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ON THE ORIGINS OF X IN SLAVIC

Abstract

*This paper focuses on three regular sources of x in the Slavic languages. Beside the well-known source Pedersen's Law, there are two minor regular sources, namely the clusters *sk and *kH₂. Especially the last source is the only remaining proof of secondary "voiceless aspirates" in Balto-Slavic, since all other clusters of voiceless stop + laryngeal disappeared without a trace in Balto-Slavic. Slavic x is thus heir to three regular independent processes, which merged into a single result. This resulting x was later supported by loanwords and onomatopoeic words, but none of those secondary sources is relevant, as they are not part of the system for x given by those three above-mentioned regular processes.*

Key words

Slavic; x; sk; origin; laryngeals; Indo-European

1. Introduction

The most widely known source of x/š in Slavic is from IE *s after *ī, ū, r, k, i.e. from the process known as **Pedersen's Law**. This paper will note two other regular sources for Slavic x/š, which are not as basic as Pedersen's Law, but they fit in the simple picture given by Pedersen's Law. We will start by briefly sketching Pedersen's Law and go on to describe the other two regular sources, namely the original clusters *sk and *kH₂. Both of these sources have interesting connotations in an Indo-European context and play a great role in the development of the Slavic family from the reconstructed Indo-European stage. We will end with an overview of the minor, irregular sources of x/š, either other languages (loanwords) or onomatopoeia.

Note: By *regular* we mean the process of a sound law or other regular phonemic processes. Inversely, *irregular* refers to the results of processes not yielding to sound laws.

We do not assume that Slavic x reflects an Indo-European phoneme */k^h/, as reconstructed by Merlingen (MERLINGEN 1973), and similarly we do not believe that there existed a whole series of "voiceless aspirates" already at the common

IE stage, as suggested by, beside his predecessors, Elbourne (ELBOURNE 1998, ELBOURNE 2000). However, in the present paper we demonstrate that at least the existence of **k^h* could be reconstructed for Balto-Slavic, as it could be done for Indo-Iranian, but not on any general Indo-European level.

The following lines are meant to follow on the remarks of Merlingen, Shevelov, Thümmel, Bičovský and Rejzek (MERLINGEN 1973; SHEVELOV 1964; THÜMMEL 1967, BIČOVSKÝ 2008; REJZEK 2008), though not as the last word on the problem.

2. Regulates 1 – Pedersen’s Law

The principle referred to as Pedersen’s Law was first formulated by Pedersen as:

“Nach idg. *ī, i, ū, u, r, ʀ, k, k^h* wurde *s* zu *x*, wenn ein Explosivlaut folgte” (PEDERSEN 1895, 74).

Note: The quotation is given in its commonly today used form.

Considering the fact, that Pedersen’s Law with variations is present in almost all satem languages and does not always operate without exceptions (which is necessary to call something a “law” in a strict Neogrammarian sense), it is more often nowadays called simply the “*ruki*-rule”, for the term “rule” in a post-Neogrammarian context is considered a “wider” or “softer” interpretation/application of a “law”. In any event, the regularity of Pedersen’s Law for Slavic is very high, in fact, it was formulated specially for Slavic, and therefore we do not have any reason to avoid the term “law” for the whole process, though for the same process across the whole set of satem languages the term “*ruki*-rule” is more proper.

For a brief history and discussion of Pedersen’s Law, see Collinge (COLLINGE 1985, 143–145). For brief overview of the Slavic phenomenon see Townsend – Janda (TOWNSEND – JANDA 1996, 42–45) while a more detailed account can be found in Arumaa or Shevelov (ARUMAA 1976, 42–46; SHEVELOV 1964, 127–138).

When it comes to prominent irregularities, one can look to the Baltic languages, where the rule is regular after **r* and **k* and less regular after **i*, *u*, cf. regular Lith. *maišas* “sack”, *viršus* “hill”, *širšuo* “hornet”, *vetušas* “weak” against irregular *ausis* “ear”, *teisus* “silent”; similar irregularities can be found in e.g. Old Indo-Aryan as well. Though the “*ruki*-rule” is present in a huge number of languages, the results of it can differ: in Slavic any following obstruent blocks the operation of the rule on a preceding *s*, but not in Old Indo-Aryan: cf. OIA *ánūši*, *anaviṣṭa* but OCS 2nd Du. Ao *bysta* × 1st Sg. Ao. *byxъ*.

We can formulate Pedersen’s Law for Common Slavic as:

“If Indo-European **s* is preceded by **ī, ū, r, k* and is not followed by an obstruent, it changes to **š*, if followed by a palatal/front phoneme, or to **x*, if followed by a non-palatal/back phoneme.”

(cf. PEDERSEN 1895, 74; SHEVELOV 1964: 127; ARUMAA 1976, 42; COLLINGE 1985, 143–145; TOWNSEND – JANDA 1996, 42–45; VENNEMANN 1974, 91–97).

Note: The question of whether the split of **x/š* is directly related to Pedersen’s Law or is a later process (the first law of palatalization of velars) shall be left aside, as it is of no consequence for the following remarks.

Example 1: To the Lithuanian examples above stand OCS *měxъ* “sack”, *vьrxъ* “hill”, ORu. *sъršenyъ* “hornet”, OCS *větъxъ* “weak”, *uxo/uši* “ear, ears”, *tixъ* “silent”.

Note: Pedersen’s Law does not affect Slavic *s* from IE **k̑*. See OCS *prъsi*, Cz. *prsy*, P. *piersi*, SCr. *pъsi*, Sln. *pъsi*, etc. “breast” < **pȓk̑*; cf. Lith. *piršis* “breast of a horse”, OIA *paršus* “rib” (VASMER 1950–58 2, 344; ESJS 12, 782; DERKSEN 2008, 429).

1.1 The collateral effect of Pedersen’s Law and the source of a secondary analogical *x* is the *x* of the Slavic sigmatic aorist when, besides regular forms like OCS *rěxъ*, *prosixъ*, *krychъ*, there arose by analogy such new forms as *znaxъ* and *nesoxъ*. The original forms that do not show the effect of Pedersen’s Law are attested in OCS *bljusъ*, *grěsъ*. Similarly, the locative plural OCS *ženachъ* is due to analogy with the regular *synъxъ*.

1.2 Similarly the *x/š* in OCS *xoditi* ~ *šьdlъ* is considered to be a result of analogy on the basis of forms with prefixes containing phonemes that triggered Pedersen’s Law, e.g. *pri-*, *u-*.

Note: Bičovský (BIČOVSKÝ 2008, 38) supposes on the contrary that this root was **skod^h-* < *s-g^hod^h-* and related to OIA. *gadhitah* “connected” and OE *tō-gædere* “together”, and therefore it can be counted among the instances of *x* originating from a **sk-* cluster in §2 below.

3. Regulates 2 – *x* from cluster **sk*

Another regular source of Slavic *x* is from an original velar stop in the cluster **sk*. Sometimes this tendency for all clusters **sT* is called Sieb’s Law (cf. COLLINGE 1985, 155–158).

In clusters **sk* we can suppose that original velar was syntagmatically aspirated in the cluster (i.e. **sk^h*). The phases of the process could then be described as: *sk* > *sk^h* > *k^h* > *x*.

Example 2: **(s)k^(h)or-b^h-* “sharp”: OCS *xrab(ъ)rъ*, Cz. *chrabry*, P. *chrobry*, Ru. *xoróbryj*, Sln. *hráber*, OIA *khára-* “sharp, hard”, Latv. *skârbs*, ON *skarpr*, Germ. *scharf* “sharp” (VASMER 1950–58 3, 262; ESJS 4, 225; DERKSEN 2008, 204; REJZEK 2008, 65; POKORNY 943).

Example 3: *(s)k^(h)old-* < *s-g^hold^h-/s-g^held^h-* “cold”: OCS *xladъ*, Cz. *chlad*, P. *chlód*, Ru. *chólod*, Sln. *hlád*, SCr. *hlád-*; Germanic **kaltaz*, Lith. *šaltas*, Lat. *gelidus*

(VASMER 1950–58 3, 256; ESJS 4, 217; DERKSEN 2008, 203–204; REJZEK 2008, 58–59; POKORNY 365–366, 551–552).

2.1 The same process is known to have occurred for other IE voiceless stops, which in languages like Old Indo-Aryan are in this context often aspirated or secondarily spirantized. The initial *s* (*s*-mobile) could be eliminated.

Example 4: **steH₂* “stand“: OIA *asthāt* “stand”, Av. *stāna-* “stable”, Lat. *stō*, Lith. *stoti*, OCS *stati*, Cz. *státi*, P. *stać*, Ru. *stoját’*, SCr. *stàjati*, Sln. *státi* “to stand” (VASMER 1950–58 3, 21; ESJS 15, 875–876; DERKSEN 2008, 465–466; POKORNY 1004–1006; LIV, 536–538).

Note: Here OIA *th* could be traced both to a positional aspiration after *s* and to a positional aspiration given by original **H₂*. See §3 below.

Example 5: **(s)p^hoiH-n-* (*~m-*) “foam“: OIA *phéna-*, Lat. *spūma*, OE *fām*, Lith. *spáinē*, OCS *pěny* “foam” (VASMER 1950–58 2, 334; ESJS 11, 638; DERKSEN 2008, 397; POKORNY 1001).

2.2 As noted above, the process is similar to Pedersen’s Law. Analogical processes are attested in Middle Indo-Aryan languages, namely Pāli or the Prākṛits, where both OIA clusters *sk/kṣ-* > MIA *kh*, OIA *-sk/kṣ-* > MIA *kkh* (for details see BUBENIK 1996, 25–65; BUBENIK 2003, 205–220; MASICA 1991, 166–185; OBERLIES 2003, 168–184; PISCHEL 1981, 59–284; HIERSCHE 1964, 79–175)

4. Regulates 3 – cluster *kH₂*

The last important regular source of *x* is from original IE clusters with a laryngeal *H₂*, namely **kH₂*. We can suppose that the original voiceless stop was aspirated by the laryngeal, which subsequently disappeared regularly, so **kH₂* > **k^(h)H₂* > **k^h*.

Example 6: **kokH₂o-*: OIA *śākhā* “branch”, Arm. *c’ax* “branch”, Goth. *hoha* “plough”, Lith. *šakà* “branch”, OCS *posoxa* “stick”, Ru. *soxá* “plough”, Cz. *socha* “sculpture”, SCr. *sòha* “forked stick” (VASMER 1950–58 3, 703–4; ESJS 11, 686–687; DERKSEN 2008, 458; POKORNY 523, 895).

Example 7: **kH₂ou̯-i/kH₂ou̯-d-*: Ru., P. *xuj* “penis”, OIA *khudāti* “fucks” (VASMER 1950–58 3, 277; POKORNY 958).

Example 8: **kH₂ep-*: OCS *xapъjošte* (Supr.) “biting”, Ru. *xapat’*, Cz. *chápat* “grab, seize”, Lat. *capitō* “I take”, Arm. *xap’anem* “hinder” (VASMER 1950–58

3, 230; ESJS 4, 215–216; DERKSEN 2008, 202; but REJZEK 2008, 22 considers it onomatopoeic).

There are again parallels with clusters with other voiceless stops outside the Balto-Slavic languages, where there similarly exist secondary aspirates/spirants:

Example 9: **pl̥tH₂-* “broad”: OIA *pr̥thú-*, OAv. *pərəθu-*, Gr. πλατύς, Lith. *platus* “broad”, Cz. *plotice*, OP. *plota*, Ru. *plotica*, *plotvá* “roach (lit. ‘broad fish’)” (VASMER 1950–58 2, 374; DERKSEN 2008, 402–3; POKORNY 833; LIV, 438).

Example 10: **pontH₂-* “path”: OIA *pánthā*, OAv. *paθō*, *pañtā*, OCS *poťь*, Cz. *pouť*, P. *pać*, Ru. *puť*, SCr. *pūt*, OPrus. *pintis*, Gr. πάτος “path”, Lat. *pons* “bridge”, Arm. *hown* “ford” (VASMER 1950–58 2, 469; ESJS 12, 696; DERKSEN 2008, 417; POKORNY 809; LIV, 424–425).

Note: Example 4 above could be counted here as well, because aspiration of a stop could be caused both by *s-* or a laryngeal.

We can see clearly that *x*, as in §2 above, regularly corresponds with IE **kH₂*, too. This limitation on clusters with **k* only is in stark contrast to the situation in OIA or Greek, where all clusters with a laryngeal are preserved as voiceless aspirates/spirants. Note that again in the Baltic languages there is no trace of a laryngeal left at all, speaking about original clusters stop+laryngeal, either *kH*, *tH* or *pH*. The situation in Slavic thus differs markedly from cognates in Baltic, for in Slavic at least the cluster **kH₂* is regularly preserved.

The question of “voiceless aspirates” and their origin in the Indo-European languages is beyond the scope of the present paper, but it is worth noting that surprisingly, Watkins (WATKINS 1965, 116–122) did not take examples of Slavic *x* into consideration at all, though his review of the problem of laryngeals in Balto-Slavic was up to date. On the other hand, Lindeman (LINDEMAN 1997, 144) at least takes example 6 (originally proposed by Klingenschmitt, KLINGENSCHMITT 1982, 102–105, 168) into consideration, as did Sturtevant before him (STURTEVANT 1941, 9–10).

We suppose that clusters with laryngeals developed into “voiceless aspirates” for a brief period, similarly as in Indo-Iranian, but this (nonphonemized?) state was quickly dissolved with the further fusion of these “voiceless aspirates” with their “voiceless non-aspirated” counterparts. This process was complete in Baltic, where no remnants of “voiceless aspirates” are preserved, but valid only for **pH* and *tH* in Slavic, because **kH* merged with *x* and thus remained intact through the merging of “voiceless aspirates” with “voiceless non-aspirates”.

5. Irregulars 1 – Loanwords

The first irregular source of Slavic *x* are loanwords, generally from the Germanic family (Gothic?):

Example 11: OCS *xlěbъ*, Cz. *chléb*, Ru. *xleb*, SCr. *hlěb*, Sln. *hlěb*, cf. Goth. *hlaifs*, OHG *hleib* “bread” (VASMER 1950–58 2, 245; ESJS 4, 219; DERKSEN 2008, 202; REJZEK 2008, 25).

Example 12: OCS *xorogy*, Ru. *xorúgv’*, Cz. *korouhev*, SCr. *horuga*, *orugva*, *koruga*, Sln. *koruhva* “banner”; cf. Goth. *hrugga* “stick” (VASMER 1950–58 3, 266; ESJS 4, 223; REJZEK 2008, 26)

Example 13: OCS *chyzь*, Ukr. *chýža*, Cz. *chýš(e)*, SCr. dial. *hīža*, Sln. *hīša* “hut”; cf. Germanic **hūsa-/hūzá-* “house” (ESJS 4, 234; REJZEK 2008, 26).

6. Irregulars 2 – Onomatopoeia

The last source of Slavic *x* presented here consists of onomatopoeia or expressively modified words. As this topic is outside the focus of the paper, we will demonstrate it only on with a typical example of onomatopoeia:

Example 14: OCS *xoxotati*, cf. OIA *kakhati*, Gr. *καχάζω*, Arm. *xaxank’*, Lat. *cachinnō* “to smile” (VASMER 3, 269; DERKSEN 2008, 203; POKORNY 497, 634; cf. REJZEK 2008, 21–22).

Note: This root and its “intensive” reduplication are of very ancient origin.

Example 15: OCS *xrapati*, Cz. *chrápati*, Ru. *xrapét’*, P. *chrapać*, SCr. *hrapati* “to snore” (VASMER 3 270; ESJS 4, 227; DERKSEN 2008, 203; REJZEK 2008, 21–22).

7. A sketch of the development of Slavic *x*

The late Indo-European dialect serving as the source of late Balto-Slavic (and of Slavic and still later the modern Slavic languages), developed two *k^h*s of different origin: *k^h₁*, which was a positional variant of *k* after original **s* and *k^h₂*, which was the result of the development of the cluster **kH₂*. If there was ever any phonetic distinction between both *k^h*s, it is hard to distinguish.

We suppose that the first step was a fusion of both *k^h*s into one. Another step in the development was a fusion of the new *k^h* with a phonetically close *x*, which arose from Pedersen’s Law.

Schematically we can express the whole process as follows:

$*sk^{(h)}$	\Rightarrow	k^h_1	\Downarrow	
$*kH_2$	\Rightarrow	k^h_2	\Rightarrow	k^h \Downarrow
$*\tilde{i}/\tilde{u}/r/k + s$			\Rightarrow	x/\tilde{s}

Either original k^h or directly x subsequently reflected phonemes in loanwords taken into Slavic (often reflecting Germanic $*h$). The phonemization of x in onomatopoeic words was then an automatic accessory to the whole process. Anyway, we should suppose that x or more probably k^h existed long enough to merge with x from Pedersen's Law.

In any event, we suppose that especially the k^h from original $*kH_2$ was an important source for Slavic x and should not be omitted.

List of languages:

Arm.	Armenian	OCS	Old Church Slavic/Slavonic
Av.	Avestan	OE	Old English (Anglo-Saxon)
Cz.	Czech	OHG	Old High German
Germ.	German	OIA	Old Indo-Aryan (Vedic)
Goth.	Gothic	ON	Old Norse
Gr.	Greek	OPrus.	Old Prussian
IE	Indo-European	P.	Polish
Lat.	Latin	Ru.	Russian
Lith.	Lithuanian	SCr.	Serb-Croatian
Latv.	Latvian	Sl.	Slovene
MIA	Middle Indo-Aryan	Ukr.	Ukrainian

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