ONDŘEJ ŠEFČÍK
Ústav jazykovědy a baltistiky. Filosofická fakulta
Masarykovy university, Brno
ORCID: 0000-0001-6368-9421
e-mail: sefcik@phil.muni.cz

THE PREHISTORY OF THE SLAVIC CLUSTERS *ST*
IN THE DIACHRONIC CONTEXT

The issue of this paper is to examine the various origins of the Common Slavic[1] cluster *st* and to point out remarkable features of the development.

Since there are no traces of the Bartholomae's Law in Pre-Slavic, symbols *T* and *Ḱ* in clusters *Tt* and *Ḱt* covers all plosives of a given location class, i.e., either dentals or palatovelars.

1. The sources of the Common Slavic clusters *st* are:

i.   the cluster of an original single IE sibilant: < IE **st*;

ii. the cluster of the *ruki*-sibilant (i. e, the sibilant arisen from IE **s* due to the Pedersen's law/the *ruki*-rule): < Late IE **št*;

iii. the cluster of the IE *satəm* sibilant (< IE *palatovelar* plosives **ḱ, *ǵ, *ǵʰ*): Balto-Slavic **śt* < IE **Ḱt*;

iv. the clusters of the IE *dental plosive* (**t, *d, *dʰ*): < IE **Tt*.

We will omit few etymological examples of the Slavic *st* arisen from IE **pt* as in CS **stryjь* "uncle" and its derivatives as ORu. Deity name *Stribogъ* and **pastrorъkъ*, all derivative from IE **pH₂ter-* "father", **nestera* "niece" and **(j)as(ъ)trębъ* "hawk" (for the overview of the etymologies, discussion and the latest analysis cf. Šefčík 2020).

These processes have numerous external parallels in other IE languages, the following examples are (due to notoriety of the data only illustrative and selective):

i.   The clusters of IE **st* are attested (with few exceptions we will not list here) in the whole IE family (cf. IE **√steH₂-* "stand": OIA *ásthāt*[2], YAv. *-stāiiā*,

---

[1] Within this paper, Old Church Slavonic will substitute Common Slavic.

[2] With a secondary aspiration of the IE **t-*)

Arm. *stanam*, Gr. ἔστην, L. *stō*, OHG, OS *stān*, Lith. *stóju*, OCS *stati*, Alb. *shton* "stand"; Pokorny IEW: 1004-1005; Mayrhofer EWA II: 764-766; Derksen 2008: 465-466; LIV[2]: 590-592);

ii. The Slavic *st* could also represent the *ruki*-sibilant + *t* clusters, which are attested in Indo-Iranian and Balto-Slavic (if the *ruki*-sibilants developed in Armenian and Albanian is not fully clear: Albanian palatalized old sibilant **s*; Armenian situation is also not clear) (cf. Lith. *pir̃štas*, OCS *prъstъ* "finger", both derived from IE **p(e)r-√steH₂-*, cf. also OIA *pṛṣṭi-* "back, mountain ringe, Av. *paršta-* "back"; cf. Pokorny IEW: 813; Mayrhofer EWA II: 165-166; Derksen 2008: 428-429; Derksen 2015: 358; OCS *usta* "mouth", OIA *óṣṭha-* "lip", YAv. *aošt(r)a* "lips" but Lith. *úostas* "harbour, mouth of a river" without expected palatalization; cf. Pokorny IEW: 499, 739; Mayrhofer EWA I: 282; Derksen 2008: 509; Derksen 2015: 358);

iii. The clusters of IE **Ḱt* > Balto-Slavic **śt* are attested in the *satəm*-languages (cf. IE **√oḱto-* "eight": OIA *aṣṭáu*, Av. *ašta*, Lith. *aštuonì*, OCS *osmь*[3], Alb. *tetë*; Pokorny IEW: 775; Mayrhofer EWA I: 142; Blažek 1999: 263-279; Derksen 2008: 378);[4]

iv. The same outcome of the IE **Tt* has also Baltic, Iranian and Greek: OAv. *vaēdā ~ vōistā*; OCS *vědě ~ věstъ*, OPruss. *waist*, Arm. *gitem ~ giwt* 'find', Gr. εἴδομαι ~ ἴστε < IE **√u̯eid-* "see, know"; cf. Pokorny IEW: 1125-1127; Kellens 1995: 54; LIV[2]: 665-667; Cheung 2007: 408-409; Dersen 2008; OCS *jasti*, Lith. *ėdù ~ ė́sti* < IE **√H₁ed-* "eat"; cf. Pokorny IEW: 287-289; LIV[2]: 230-231; Derksen 2008: 154; Derksen 2015: 157-158).

2. The overview of the origin of the Slavic *st* in various IE languages

If we sum up all four sources of the Slavic *st* with their counterparts in the *satəm*-languages (as we have mentioned above, if the Pedersen's law was applied on Armenian and Albanian is disputable and we cannot solve this question here). The *centum*-languages are entirely omitted, (Greek represents them here for comparison), the remarkable feature of the Slavic is the fully merging of IE **st*, **Ḱt/śt*, **št* and **Tt* clusters, unknown in any other IE *satəm*-family:

IE	OIA	Av.[5]	Lith.[6]	OCS	Arm.[7]	Alb.[8]	[Greek]
*st	*st*	*st*	*st*	*st*	*st*	*št*	[*st*]
*št	*ṣṭ*	*št*	*št*	*st*	(*st*)	(*št*)	[*st*]
*Ḱt/śt	*ṣṭ*	*št*	*št*	*st*	*st*	*0t*	[*kt*]
*Tt	*tt*	*st*	*st*	*st*	*0t*	*0s*	[*st*]

---

[3] Remodelled from ordinal numeral: *-ḱt-m-*, cf. OLith. *ãšmas* "eight" (cf. Blažek 1999: l.c.).

[4] Armenian *owtʽ* was remodelled due to the analogy with the numeral seven (cf. Blažek 1999: l.c.).

[5] Avestan data could represent even Old Persian; there is no distinction in the development of examined clusters between both languages.

[6] The situation in Old Prussian and Latvian will be dealt with independently, not within this proposal.

[7] If the Pedersen's Law was applied in Armenian is disputable.

[8] Albanian sibilants underwent palatalization in all contexts.

The merging of the IE *Ḱt/śt* and *št* clusters is known from Iranian, Indic and Lithuanian, the merging of the *st* and *Tt* clusters are also known from Iranian and Baltic, however the scope of the Pre-Slavic development is truly unique.

Similarly worth of note is the typical Indic outcome *tt* for the IE cluster *Tt*, distinguishing OIA not only from other IE branches but even from Iranian languages.

3. Trajectories of the developments

On the following lines, we will focus on the (Balto)-Slavic developments and the developments of the other *satəm*-languages, the developments outside the *satəm*-family we will only sketch.

3.1. Trajectories of the development of the IE *st* cluster

The trajectory of the development of the IE cluster *st* is in all IE languages usually straightforward, since these clusters are usually preserved, the Slavic developments fit within this usual frame:

    i. **st** > **st**   (Common Indo-European)

There are two exceptions from this simple trajectory:
- ii. **st** > **št** in Albanian
- iii. **st** > ts > **đđ/ss** in Continental Celtic, *s* + *t* > *ts* >**ss** in Insular Celtic, this development is connected with the development of the IE cluster *Tt* in Celtic, which has the same results in given sub-branches of the Celtic family.

3.2. Trajectories of the development of the (Late) IE *št* cluster

The trajectory of the development of the IE cluster *št* into Slavic, i.e., of the cluster *st* affected by the Pedersen's Law (the *ruki*-rule) is remarkable, since depalatalized in contrast with Lithuanian (Old Prussian and Latvian were also later depalatalized) and Indo-Iranian. We have to strictly exclude that this cluster was never palatalized, though even Pedersen himself proposes this variant within his definition of his law (Pedersen 1895: 74), later this opinion was brought up by Arumaa or Shevelov (cf. Shevelov 1964: 127; Arumaa 1976 II: 43).

The process was universal both in Balto-Slavic and Indo-Iranian (cf. table above) and we have to assume the depalatalization as a secondary feature, as was the depalatalization of the cluster *Ḱt* (cf. Martinet 1955: 240; Andersen 1968: 176-177, 188--190), with which the cluster *št* merged in both sub-families.

The trajectories we model are:

i. **št** > **št**   (Baltic[9], Indo-Iranian[10])
ii. **št** > št > **st**   (Slavic)

Both Armenian and Albanian processes are within the possibility of the reconstruction at this very moment since we lack enough supportive data of the validity of the Pedersen's law in both languages.

3.3. Trajectories of the development of the IE *$\acute{K}t$ cluster

The trajectory of the development of the IE cluster *$\acute{K}t$ into given *satəm*-languages usually leads towards a cluster *sibilant* (palatalized or non-palatal) + *t*, Albanian being a single exception since the old palatovelar plosive is elided.

For the development of the palatovelars into given *satəm*-languages the palatal affricate is usually now taken for granted as an intermediate stage (the **africativization** trajectory being modelled as: $\acute{K}t > t^{\acute{s}}t > \acute{s}t$, with a later depalatalization in Slavic and Armenian), this trajectory was reconstructed for Indo-Iranian languages by Lipp 2009 I: 131-189).

Our model assumes a slightly modified variant, instead of the affricate we model a palatal spirant (ç). This **spirantization** trajectory for different *satəm*-languages is reconstructed as:

i. $\acute{K}t$ > çt > **št**   (Baltic[11], Indo-Iranian[12])
ii. $\acute{K}t$ > çt > št > **st**   (Slavic, Armenian)
iii. $\acute{K}t$ > kt > xt > ht > **0t**   (Albanian)

The Albanian development shows that the palatovelar was assimilated on plain velar in Pre-Albanian, a similar process is known from OIA for the cluster *$\acute{K}s$, realized as OIA *kṣ*.

However, for the Slavic (and Latvian and Old Prussian as well) we have in both trajectories assume the merging of the *$\acute{K}t$ outcome with the *$\check{s}t$ (Pedersen's) outcome first, the process we know from Lithuanian and Indo-Iranian as well and later depalatalization of this *št* on *st* (cf. Martinet 1955: 240; Andersen 1968: 175-177, 188-190). To the spirantization trajectory we can add that the *çt stage could be even depalatalized earlier on *ϑt, merging hence with the outcome of *Tt (see below, cf. Andersen 1968: 189).

It could be tempting to assume that Slavic *st* < IE *$\acute{K}t$ is a result of an universal depalatalization of IE palatovelars on non-palatal sibilants in all contexts but this point of view is too simplistic. We know from Iranian that IE palatovelars were gen-

---

[9] This state of arts we assume for Common Baltic, and it is present in Lithuanian, other Baltic languages underwent depalatalization as in case ii below.

[10] Indic *ṣṭ* with the later typically Indic cerebralization of both plosives.

[11] This state of arts we assume for Common Baltic, and it is present in Lithuanian, other Baltic languages underwent depalatalization as in case ii below.

[12] Indic *ṣṭ* with the later typically Indic cerebralization of both plosives.

erally depalatalized, **except before *t-*** (cf. Av. *sV* < IE *$\acute{k}V$ but Av. *št* < IE *$\acute{K}t$*; OP *ϑV* < *IE *$\acute{k}V$ but OP *št* < IE *$\acute{K}t$*). For the Pre-Slavic development we have to assume two mutually independent depalatalizations:

i. the depalatalization of palatovelars before vowels (Balto-Slavic *$\acute{s}V$* > CS *sV*), as in Iranian;
ii. the depalatalization of palatovelars before *t-* (Balto-Slavic *$\check{s}t$* > CS *st*) after the merge of both clusters *št* (with the "ruki" sibilant) and *ść* (with the "palatovelar" sibilant), specific for Slavic (but independently mirrored in peripheral Baltic languages).

3.4. Trajectories of the development of the IE *Tt* cluster

The trajectory of the development of the IE cluster *Tt* has the same outcome *st* for Balto-Slavic, Indo-Iranian (and Greek outside the *satəm*-area). Armenian has the outcome *0t* (or *u̯t*, more precisely) and Albanian *0s*, both are, however, attested on scarce evidence.

IE *Tt* > Arm. *u̯t* is based on two examples:

giwt 'find' (cf. Arm. *gitem*; < IE *$u̯id$-ti-m* < √*u̯ei̯d-*; cf. OAv. *vīnastī* 'find', L. *uīdī* 'see'; cf. Hübschmann 1897: 435; Pokorny IEW: 1125; Winter 1962: 261; Schmidt 1980: 43; Görtzen 1998: 337, 344-345; Olsen 1999: 851; LIV²: 665-667; Schmitt 2007: 52, 134; NIL: 717-722; Martirosyan 2010: 211, 723);

hat 'grain, seed, piece' (< Pre-Arm. *hawt-i-* < IE *H_2ed-ti-*; cf. L. *ador* 'coarse grain, spelt', Goth. *atisk* 'cornfield'; cf. Pokorny IEW: 3; Martirosyan 2010: 392-393, 723[13]);

IE *Tt* > Alb. *0s* is also based on two examples:

besë 'pledge, truce, trust' (cf. Alb. *bind* 'convice'; < Pre-Alb. *baitšā*; < IE *$b^hei̯d^h$-to-*; cf. Gr. πείθω 'persuade', L. *fīdō* 'trust'; cf. Pedersen 1900: 308; Pokorny IEW: 117; Hamp 1961; Demiraj 1997: 96-97; Orël 1998: 22; Orël 2000: 101; LIV²: 71-72; NIL 12-13; Schumacher 2013: 244);

OGeg. *pasë* 'have'[14] (< Pre-Alb. *pat-ta-* < IE *pot-$tó$-*; cf. OIA *pátyate* 'rule', L. *potior* 'become master'; cf. Pedersen 1900: 308; Pokorny IEW: 842; Schumacher 2013: 244)[15].

There is the traditional **affricativization trajectory**, first formulated by Kräuter (1877: 88)[16], evaluated by Verner (1878: 341-342) and popularized by Brugmann (since 1880 in every study), which is widely attested. For the development of the *satəm*-languages, it could be modelled as follows:

i. **Tt** > tt > tˢt > **st**   (Balto-Slavic, Iranian)
ii. **Tt** > tt > tˢt > **tt**   (Indic)

Both the Armenian and Albanian outcomes could be hardly put within the affricativization trajectory; hence we do not dare to propose any trajectories of their developments, though it

---

[13] See especially the other possible etymologies listed there.

[14] A suppletive participle of *kā* "have", 3rd sg. ao. (cf. Schumacher 2013: l.c.).

[15] But Demiraj (1997: 313-314) is very sceptical to this explanation.

[16] Also Verner (1878: 341-342).

is possible that Albanian development within the affricativization trajectory merged at some time with the outcomes of the Pre-Albanian cluster *$t\underset{\cdot}{i}$ (Schumacher 2013: 234-235).

The affricativization trajectory cannot explain both the Albanian and Armenian developments. However, the main problem of it is to explain, why IE cluster *$\acute{K}t$ is realized as a cluster with a sibilant both in Indic and Iranian (simplifying the affricate by the loss of the plosive segment and preserving of the sibilant segment) but why the typologically same cluster t^st (from *Tt) lost its sibilant segment and preserved its plosive segment: both processes had to be operative at the same time, between the split of Indo-Iranian languages since the outcomes differ in Iranian and Indic.

We prefer the **spirantization trajectory**, proposed for Indo-Iranian by Bartholomae (1887: 83; Bartholomae 1895: 16), accepted by Leumann (1942: 13) and Morgenstierne (1942: 80; for Iranian only).[17]

The spirantization trajectory we model as follows:

  i. **Tt > ϑt > st**   (Balto-Slavic, Iranian)

  ii. **Tt > ϑt > tt**   (Indic)

The advantage of the spirantization trajectory is that it explains why Indic has a sibilant for the palatovelar in the cluster *$\acute{K}t$ (the spirant ç became a sibilant and preserved as such) and a plosive in the cluster *Tt (a spirant ϑ was re-occlusivized[18]).

To reconstruct the Albanian development is still complicated even within the spirantization model (***Tt > ϑt > ϑϑ > c > 0s*** ?). However, the Armenian development could be easy to be explained as the trajectory: ***Tt > ϑt > ht > u̯t***, i.e., with a spirantization and debuccalization of the left dental stop. Winter (1962: 261) assumes the spirantization of the right plosive and its later metathesis. It has to be noted, that IE clusters $K^{(u)}t$, Pt are in Armenian always realized as $0t^‘$, i.e., with the aspiration, but clusters from IE *$\acute{K}t$ and *Tt are realized without aspiration, as are clusters from IE *st –the clusters *fricative* + *t* were not subjected to aspiration, which supports our thesis (cf. Görtzen 1998: 346).

4. Conclusions

There are four sources of the Common Slavic cluster *st*.

The first is a direct descendant of the IE cluster *st, fully preserved as it was.

The second source is the "Pedersen's sibilant" cluster *$\check{s}t$, arisen due to the *ruki*-law, secondarily depalatalized in Pre-Slavic, together with the sibilant from the original IE palatovelar (*$\acute{K}t$ > *satəm* *$\acute{s}t$ > *$\check{s}t$ after the merge with the Pedersen's sibilant), which is the third source of the Slavic *st*.

---

[17] The variant spirantization trajectory for Italic (and subsequently also for Celtic and Germanic) was already proposed by de Saussure (1877), independently by Cocchia (1883: 16-58).

[18] Note that Indic occluvized even clusters *ss on ts and *$\check{s}s$ on $k\underset{\cdot}{s}$: cf. OIA *ávatsyat* (from √*vas-* "shine") and *dvikṣát* (from *dviṣ-* "hate") – the relation of this phenomenon with development of *Tt* clusters was, as far we know, never realized before.

The fourth source is the original IE cluster *Tt*, for the development of this cluster we prefer the original Bartholomae's trajectory with a spirant instead of the Brugmannian trajectory with an affricate, however, both trajectories could be considered variants of a fricativization trajectory.

Abbreviations of languages

Alb. – Albanian
Arm. – Armenian
Av. – Avestan
CS – Common Slavic
Gr. – Greek
Goth. – Gothic
IE – Indo-European
L. – Latin
Lith. – Lithuanian
OAv. – Old Avestan
OCS – Old Church Slavonic
OHG – Old High German
OIA – Old Indo-Aryan (Vedic)
OLith. – Old Lithuanian
OPruss. – Old Prussian
ORu. – Old Russian
OS – Old Saxon
YAv. – Young Avestan

Bibliography

Andersen H., 1968, *IE. *s after* i, u, r, k *in Baltic and Slavic*, "Acta Linguistica Hafniensia" 11/2, p. 171-190.

Arumaa P., 1976, *Urslavische Grammatik. II. Band. Konsonantismus*, Heidelberg.

Bartholomae Ch., 1887, *Die Vertretung des altitalischen ss im oskischen* (etc.), "Bezzenbergers Beiträge" 12, p. 80-92.

Bartholomae Ch., 1895, *I. Vorgeschichte der iranischen Sprachen. II. Awesta-sprache und Altpersisch*, In: *Grundriß der iranischen Philologie. Erster Band. I. Abteilung*, eds. W. Geiger, E. Kuhn, Strassburg, p. 1-248.

Blažek V., 1999, Numerals, Brno.

Brugmann K., 1880, *Die lautgruppe dentale explosive* + t *im indogermanischen*, In: H. Osthoff, K. Brugmann, *Morphologische Untersuchungen auf dem Gebiete der indogermanischen Sprachen*. Teil 3, Leipzig, p. 131-147.

Cheung J., 2007, *Etymological Dictionary of the Iranian Verb*, Leiden.

de Saussure F., 1877, *La transformation latine de *tt en ss suppose-t-elle un intermédiaire *st?*, *Mémoires de la Société de linguistique de Paris* 3, p. 293-301 (quoted the version published in: de Saussure F., 1922, *Recueil des publications scientifiques de Ferdinand de Saussure*, Heidelberg, p. 370-375).

Demiraj B., 1997, *Albanische Etymologie (Untersuchungen zum albanischen Erbwortschatz)*, Amsterdam/Atlanta.

Derksen R., 2008, *Etymological Dictionary of the Slavic Inherited Lexicon*, Leiden/Boston.

Derksen R., 2015, *Etymological Dictionary of the Baltic Inherited Lexicon*, Leiden/Boston.

Görtzen J., 1998, *Die Entwicklung der indogermanischen Verbindungen von dentalen Okklusiven mit besonderer Berücksichtigung des Germanischen*, Innsbruck.

Hamp E.P., 1961, *Albanian* be*, besë *"oath"*, „Zeitschrift für vergleichende Sprachforschung auf dem Gebiete der indogermanischen Sprachen" 77/3-4, p. 252-253.

Hübschmann H., 1897, *Armenische Grammatik I. Armenische Etymologie*, Leipzig.

Kellens J., 1995, *Liste du verbe avestique*, Wiesbaden.

Kräuter J.F., 1877, *Zur Lautverschiebung*, Strassburg.

Leumann M., 1942, *Idg. sḱ im Altindischen und Litauischen*, "Indogermanische Forschungen" 58, p. 1-26, 113-130.

Lipp R., 2009, *Die indogermanischen und einzelsprachlichen Palatale im Indoiranischen. Band I: Neurekonstruktion, Nuristan-Sprachen, Genese der indoarischen Retroflexe, Indoarisch von Mitanni*, Heidelberg.

LIV² = Rix H., Kümmel M.J., Zehnder T., Lipp R., Schirmer B., 2001, *Lexikon der indogermanischen Verben*, Wiesbaden.

Martinet A., 1955, É*conomie des changements phonètiques. Traité de phonologie diachronique*, Berne.

Martirosyan H.K., 2010, *Etymological dictionary of the Armenian Inherited Lexicon*, Leiden.

Mayrhofer EWA = Mayrhofer M., 1992-2001, *Etymologisches Wörterbuch des Altindoarischen* I-III, Heidelberg.

Morgenstierne G., 1942, *Orthography and sound-system of the Avesta*, „Norsk Tidsskrift for Sprogvidenskap" 12, p. 30-82.

NIL = Wodtko D.S., Irslinger B., Schneider C., 2008, *Nomina im indogermanischen Lexikon*, Heidelberg.

Olsen B.A., 1999, *The Noun in Biblical Armenian: Origin and Word-formation: with special emphasis on the Indo-European heritage*, Berlin/New York.

Orël V., 1998, *Albanian Etymological Dictionary*, Leiden.

Orël V., 2000, *A Concise Historical Grammar of the Albanian Language*, Leiden.

Pedersen H., 1895, *Das indogermanische s im Slavischen*, "Indogermanische Forschungen" 5, p. 33-87.

Pedersen H., 1900, *Die Gutturale im Albanesischen*, "Zeitschrift für vergleichende Sprachforschung auf dem Gebiete der indogermanischen Sprachen" 36/3, p. 277-340.

Pokorny IEW = Pokorny J., 1959–1969, *Indogermanisches Etymologisches Wörterbuch* I-III, Bern.

Schmitt R., 2007, *Grammatik des Klassisch-Armenischen mit sprachlichen Erläuterungen*, Innsbruck.

Schumacher S., 2013, *Historische Phonologie*, In: S. Schumacher, J. Matzinger, *Die Verben des Altalbanischen. Belegwörterbuch, Vorgeschichte und Etymologie*, Unter Mitarbeit von Anna-Maria Adaktylos (= *Albanische Forschungen* 33), Wiesbanden, p. 205-276.

Šefčík O., 2000, *The development of Indo-European obstruent clusters of types plosive + t/s into Slavic*, „Zeitschrift für Slawistik" 65, p. 222-248.

Shevelov G.Y., 1964, *A Prehistory of Slavic: the Historical Phonology of Common Slavic*, Heidelberg.

Verner K., 1878, (rev. of) *Zur lautverschiebung. Von J F Kräuter*, Strassburg, Trübner 1877. [viii und] 154 ss. „Anzeiger für deutsches Altertum und deutsche Literatur" 21, p. 333-342.

Winter W., 1962, *Problems of Armenian Phonology III*, „Language" 38/1, p. 254-262.

ONDŘEJ ŠEFČÍK

The prehistory of the Slavic clusters *st*
in a diachronic context

Abstract

The paper aims at presenting four different sources of the Slavic clusters *st* and analysing them in diachronic contexts, according to their origins (< IE **st*, **št*, **Ḱt*, **Tt*). The IE cluster **st* has been fully preserved, the late IE cluster **št* is de-palatalized as is the *satəm*-cluster **Ḱt* (which has merged with **št* in almost all the *satəm*-languages). The cluster **Tt* developed regularly into *st* in Balto-Slavic and Indo-Iranian languages (and Greek), into *0s* in Albanian and *u̯t* in Armenian – the Armenian development leads to preference for the cluster's spirantization (as stated earlier by Bartholomae for Indo-Iranian) over the traditional "Brugmannian" affricativization.

Keywords: clusters *sibilant + t*, phonemic trajectory, spirantization, affricativization, de-palatalization, Old Church Slavonic, Common Slavic, Indo-Iranian, Baltic.