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Introduction

This volume gives an overview of the last twenty years of Slavonic Studies at the University of Leipzig and calls special attention to the successful periods in the history of Slavic linguistics when it worked on the same methodological basis in close cooperation with general linguistics. While the methodological basis in the 19th and in the beginning 20th century was Indo-European historical comparison it is theoretical and formal linguistics now.

Historical background

When the modern Indo-European languages were first represented by professors at the Philosophical Faculty of the University of Leipzig, German Studies became the first philological discipline. It was inaugurated in 1848 but Slavonic Studies followed already in 1876. With August Leskien, the University of Leipzig had the first professor of Slavic Languages in Germany. He and his Neo-Grammarian followers and students such as the first professor of Indo-European Languages in Leipzig, Karl Brugmann (professor in Leipzig since 1887), became world famous as the representatives of the "Leipzig School of Linguistics". They created the theoretical ground for Historical Comparative Linguistics on an exact empirical basis and were the supervisors of the theses of Ferdinand de Saussure and Baudouin de Courtenay. The Russian disciples of the latter became founders of the Prague Linguistic Circle that directed the attention to synchronic linguistics and the system of language like de Saussure's theory and paved the way for structural linguistics. It became the starting point for linguists in Leipzig after the Second World War.

Since 1889, August Leskien, Karl Brugmann and a professor of Sanskrit were the three colleagues in the Indo-European Department in Leipzig. In 1922, Slavonic and Indo-European Studies became independent parts of the enlarged so-called "United Linguistic Department" that existed until 1946 when the Department of Slavic Studies became more relevant for the education of teachers and interpreters/translators of Slavic languages and was turned into a department of its own. In 1959, the Department of Indo-European was turned into the Department of Linguistics, and shortly afterwards, the slavist Rudolf Růžička became its director. As a linguist, he was interested in theory of grammar, and as a slavist, he used Slavic languages as the empirical basis for his formal generalizations. In this way, he became one of the first generative slavists worldwide. His main fields of expertise were syntax, semantics, and the comparison of Slavic languages.

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Tobias Scheer (Nice) and Markéta Ziková (Brno)

Branching Onsets in Old Czech

1 Introduction

On the pages below our goal is to characterize Old Czech branching onsets: which groups should be granted this status on which grounds? Among those clusters that qualify, which ones do actually occur in the written record? Finally, among those that do not, which ones are accidental and which ones are systematic (i.e. grammar-driven) gaps?

Section 2 provides relevant background about how branching onsets are identified and the fact that the traditional left edge-criterion is inconclusive in Slavic languages like Russian, Polish or Czech. A more operative diagnostic, we contend, are final TR clusters.[1] Section 3 introduces the distinction between trapped and syllabic consonants, while section 4 shows that trapped consonants are always part of a branching onset when preceded by another consonant. Therefore final TR# clusters whose R is trapped must be branching onsets. This diagnostic is run against the empirical record of Old Czech that is established in section 5 on the grounds of the three morphological categories that produce word-final TR# clusters: nominative singular, genitive plural and short forms of adjectives. The result is interpreted in an attempt to tell accidental from systematic gaps based on a numerically weak record. One interesting and outstanding pattern is highlighted in section 6: *h* appears to be unable to form branching onsets with word-final sonorants. This is true throughout in Gpl (where the cluster is vocalized), but the behaviour of Nsg is hesitating (some roots produce doublets, others only TR#). The conclusions in section 7 point out that this is heralding the situation found in Modern Czech, where the contrasting behaviour of Nsg (TR#) and Gpl (TeR#) is generalized and exceptionless.

Note: Affiliation of Tobias Scheer: Université Côte d'Azur, CNRS, Bases Corpus Langage (BCL); affiliation of Markéta Ziková: Masarykova univerzita Brno.

1 In this article, T is shorthand for any obstruent, R for any sonorant.

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2 Branching onsets and how to diagnose them

It is common practice to look at the left edge of words in order to determine what a good branching onset is: in English for example #RT (falling sonority profile), #TT and #RR (sonority plateau) do not occur, which is taken as a diagnostic for them to be unable to constitute a branching onset. Rising sonority clusters #TR on the other hand are found, which leads to the conclusion that they are branching onsets. Not all possible #TRs are instantiated, though: the spelling of *know*, *knight* etc. indicates that initial obstruent-nasal clusters for example did occur in previous stages of the language – but this is no longer the case. Again, the absence of #kn (as opposed to its presence word-internally: *ac*[kn]*owledge*) is taken as a diagnostic for the fact that nasals cannot be involved in branching onsets.

It is widely accepted that only clusters with a rising sonority profile can be branching onsets: this is true for all languages. But within TRs, more fine-grained distinctions are language-specific: #kn is not a good branching onset in English, but qualifies for that status in German (*Knall* 'burst', *kneten* 'to knead', *Knoten* 'knot'). Clements (1990) provides more detail regarding the cross-linguistic situation.

In languages such as Russian, (Old and Modern) Czech (henceforth OCz and MCz) or Polish where word-initial clusters may have any sonority profile, the initial context is uninformative of what counts as a good branching onset. A #kn like in MCz *knot* 'wick' or *knuta* 'knout' could be either a branching onset or a sequence of two independent onsets, as are #rt in *rtuť* 'quicksilver' or #lh in *lhát* 'to lie' etc. (see Scheer 2007).[2]

We believe that in OCz word-final TR clusters provide a reliable diagnostic for the restrictions that branching onsets are subject to in this language. In order to see that, let us start by recalling relevant properties of syllabic and trapped consonants.

3 Syllabic and trapped consonants

The following diagnostics allow us to tell syllabic (as in MCz *trvat* 'to last') and trapped consonants (as in MCz *třtina* 'cane', Polish *trwać* 'to last') apart (Scheer 2008, 2009).

2 We use Czech spelling throughout, where long vowels are marked by an acute accent.

Tab. 1: Diagnostics: trapped vs. syllabic consonants.

		syllabic	trapped
a.	count in poetic verse	yes	no
b.	count when native speakers judge the number of syllables of a word	yes	no
c.	can bear stress	yes	no
d.	can be followed by more than one consonant	yes	no
e.	are transparent to voicing	no	yes
f.	provoke the vocalization of preceding consonant-final prefixes	no	yes

These diagnostics reflect the simple generalization that syllabic consonants behave like vowels (while having a consonantal body), while trapped consonants (which have the same consonantal body) do not. Traditional grammars call the former vocalic, the latter consonantal liquids. Classical surface-based analyses simply locate syllabic consonants in nuclei: anything that constitutes a sonority peak sits in a nucleus (or: anything that behaves like a vowel *is* a vowel). This approach is found for example in Clements (1990: 293ff), Blevins (1995) and Kenstowicz (1994: 255f). There is good reason to doubt that this approach is correct (Scheer 2008: 156f). For one thing, it does not address the simple fact that the physiology and behaviour of syllabic consonants discords: these objects are hermaphrodites. Belonging (exclusively) to a nucleus should produce a phonetic result that is vocalic. Also, a phonetically consonantal item that is (exclusively) associated to a nucleus violates a basic autosegmental principle. Unlike in linear SPE (where [±syll] and the like were properties of segments just like labiality etc.), in the autosegmental approach segments are not intrinsically vocalic or consonantal: they end up as a consonant or a vowel depending on the syllabic constituent that they are attached to. That is, high vowels [i], [u] and the corresponding glides [j], [w] are phonologically (segmentally) identical, the former being the result of a pronunciation in a nucleus, the latter of an association to an onset (or a coda) (among many others, see Kaye & Lowenstamm 1984, Kenstowicz 1994: 23, Hayes 1989).

The alternative is to acknowledge that syllabic consonants have a consonantal body by placing them in an onset, while deriving their vocalic behaviour from the fact that they branch on a neighbouring nucleus. Both right- and left-branching structures, shown in table 2, have been entertained in the literature. The former are argued for by Rowicka (1999: 261ff, 2003), Blaho (2001) and Rennison (1999: 333ff), among others. The latter is advocated for example by Harris (1994:

224f), Hall (1992: 35f), Wiese (1986, 1996), Szigetvári (1999: 117ff) and Toft (2002) (the situation is summarized in Scheer 2004: §256).

Tab. 2: Syllabic consonant.

a. left-branching	b. right-branching
	

Taking into account a range of various phenomena in different languages, there are arguments in favour of either option, including a possible coexistence of both in the same language (Ziková 2007). Our current understanding is that Czech syllabic consonants are right branching (Scheer 2009, Ziková 2013), but that left-branching items may occur in other languages.

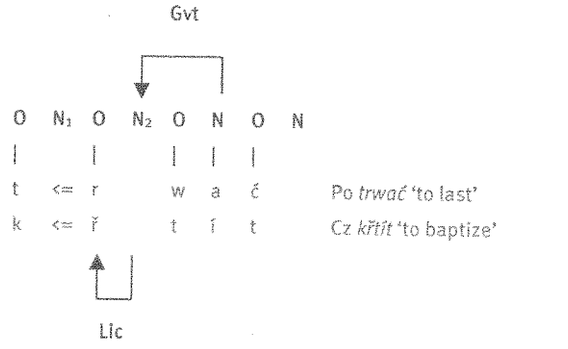
The question of the direction of branching is orthogonal to our purpose on the pages to follow. The only thing that needs to be established is that syllabic consonants do branch on a neighbouring nucleus. A direct corollary of this is that trapped consonants do not: syllabic consonants behave like vowels since they are associated to a nucleus – hence the fact that trapped consonants do not show any vocalic behaviour witnesses that they are not attached to any nuclear constituent.

4 Trapped consonants and branching onsets

Government Phonology in general and CVCV in particular (Lowenstamm 1996, Scheer 2004) define restrictions on the size of consonant clusters through empty nuclei and their ability to licence preceding consonants (or clusters). Consider the representation of trapped consonants in CVCV in table 3 below.[3]

3 Note that for the sake of exposition, we do not indicate vowel length in representations.

Tab. 3: Trapped consonants.



The fact that trapped consonants do not branch on adjacent nuclei but may be preceded and followed by a consonant creates a situation where two empty nuclei, N_1 and N_2, need to be accounted for. Since the following contentful nucleus cannot govern both, it follows that the leftmost empty nucleus N_1 must be silenced by a different mechanism. Aside from government the theory provides for only one option, that is the CVCV equivalent of branching onsets (clusters of rising sonority that behave in a solidary fashion): these are made of two independent onsets and entertain a relationship at the segmental level (Infrasegmental Government, "<="in table 3). Nuclei enclosed in such a domain are invisible from above the skeleton: they do not seek government and for example are invisible for stress assignment (Szigetvári & Scheer 2005). Therefore the structure in table 3 is well-formed: N_1 may remain empty because it is enclosed within a consonantal domain, while N_2 is governed.

Note that in terms of the theory this requires that internal governed empty nuclei, N_2 in table 3, be able to license branching onsets. This is shown by the "Lic" arrow in table 3. Typologically speaking, this is an extreme situation, as Cyran (2010) points out: there are two universal (and implicational) Licensing Scales. On the one hand, contentful nuclei are better licensors than schwas, which in turn can sustain more consonantal material than (word-)final empty nuclei. The weakest licensor on this scale are internal (and hence governed) empty nuclei. On the other hand, different consonant clusters are more or less easily sustainable: simplex consonants are the easiest items to license for a vowel, followed by clusters of falling sonority (RT) and plateaus (TT, RR), while rising so-

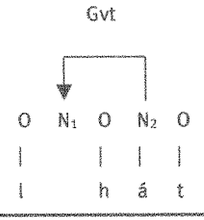
nority clusters (TR) are the most difficult items. Given this situation, the configuration in table 3 combines the extremes of both scales: the weakest licensor, an internal (governed) empty nucleus, licenses the most difficult cluster (TR).

For our purpose, the take-home message is that a trapped consonant which is followed and preceded by other consonants can only be well-formed if it is part of a branching onset (we continue using this *lingua franca* term when referring to the structure in table 3). This conclusion was first drawn by Charette (1992), albeit in a slightly different theoretical environment (Standard Government Phonology).

Note that trapped consonants also occur when not preceded or followed by other consonants: this is when they are either word-initial (MCz *lhát* 'to lie') or word-final (OCz *bratr* 'brother', MCz *pepř* 'pepper'). The relevant generalization, then, is that trapped (as much as syllabic) consonants occur in all contexts except when adjacent to a vowel.

Let us have a closer look at the word-initial context, which is interesting since there is no preceding consonant that the trapped item could form a branching onset with. The situation is depicted in table 4 where the structure of *lhát* 'to lie' is shown.

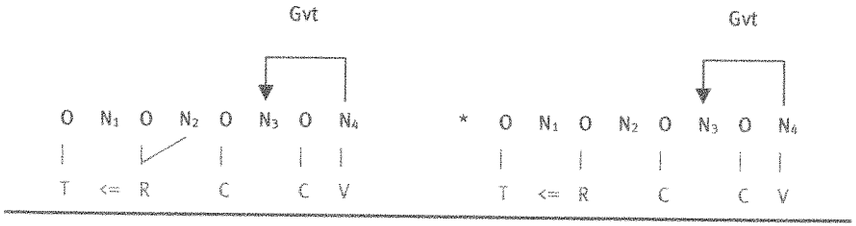
Tab. 4: Word-initial trapped consonant.



Word-initial trapped consonants show that being part of a branching onset is not a necessary condition for their existence. The only thing that needs to be assured is that all empty nuclei are taken care of: by the branching onset relationship (N_1) and government (N_2) in table 3, only by government (N_1) in table 3.

This makes an interesting prediction that turns out to be correct: trapped consonants cannot be followed by more than one consonant, since this would leave an orphan empty nucleus. Table 5 shows the situation of trapped and syllabic consonants when followed by a consonant cluster.

Tab. 5: Syllabic and trapped consonants followed by a cluster.



As may be seen, all nuclei in (5a), where a TRCCV string with a syllabic R is shown, are either associated to segmental material (N_2, N_4), included in a branching onset (N_1) or governed (N_3). The same holds true for the hypothetical trapped sequence in (5b), except that N_2 is orphan, i.e. not subjected to any mechanism that would allow it to be empty. Therefore the structure is ill-formed. The difference between (5a) and (5b) is what contrasts syllabic and trapped consonants: the ability to branch on a neighbouring nucleus.

It was mentioned under (1d) that the ability to be followed by a cluster is a diagnostic for identifying syllabic and trapped consonants. This is indeed a correct empirical generalization: there are no words of the shape TRCC with trapped R in OCz and MCz, or in Polish for that matter (while TRCC with syllabic R are commonplace in MCz; the details of the empirical situation are described in Scheer 2004: §298).[4]

Before turning to the OCz situation, two more predictions need to be made explicit. The fact that trapped consonants are necessarily part of a branching onset when preceded by another consonant implies that the cluster at hand is a well-formed branching onset in the language in question. Hence trapped R in C_1RC_2 needs to be able to establish a branching onset relationship with C_1 in order for the structure to be well-formed. Otherwise N_1 in table 3 will be orphan. This

4 Note that trapped TRCC in fact does occur in OCz, but all instances involve a tautomorphemic s+C cluster: examples include *krst-iti* 'to baptize', *krst-y* 'baptisms', *blsk-et* 'lighting', *blšč-eti* 'to sparkle'. Syllabic TRCC, on the other hand, can be both tauto- and hetero-morphemic with no restrictions on CC; see for example *drnk-at* 'to twang' or *krčm-a* 'boozer' (with tautomorphemic CC), *vlh-ký* 'wet', *drs-ný* 'rough' or *drh-nout* 'to rub' (with heteromorphemic CC). The restriction of trapped TRCC to s+C in OCz is a typical instance of the well-known behaviour of s+C as a single consonant (see Goad 2011 for an overview) and therefore does not harm the generalization. Also note that the OCz trapped TRCC items were simplified in MCz: they either vocalized (*blýskot, blesk*) or lost the sibilant (*křty, křtíti*).

means that C_1 and the following trapped R need to instantiate a rising sonority slope: we do not expect words like *mrtit* or *rlpat* where *r* and *l* are trapped.

The other prediction concerns the word-final situation. Recall that sequences with trapped consonants are well-formed as long as all empty nuclei have a reason to be empty. In a TR# cluster where R is trapped (OCz *bratr* 'brother', MCz *pepř* 'pepper'), the intervening empty nucleus may in principle be empty for two reasons: either it is governed by the final empty nucleus (FEN), or it is enclosed in a branching onset. Both options are shown in table 6 below.

Tab. 6: Word-final trapped consonants.

6a. FEN governs	6b. branching onset
Gvt … O N O N # | | T R	… O N O N # | | T <= R Lic

Option (6a) is not available word-internally since internal empty (governed) nuclei are unable to govern. FEN on the other hand have the ability to govern: this is how the peculiar behaviour of the right edge is encoded in Government Phonology (see Scheer 2004: §62, also §362 regarding the encoding of extrasyllabicity). In languages where FEN can govern, word-final RT#, TT# and RR# clusters are well-formed. This is the case in English for example: *bold*, *hand*, *short* etc. Note, however, that only a subset of RT#-tolerating languages also features TR# (this is one of the implicational generalizations regarding typology made by Cyran 2010): there is no TR# in English – or rather, the R in these cases is invariably syllabic (*apple*, *bitter* etc.). Languages of the English type do possess the configuration under (6a) where the FEN governs the empty nucleus enclosed in RT#, TT# and RR#. But something prevents them from instantiating the same configuration with TR#, i.e. where R would be trapped.

From that we must conclude that final trapped TR# is not just a sequence of two unrelated onsets, as under (6a): something more is needed for the R to be able to sustain a trapped status. What this is appears under (6b), where the

trapped TR# constitutes a branching onset, which needs to be licensed by the FEN. Hence the difference between English and, say, Polish or Czech, is that in English FEN cannot license branching onsets, while in Polish and Czech they have this ability. Note that this is in line with Cyran's (2010) licensing scales (and with his analysis thereof): TR clusters are the most difficult items to license, hence languages may be able to sustain word-final RT#, TT# and RR# but not (trapped) TR#, or they may instantiate all four cluster types.

It follows that final trapped consonants never instantiate (6a): they can only represent the structure under (6b) where the FEN licenses the TR cluster.

This conclusion is consistent with another simple fact. Word-final trapped TR# are unstable and typically (always?) suffer some damage (Scheer 2009: 415ff): the R is devoiced or lost altogether. French *autre* [otɣə] 'other' for example may be realized as [ot] when the final schwa is left unpronounced. R is also sporadically lost in OCz: Gebauer (1963 [1894]: 353, 367) points out that Gpl *bydl* 'livelihood' and *modl* 'idol' appear also as *byd* and *mod*, Nsg *mistr* 'master' as *mist* or past participles *nesl* 'he carried' and *nalezl* 'he found' as *nes* and *nalez*. Word-final trapped R devoices in French, Polish and MCz. The lateral is devoiced in French *peuple* [pœplə] 'people' when the final schwa is unpronounced (and the lateral maintained): [pœpl̥]. This is also the case in Polish (e.g. *Pio*[tr̥] vs. *Pio*[tra] 'Peter, Nsg, Gpl', see Biedrzycki 1978: 83f). When preceded by a voiced obstruent, the entire TR# cluster devoices; compare Polish *ka*[tr̥] vs. *ka*[dra] 'staff, Nsg, Gpl' (Rubach 1997), MCz *mo*[tř] vs. *mo*[dři] 'lazuline, Nsg, Gpl', French *prendre* [prãdʁə] 'to take', pronounced [prãtr̥] if the schwa is left out and the R maintained. Interestingly, the devoicing of R in this context is uniform and independent of final devoicing: Polish and Czech devoice word-finally, but French does not.

Given this situation, the point to be made regarding the instability of word-final trapped R is that word-final post-consonantal R is not unstable at all when it occurs after another sonorant. That is, the final R of English *ba*[rn], *ha*[rm], *napa*[lm] or French *merle* [rl] 'blackbird', *charme* [rm] 'charm', *alterne* [ʁn] 'he alternates', or MCz *ša*[rm] 'charm', *noktu*[rn] 'nocturne, Gpl', *če*[rɲ] 'ink-black', *ji*[lm] 'elm', *linko*[ln] 'type of limousine', does not show any inclination to be dropped or devoiced. Since word-final trapped R is always subject to damage in French and Czech, it follows that these undamaged word-final post-consonantal Rs are not trapped. In other words, sonorants are only trapped after obstruents. This means that RR# clusters are instantiations of (6a) (as much as TT# and RT#), while TR# represents (6b).

In sum, thus, word-final TR# (where the R is not syllabic) is always trapped. The fact that RR# never is shows that word-final R can only be trapped if it forms

a branching onset with the preceding consonant. That is, final TR# (where the R is not syllabic) is not only trapped, but also a branching onset.

In the following section, we look at the OCz record on the basis of this conclusion: word-final (non-syllabic) TRs must be branching onsets.

5 Word-final TR in Old Czech

5.1 The general landscape

OCz distinguishes Common Slavic (CS) groups *tьrt* and *trьt*, i.e. where in a TRT group a yer (ь) was placed either before or after the sonorant. The development of these yer-containing clusters in individual Slavic languages is a prominent subject of debate in the classical diachronic literature (Stieber 1979: 54ff, Nahtigal 1961: 111f, Carlton 1991: 151ff, 249f, Vaillant 1950: 173ff, Panzer 1991: 296ff, Vondrák 1924: 181, a digest is available in Scheer 2004: §277).

In OCz, sonorants that were preceded by a yer (*tьrt*) are syllabic; they are trapped in case they were followed by a yer (*trьt*). In the traditional literature on OCz, the former are called vocalic sonorants, while the latter are referred to as consonantal (Trávníček 1935: 57f, 111ff, 226ff, Lehr-Spławiński & Stieber 1957: 97ff, Komárek 1962: 60f, 82, 97ff, 127ff, Liewehr 1933: 93f, 162f). The existence of a minimal pair led Trubetzkoy (1939: 1999) to talk about a 'correlation of syllabicity' in OCz: syllabic *držěti* 'to hold' (< CS *dьržati*, Polish *dzierżyć*, Russian *deržat'*, MCz *držet*) vs. trapped *držěti* 'to tremble' (< CS *drъžati*, Polish *drżeć*, Russian *drožat'*). Syllabic *držěti* 'to hold', then, counts for 3 syllables in typical OCz syllabic verse, while trapped *držěti* 'to tremble' weighs only 2 syllables.

The fact that OCz verse indeed systematically distinguishes syllabic and trapped TRT is illustrated in table 7 below. We provide some examples from *Legenda o svaté Kateřině* [The Legend of Saint Catherine; 1484], which is written in regular octosyllabic verse. Verses with trapped TRT appear on the lefthand side of the table (i.e. *krve* 'blood, Gsg' < CS *krъv*; *plti* 'skin, Isg' < CS *plъt*), while syllabic TRT are shown on the righthand side (i.e. *črvená* 'red' < CS *čьrv*; *trpěl* 'he suffered' < CS *tьrp*). Syllabic peaks are boldfaced.

Tab. 7: Trapped vs. syllabic TRT.

	trapped TRT	syllabic TRT
7a.	barva **o**t jejie krve (σ) svaté	na němžto črvená (σσσ) ktvieše
7b.	tu je i s plti (σ) vytrhniechu	muky trpěl (σσ), na kříž vstúpil

Word-finally, TR clusters followed by a yer become trapped in OCz, both in Nsg and Gpl (which are the relevant morphological contexts that produce the input configuration TRь). Some examples are shown in table 8 below.[5]

Tab. 8: CS TRь > OCz trapped TR.

Nsg			Gpl		
CS	OCz	gloss	CS	OCz	gloss
bratrъ	bratr	brother	sestrъ	sestr	sister
bobrъ	bobr	beaver	žebrъ	žebr	rib
myslь	mysl	mind	modlъ	modl	idol

Again, the trapped character of word-final TR# in Nsg and Gpl is witnessed by OCz octosyllabic verse. Two relevant examples (from *Alexandreida*; mid 14th century) are provided below.

Tab. 9: Trapped TR#.

Nsg	Gpl
jímž sě mysl (σ) ho nic neskrúti	byli svých modl (σ) odstúpiece

5 Note that in case a yer intervened within a CS word-final TRь, OCz systematically shows a vowel-zero alternation. Unfortunately, the CS lexical material does not provide good cases of TьRь where T is a stop and makes a cluster with the following R that looks like a good branching onset: Ts in this configuration are sibilants (CS *osьlъ* > OCz *osel, osl-a* 'donkey, Nsg, Gsg', *posъlъ* > *posel, posl-a* 'herald', *sysьlъ* > *sysel, sysl-a* 'souslik', *kašьljь* > *kašel, kašl-e* 'cough', *ǫzьlъ* > *uzel, uzl-u* 'knot', *kozьlъ* > *kozel, kozl-a* 'he-goat'), /r/ (*orьlъ* > *orel, orl-a* 'eagle') or /t/ followed by a lateral (*kotьlъ* > *kotel, kotl-e* 'kettle'). The only exception is monosyllabic *kъlъ* > *kel, kl-u* 'tusk'.

If word-final TR# was always trapped in Old Czech, we are in presence of a diagnostic for well-formed branching onsets: recall that section 4 established that trapped word-final TR# are necessarily branching onsets. Let us thus look at the inventory of Old Czech word-final TRs.

5.2 Nominative singular

The record below is the exhaustive output of a search in the electronic versions of the OCz dictionaries featured on the website Vokabulář Webový (below VW, http://vokabular.ujc.cas.cz).

We made the following decisions regarding the items that were taken into account. There are many loans (typically from German) whose status is unclear (we do not know whether there was a specific loanword phonology), and which do not appear in verse (hence whose trapped character cannot be verified). In some cases, clusters are only represented by this category, which makes them suspicious: fl# or pl# are cases in point (*knofl* 'instrument', *štemfl* 'support', *hašpl* 'winch', *krapl* 'donut'). These words were not taken into account, except in case we could find verses that establish the trapped status of the cluster (e.g. *mistr* 'master'). Also, we only took into account common nouns (the database contains many proper nouns). In sum, the set of words that appeared secure to us and which we took into account are those that have a CS origin (i.e. which occur in other Slavic languages), and those that are listed in the *Klaret Glossary* from the end of the 14th century (Flajšhans 1926).

The presentation of the data below is organized in three tables according to the three morphological contexts that were yer-final in CS: Nsg in table 10, Gpl in table 12 and short adjectives in table 14. All data are lemmatized.

Tab. 10: Old Czech: lexical record of TR# (aiming at exhaustivity).

Nominative singular						
T	**R**	**cluster**	**tot. nb. VW**	**nb taken into account**	**common nouns taken into account**	**nouns not taken into account**
p	l	pl	28	---	---	hašpl, krapl
	r	pr	10	3	kapr, (pol)kopr, osupr	zkupr
	ř	př	2	2	pepř, vepř	---
	m	pm	---	---	---	---

Nominative singular						
T	**R**	**cluster**	**tot. nb. VW**	**nb taken into account**	**common nouns taken into account**	**nouns not taken into account**
	n	pn	---	---	---	---
b	l	bl	21	---	---	hobl, knébl, kybl, nobl, peklhúbl
	r	br	27	6	bobr, č(i/u)br/cíbr, habr, obr, všedobr, zubr	cinobr/ř, kobr, šobr, žlebr
	ř	bř	3	2	debř, řebř	cinobř/r
	m	bm	---	---	---	---
	n	bn	1	---	---	---
f	l	fl	12	---	---	knofl, štemfl
	r	fr	2	---	---	---
	ř	fř	---	---	---	---
	m	fm	---	---	---	---
	n	fn	---	---	---	---
v	l	vl	9	1	(ne-)živ(e)l	---
	r	vr	2	---	---	---
	ř	vř	---	---	---	---
	m	vm	---	---	---	---
	n	vn	1	1	očr(v)n	---
t	l	tl	63	3	krutl, letorastl, titl	knytl, kostl, mantl, povětl,
	r	tr	129	8	mistr (+ derivatives), bratr/ř, jesetr, kmotr, lotr, (sal)n(i/y)tr, vinohatr, vietr	citr, č(a/e)tr, filosofastr, fistr, (f/p)lastr, klistr, koltr, kotr, kust(e)r, látr(o), mustr, registr, sceptr, teristr
	ř	tř	4	4	bratř/r, chytř, mistř/r, (u)vnitř	---
	m	tm	1	---	---	rytm
	n	tn	1	1	posvátn	---
d	l	dl	61	3	jedl, padl, posědl	handl, mandl, špendl, žejdl
	r	dr	33	3	aldr, bludr, odr	cedr, cinádr, fládr, fudr, koriandr, hadr, kalandr, klindr, knidr, kvadr, maldr, plundr, salamandr, sudr, šlajdr
	ř	dř	---	---	---	---
	m	dm	1	1	sedm	---

Nominative singular

T	R	cluster	tot. nb. VW	nb taken into account	common nouns taken into account	nouns not taken into account
	n	dn	2	1	((ne-)prázdn/zn)	---
s	l	sl	72	2	mysl (+ 61 derivatives) letoras(t)l	veksl
	r	sr	2	---	---	kuprvasr, šajdvosr
	ř	sř	---	---	---	---
	m	sm	3	2	kosm, osm	---
	n	sn	7	7	básn/ň, čelesn, dásn/ň, piesn, plasn, plésn, tiesn/ň	---
z	l	zl	19	2	časokúzl, žezl(o)	penz/žl
	r	zr	---	---	---	---
	ř	zř	---	---	---	---
	m	zm	1	---	---	---
	n	zn	28	21	(ne-)bázn/ň, blázn, desětazn, drozn, hrozn, (ne-)kázn/ň, lázn, (ne-)práz(d)n, (ne-)přiezn, obrazn, oprzn, otry/ýzn, pokar/jazn, pokazn, přiekozn, rozkázn, spřiezn, strázn, trýzn, žiezn, žizn	---
š	l	šl	33	1	okršl	---
	r	šr	---	---	---	---
	ř	šř	---	---	---	---
	m	šm	---	---	---	---
	n	šn	1	1	tiš(e)n	---
ž	l	žl	1	---	---	penž/zl
	r	žr	---	---	---	---
	ř	žř	---	---	---	---
	m	žm	---	---	---	---
	n	žn	3	3	drážn, otržn, snážn	---
c	l	cl	35	---	---	krancl, precl, šermicl
	r	cr	3	---	---	---
	ř	cř	---	---	---	---
	m	cm	---	---	---	---

Nominative singular

T	R	cluster	tot. nb. VW	nb taken into account	common nouns taken into account	nouns not taken into account
	n	cn	---	---	---	---
č	l	čl	1	---	---	---
	r	čr	---	---	---	---
	ř	čř	---	---	---	---
	m	čm	---	---	---	---
	n	čn	1	1	lačn	---
k	l	kl	63	1	os(t)kl	artikl, cirkl, fenykl, kajki, karbunk(u)l, merkl, sanykl, s/šiki, šenkl
	r	kr	4	3	cukr, okr, svekr	---
	ř	kř	1	---	---	---
	m	km	1	---	---	rykm
	n	kn	1	1	tiesk(e)n	---
h	l	hl	7	3	povrh(e)l, úlehl(e), zduhl	---
	r	hr	2	1	žehr	---
	ř	hř	---	---	---	---
	m	hm	1	---	---	---
	n	hn	---	---	---	---

Table 11 below offers a synoptic picture of the empirical situation.

Tab. 11: Synopsis: Nominative singular.

	p	b	f	v	t	d	s	z	c	č	š	ž	k	h
r	3	6			8	3							3	1
l				(1)	3	3	2	2			1		1	3
ř	2	2			4									
n/ň				1	1	1	7	21		1	1	3	1	
m						1	2							

The interpretation of this situation is not at ease since many cells have low numbers. On the one hand, granting grammatical status to a cluster on the basis of

one or two words is not secure. On the other hand, clusters that are absent from the record may represent accidental gaps: there may be no relevant CS input for chr# for example (CS chrъ/ъ#), or a relevant CS input may not have made it into OCz.

It needs to be acknowledged, though, that large numbers of words with final TR# clusters are certainly not to be expected. This all being said, we believe that the pattern in table 11 does allow for a number of generalizations that reflect systematic gaps, i.e. genuine grammatical restrictions on branching onsets. These are grey-shaded in the table.

Let us first look at labio-dentals. The only item on record, *(ne-)živ(e)l* 'animal', has both vocalized ([vel]) and non-vocalized ([vl]) instantiations. This allows us to conclude that labio-dentals cannot form a branching onset. The absence of clusters with labio-dentals (fR and vR) is a well-known pattern: for example, there is no #vr or #vl in English (except for loans such as *Vladimir* and onomatopoeia such as *vroom*). In French, only *vl* is problematic: there is #vr (*vrai* 'true', *vriller* 'to drill') but no #vl except for loans (*Vladimir*) and onomatopoeia (*vlan!* 'bang!').

A strange gap to be noticed concerns labials plus laterals: there is no *pl*, *bl* on record. It is hard to believe in an accidental gap in this area since labials are frequent and the clusters *pl*, *bl* otherwise well attested. The gap is remarkable since we do not know of any precedent in other languages. We leave this an open question.

A striking property of the data in table 11 is the complete absence of palatal obstruents as first members of TR#: cR# [t͡s], čR# [t͡ʃ], šR# [ʃ] and žR# [ʒ] are absent (with the exception of one word for *šl*). Again, an aversion against palatals in branching onsets is also found in English (no #t͡ʃr or #t͡ʃl, no #ʃl but #ʃr: *shred*, *shrink*, *shrapnel* etc.) and French (no #ʃr, #ʃr, #ʒr, #ʒl at all).[6]

Note that this holds only for liquids and /ř/: palatal+nasal sequences are massively attested. The fact that CN clusters seem to qualify for branching onset status throughout is a remarkable characteristic of OCz in the light of the very restricted distribution of CN in other languages. As was mentioned earlier, German does allow for word-initial #Tn, but features only items with velars: #kn (*Knoten* 'knot'), #gn (*Gnade* 'mercy').

6 It needs to be borne in mind, though, that the absence of palatals in branching onsets may simply stem from the fact that diachronically palatals arise only through palatalization before a vowel: before a sonorant, relevant input consonants to palatalization thus never have a chance to be palatalized, hence the gap. But this explanation is not waterproof either: English does feature #ʃr (but no #t͡ʃr).

Another noticeable gap concerns *sr*, *zr* (while *sl*, *zl* are attested). Again, this pattern is also found in English (only loans like *Sri Lanka* have *sr*, while there are plenty of *sl* items: *slander*, *slang*, *sleep* etc.).

Finally, it is worthwhile mentioning that OCz does not have any problem with *tl*, *dl*, which are famously missing in the inventory of branching onsets in languages like German, Spanish etc. that restrict word-initial clusters to branching onsets. A relevant fact about *tl*, *dl* is that they do occur word-initially in languages like MCz, OCz, Polish, Russian and the like that do not restrict word-initial clusters to #TR. This is indicative of the fact that *tl*, *dl* indeed are not branching onsets in these languages, but instantiate the same structure as, say, #rt (i.e. two independent onsets). The OCz record, however, treats them on a par with branching onsets. This suggests that *tl*, *dl* may not be denied branching onset status universally.

5.3 Genitive plural

Let us now turn to genitive plural forms. In a first step, relevant words were identified in VW by a search of Nsg forms in TR-a, TR-o and TR-y (for *pluralia tantum*). Corresponding Gpl items in TR# were then searched for in the corpus of OCz texts that is included in VW (called *Staročeská textová banka*). Table 12 below reports the results.[7]

Tab. 12: Old Czech: lexical record of TR# (aiming at exhaustivity).

Genitive plural					
T	R	cluster	nb	Nsg in TR(a/o/y) (lemmas in VW)	Gpl TR# (attested in OCz corpus)
p	l	pl	---	kapla, zepla, nožipla, spla	---
	r	pr	---	lepra, aspra, cypra	---
b	l	bl	---	bibla, hřeblo, stéblo	---
	r	br	1	libra, dúbra, ambra, žebro, střlebro	žebr

7 As opposed to the Nsg table (cf. table 10), the Gpl table does not list clusters with /ř/ and nasals. The former because nouns in /ř/ never take a null allomorph in Gpl. Nouns with nasals, on the other hand, have the zero ending in Gpl. However, their Gpl forms are either not attested in the OCz corpus (e.g. *revm-a* 'rheumatic pain') or TN undergo regular vocalization (e.g. CS *krъčьm-a* > OCz *krčm-a*, *krčem* 'pub, Nsg, Gsg').

Genitive plural					
T	R	clus ter	nb	Nsg in TR(a/o/y) (lemmas in VW)	Gpl TR# (attested in OCz corpus)
f	l	fl	---	---	---
	r	fr	---	cifra, kalifra	---
v	l	vl	---	---	---
	r	vr	---	---	---
t	l	tl	1	ščetla, metla, stla, světlo, čitlo	metl
	r	tr	4	chátra, játra, mitra, koltra, kmotra, sestra, mistra, h(o/u)lstra, patro, jitro	játr, koltr, sestr, jitr
d	l	dl	9	napajedlo, bradla, biedla, udidla, křídlo, nosidla, povidla, židla, odla, modla, zrcadlo, bydlo, vidly	napajedl, udidl, křídl, nosidl, povidl, modl, zrcadl, bydl, vidl
	r	dr	4	ňadra, bedra, katedra, konědra, vydra, mázdra, vědro, jádro	bedr, vydr, vědr, jádr
s	l	sl	4	třiesla, tesla, obáslo, máslo, přáslo, heslo, povřieslo, meslo, řemeslo, veslo, číslo	třiesl, povřiesl, řemesl, vesl
	r	sr	---	---	---
z	l	zl	1	jazla, žezlo, kúzlo	kúzl
	r	zr	---	---	---
š	l	šl	---	---	---
	r	šr	---	---	---
ž	l	žl	---	---	---
	r	žr	---	---	---
c	l	cl	---	---	---
	r	cr	---	---	---
č	l	čl	---	---	---
	r	čr	---	---	---
k	l	kl	---	kukla, ostkla, peklo, náklo	---
	r	kr	1	jiskra, zlukra	jiskr
h	l	hl	---	jáhly, jehla, cihla, truhla, pruhlo, tiehlo	jáhel, jehel, cihel, truhel
	r	hr	---	Uhry	Uher

Table 13 below condenses these data into the by now familiar synopsis. The number of items on record is much too small to draw any conclusions on gaps (i.e. whether they are systematic or accidental). A striking fact that is worth noting

right away, however, is the abnormal behaviour of hR#, which systematically vocalizes in Gpl (while no other cluster does): *jáhl-y, jáhel* 'millet, Npl, Gpl'; *jehl-a, jehel* 'needle, Nsg, Gpl'; *cihl-a, cihel* 'brick, Nsg, Gpl'; *truhl-a, truhel* 'box, Npl, Gpl'; *Uhr-y, Uher* 'Hungary, Npl, Gpl'.

Tab. 13: Synopsis: Genitive plural.

	p	b	f	v	t	d	s	z	c	č	š	ž	k	h
r		1			4	4							1	
l					1	9	4	1						

While being hard to exploit by itself because of its small numeric basis, this record is consistent with the one coming from Nsg.

5.4 Short forms of adjectives

Finally, short forms of adjectives were identified in the same way as Gpl forms: first a search of long forms in TR-ý was performed, then the corresponding short forms were searched in the OCz corpus. The result appears in table 14.

Tab. 14: Old Czech: lexical record of TR# (aiming at exhaustivity).

Short forms of adjectives					
T	R	clus ter	nb	long adjective in TR-ý (lemmas in VW)	short forms TR# (attested in OCz corpus)
p	l	pl	1	teplý	tepl
	r	pr	1	kyprý	kypr
b	l	bl	---	oblý	---
	r	br	1	ch(r)abrý, dobrý	dobr
t	l	tl	---	útlý	---
	r	tr	2	chytrý, ostrý, pestrý	chytr, ostr
d	l	dl	1	medlý	medl
	r	dr	3	modrý, múdrý, štědrý	modr, múdr, štědr
k	l	kl	---	---	---
	r	kr	1	příkrý, mokrý	mokr

The synoptic table for short adjectives is as follows.

Tab. 15: Synopsis: Short adjectives.

	p	b	f	v	t	d	s	z	c	č	š	ž	k	h
r		1			2	3							1	
l						1								

In the same way as for Gpl forms, the number of items on record is much too small to draw any conclusions on gaps. But again, it is consistent with what we know from Nsg and Gpl.

5.5 Summary

I order to be able to appreciate the empirical record of the three morphological categories studied, table 16 below combines the three synoptic tables above, indicating for each cell three numbers that correspond to Nsg, Gpl and short adjectives (in this order).

Tab. 16: General synopsis: Nsg, Gpl, short adjectives.

	p	b	f	v	t	d	s	z	c	č	š	ž	k	h
r	3,-,-	6,1,1			8,4,2	3,4,3							3,1,1	1,-,-
l				(1),-,-	3,1,-	3,9,1	2,4,-	2,1,-			1,-,-		1,-,-	3,-,-
ř	2,-,-	2,-,-			4,-,-									
n/ň				1,-,-	1,-,-	1,-,-	7,-,-	21,-,-		1,-,-	1,-,-	3,-,-	1,-,-	
m						1,-,-	2,-,-							

It appears that the three testimonies are consistent. Hence the discussion regarding systematic and accidental gaps in section 5.2 is representative for all OCz word-final TR clusters.

6 hR# is ill-formed

The empirical record discussed contains four words with a final hR cluster, all of which are Nsg forms: *žehr*, *zduhl*, *úlehl(e)* and *povrh(e)l*. Two of them also have versions where a vowel either breaks up the hR# (*povrh(e)l*) or follows the cluster (*úlehl(e)*). It is worth noting that both forms appear to be nominalized past tense participles derived with the suffix *-l*: *povrh(e)l* means 'waste, something that is thrown away' and relates to the verb *povrci* 'to throw'; *úlehl(e)* means 'fallow land' and is related to *ulehnout* 'to lie down'. L-participles produce trapped TR# clusters in Old Czech (e.g. *mohl* 'he could': ***aby jemu mohl*** (σ) ***slúžiti*** [Hradecký rukopis, mid 14th century]) and hence do not appear to behave any differently from monomorphemic TR# clusters. It may not be accidental, though, that two of the four hR# items are l-participles: in MCz (and already in OCz) this morphological category behaves in a peculiar way since the lateral may be left unpronounced. Hence MCz *kles-l* (*klesnout* 'descent, sink' can be *kles*, but monomorphemic *mysl* 'mind' cannot be **mys*).

The remaining two items are *hapax legomena*. The word *zduhl* means 'stone that breaks light producing the colours of the rainbow' and is related to *duha* 'rainbow'; it occurs only in the aforementioned Klaret Glossary. *Žehr* 'chastisement, objurgation', the only hr# item, is mentioned only in one dictionary (*Malý staročeský slovník*) without indication of the text in which it occurs, and it is absent from the OCz text corpus on Vokabulář Webový. We were thus unable to verify its existence and behaviour in verse. *Žehr* is related to OCz *žehrati* 'express dissatisfaction, objurgate'. Czech is the only Slavic language where this root is attested. Holub & Kopečný (1952: 443) establish a link with Sanskrit and Greek cognates, while Rejzek (2001: 746) and Machek (1957: 724) conclude on an unclear origin and favour an expressive (swearword) formation.

Beyond these four items, there is good reason to believe that /h/ was unable to sustain a branching onset relationship in Old Czech. Consider the three words in table 17 that end in CS gRь/ъ#, which exhaust the CS lexicon for this pattern.

Tab. 17: CS gRь/ъ#.

CS	Old Czech	
ǫgrъ	uher, uhr-a	pimple
ǫglь	uhel, uhl-a	coal
ognь	oheň, ohn-ě	fire

All CS instances of gRь/ъ# produce an epenthetic e ("non-etymological yer") in OCz, which alternates with zero. This is in violation of the regular evolution of CS TRь/ъ#, whose reflex in OCz is trapped TR# (see the preceding section).[8] There can thus be no doubt that the troublemaker is /h/. That /h/ is unable to form branching onsets is plausible on independent grounds: glottals have untypical behaviour in general and in Czech in particular (a devoiced /h/ is /x/: *drá*[ɦ]*-a*, *dra*[x] 'line, Nsg, Gpl'). Also, in other languages such as English and German, word-initial *h* cannot be followed by a sonorant: there is no #hr, #hl.

This is consistent with the systematic behaviour of hR# as an outlier in Gpl: it was mentioned in section 5.2 that all clusters remain unmodified with respect to the Nsg forms in *-a*, *-o*, *-y* when occurring in word-final position in Gpl, except hR, which is vocalized and appears as heR# in Gpl.

The word-final situation thus suggests that /h/ was unable to sustain a branching onset relationship in OCz. We acknowledge, though, that there are a number of word-internal instances of hRC where R is trapped: OCz *hřb-ieti* (< CS *grъb*) 'to be entombed', *hřb-et* (< *g/chrъb*) 'ridge', *hřm-ít* (< *grъm*) 'to thunder', *hlt-at* (< *glъt*) 'to gobble', *poběhlkyně* 'apostate, fem.', *přehlba* 'helmet'.[9] Recall from section 4 that we hold that trapped consonants must entertain a branching onset relationship with consonants to their left. OCz hR in hRC should thus be branching onsets. We leave the question open why word-final and word-internal trapped hR do not behave in the same way: beyond our theory-dependent prediction that internal trapped hR form branching onsets, the theory-independent empirical question is why trapped hR produces epenthesis word-finally, but not word-internally (**heřbet*, **heřmít*, **heltat* would be expected).

7 Conclusion

In this article we sketched the situation of branching onsets in OCz by looking at word-final trapped TR clusters, which we argue are a valid diagnostic for characterizing what a good branching onset is. The purpose beyond the establishment of the OCz record is to compare the OCz with the MCz situation, in order to see what happened in diachronic development. MCz displays a very clear divide in the behaviour of word-final clusters in Nsg and Gpl: while the former never vocalize, the latter always do. This is not only true for identical clusters, but also for identical clusters of the same root. Relevant examples are discussed in Ziková (2013). This difference in behaviour is intriguing in as much as both case markers are zero on the surface – but need to be somehow distinct phonologically.

On the face of it, Nsg and Gpl show perfectly uniform behaviour in OCz: word-final TR clusters in both morphological environments are trapped and do not vocalize. We have seen that OCz does offer a glimpse of the beginning separation of Nsg and Gpl: hR# clusters are not treated alike. As in MCz, they undergo vocalization in Gpl, but remain unchanged in Nsg.

The major diachronic event concerning sonorants that occurred from Old to Modern Czech is the fact that trapped consonants disappeared altogether (except for trapped ř and word-initial trapped sonorants), becoming syllabic. All word-final TR clusters examined in this article were trapped and hence should have become syllabic. This is indeed what happened in Nsg (in OCz *bratr* 'brother' is monosyllabic, while it is bisyllabic in MCz). But in Gpl they developed a vowel (Nsg *sestr-a*, Gpl OCz *sestr*, MCz *sester* 'sister'). There is thus reason to believe that for some reason the phonological exponent of Gpl is such that it prevented word-final trapped TRs to become syllabic.

8 The irregularity of Old Czech *oheň* leads Gebauer (1963 [1894]: 160) to hypothesize an unattested OCz **ogň*.

9 The behaviour of these words in octosyllabic verse confirms the trapped character of the R: a) *hřb-*: ***že je dlúho v hrobě hřbělo*** (σσ) [Mastičkář; 1409]; b) *hřm-*: ***hrozný hřmet*** (σ) ***jde o podlahu*** [Podkoní a žák; 1409]; c) *hlt-*: ***chtieše hltati*** (σσ) ***onu vodu*** [Ezopovy bajky; 1472].

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[Items followed by the mention WEB are available at http://www.unice.fr/scheer/]

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