble". The trapped vs. syllabic character is detected by the number of peaks in poetry, see Komárek (1962:82), Liewehr (1933:94).

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[17] The quality of the vowel depends on the consonantal environment, its prediction is a classical concern of Polish historical grammar, see for example Stieber (1973:23s,42ss,1979:54ss), Długosz-Kurczabowa & Dubisz (1993:84ss), Rospond (1979:94ss), Nahtigal (1961:111ss), Carlton (1991:249s), Vondrák (1924:183ss), Mikkola (1913-50 II:201s), Wijk (1949-50:44s).

[18] This is not completely true, though: the CrzC pattern of table (1) produces CřC on the Czech side, and ř in these clusters is trapped (see section 3). The CřC pattern actually is an unblurred window on the original Old Czech situation, something that will be critical as the discussion unfolds.

Stepping back from the philological debate, thus, it appears that Western Slavic syllabic and trapped consonants owe their existence to the loss of a preceding vs. a following vowel, respectively. This is exactly in line with the synchronic and diachronic evidence that comes from other languages (section 9), and also matches the conclusion of the theory-internal argument of section 10: syllabic consonants branch on the preceding, trapped consonants on the following empty (emptied) Nucleus.

12. An alternative explanation for the transparency of trapped consonants: they are obstruents

Recall from section 6 that Polish trapped consonants are transparent to voice assimilation. The standard explanation that is proposed in work by Jerzy Rubach is to identify trapped consonants as extrasyllabic. That is, voice assimilation takes place at a derivational stage where trapped consonants are unsyllabified. This means that the flanking consonants are in contact and therefore regularly agree in voicing, hence showing the same behaviour as all other obstruent clusters in Polish.

What does the solution favoured here, i.e. the right-branching identity of trapped consonants, has to say with respect to their transparency? Nothing. There is no particular reason why right-branching, rather than left-branching consonants should be transparent to voicing.

The transparency of trapped consonants must thus have an independent reason. The alternative solution that I develop in Scheer (in press) builds on the notorious fact that trapped consonants are demoted: for some reason, they lose their status as sonorants. There is no doubt about this fact since trapped consonants, both in Czech and in Polish (<ř> and <rz>, respectively), participate in final devoicing. That is, they have voiced and voiceless allophones, something that is not rendered by spelling. Their underlying identity is voiced since they appear as such in intervocalic and word-initial position: <rz,ř> are voiced for example in pol rzeka, cz řeka "river" and pol mierzyć, cz měřit "to measure". In word-final position, however, Polish <rz> and Czech <ř> are voiceless: pol piekarz [pjɛkaʃ], cz pekař [pɛkař̥] "baker" (e.g. Palková 1997:213, Scheer 1998:53ss for Czech, Swan 2002:16 for Polish). Montreuil (1999:541ss) provides concording evidence from an unrelated Romance language, Romansch, where trapped sonorants are also demoted to obstruents and hence "transparent" to voicing.

As everywhere else in the world, real sonorants do not devoice word-finally in languages with final devoicing. Hence, it is inaccurate to talk about trapped sonorants. The trapped items at hand *were* sonorants before they became trapped. Trappedness seems to inevitably induce the loss of sonorancy. The alternative explanation for the transparency of trapped consonants, then, is obvious: CrC and Cr sequences where r is trapped are made only of obstruents; obstruent clusters, as everywhere else in the language, agree in voicing, and there is nothing more to say.

13. Conclusion

I have tried to do three things in this article. First, to establish trapped consonants as a basic phonological object in its own right: trapped consonants are not some sub-variety of syllabic consonants. Rather, they stand on a par with syllabic consonants. Confusion of both categories is commonplace in the literature. Taking trapped consonants for some funny variety of syllabic consonants is fatal for the understanding of the phonology of relevant languages.

Second, I have provided a check-list regarding the behaviour of trapped and syllabic consonants. This catalogue is designed to dispense with much previous and current practice

where the phonological identity of trapped and syllabic consonants is not derived from their phonological behaviour, but from their mere function as a vowel ("syllabic consonants sit in Nuclei"). My contention here, as elsewhere, is that only the phonological behaviour of a natural linguistic object can betray its identity (this is actually a core claim of Government Phonology). In the particular case at hand, I argue that the examination of the behaviour of either trapped or syllabic consonants in isolation will get us nowhere. It is only when the behaviour of both closely related cluster-building consonant types is run against each other that we can expect to discover their nature. In short, any theory that proposes an identity for syllabic consonants without knowing about, and having integrated the evidence form trapped consonants (and vice-versa), must fail.

These two goals are theory-neutral. The check-list that I have reviewed may be incomplete, but it makes a strong case, empirically speaking, for the absolute antagonicity of syllabic and trapped consonants. It should therefore contribute to a better understanding of these strange phonological hermaphrodites, no matter what the theory.

The study of syllabic consonants has gained some interest recently, especially in Government Phonology (less so, unfortunately, the study of trapped consonants). The perspective that I am arguing for here and at greater length in Scheer (in press) contributes to this strive. The theory-specific part of this article is therefore nothing that should be considered a definite result. Rather, it is a first exploration of the consequences that could be drawn, in the specific environment of CVCV, from the methodology that I have tried to establish in the theory-neutral sections. The conclusion that syllabic consonants branch on the preceding empty (emptied) Nucleus, while trapped consonants have the reverse structure, is certainly perfectible, perhaps simply wrong (foremost on the trapped side).

There is indeed some evidence that is left unconsidered here, and which does not seem to support the analysis presented. Relevant facts are reviewed in Scheer (in press). For one thing, trapped consonants, unlike their syllabic peers, are invisible for stress. This suggests that they do not participate in the vocalic world at all. Their natural representation, then, would be one where they remain unassociated to any Nucleus (see Blaho 2001,2004 on this issue). Second, the right periphery of syllabic consonants begs the question: as a matter of fact, heavy clusters can appear to the right of syllabic consonants (e.g. in Czech words such as čtvrtek - čtvrtk-u "Thursday NOMsg, GENsg", trpknout "to become bitter"). These will enclose additional empty Nuclei that seem to remain orphan for the moment.

Be that as it may, it is wise, thus, to consider the present article primarily as a methodological contribution, with a supplement that explores how the new insight could be applied to a particular theory.

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