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Evaluating the Uralic–Yukaghiric word-initial, proto-sibilant correspondence rules

This paper evaluates and expands upon previously suggested sound rules governing the phonological outcome of early root-initial proto-sibilants (*s- and *š-) and proto-affricates (*š-, *č- and *č-) in Late Proto-Yukaghir (PY), as shown by cognate correspondences in Proto-Uralic (PU) and by Tungusic and Turkic borrowings. The proto-sibilant *s- underwent deletion (*Ø-), retention (*s-) or lateralization (*l-); *š- was retained unchanged and earlier *š- had changed into *č- in PY. Universally, PY proto-sibilants and proto-affricates find regular lexical correspondences in PU as described by a set of non-trivial phonological rules:

Pre-PY *sVr/k/γ- > PY *lVr/k/γ-: a regular lateralization of the sibilant in Yukaghiric occurred with back vowels and *-r-, *-k- and possibly *-γ-, but not *-q-, through an intermediary hypothetical *θ- stage.

Pre-PY *sVl/η- > PY *ØVl/η-: a sibilant deletion rule occurred with any vowel and *-l- or *-η-.

However, all structures of the intermediate type Pre-PY *sV₁η/l/m/n-k/q-V₂-, where V₁ is a back vowel, pose an exception wherein sibilant deletion was blocked, and the sibilant was either retained or changed into a lateral. Sibilant deletion still occurred in these cases if V₁ was a front vowel.

Pre-PY *š- > PY *š- > KY š- & TY s-: the Yukaghir lexicon in these cases likely developed through intermediate *š'/*θ'- from Old Yukaghir. Furthermore, Pre-PY *š- > PY *č- regularly.

All of these sound changes are controlled by phonology and affect borrowings as well as inherited vocabulary from before PY, but do not affect post-PY borrowings. The sibilant-deletion rule is clearly an influence from extensive language contacts with Yakut-speakers, and certain roots show that the Yukaghir rules of synharmonism were already in effect prior to sibilant deletion. In addition, the results are concurrent with several older cognate suggestions between Uralic and Yukaghiric and further add to this corpus. Identifying these historical processes also strengthens the evidence that the Yukaghir languages are genetically related to the Uralic language family.

I. Introduction

I.1. The word-initial sibilants of Yukaghir

Word-initial sibilants in Yukaghiric, in this context *s-*, *ś-* and *š-*, have traditionally been seen as having partaken in relatively complex sound changes of several different types. Nikolaeva (1988a, 1988b, *passim*) reconstructed a palatal opposition for pre-Late Proto-Yukaghir (Pre-PY) in the form of **s-* and **ś-*, with the former changing into either the lateral **l-* or completely disappearing – (**ø-*) – in Late Proto-Yukaghir (PY) (as evidenced by Uralic, Tungusic, etc. lexical correspondences), and with the latter changing into Kolyma Yukaghir (KY) *š-* and Tundra Yukaghir (TY) *s-*. This cannot, however, have been a universal phonological change as there were plenty of **s-*initial roots in PY, and it remains a task to determine which clusters do change and into what. The phoneme *š* did not exist in Late Proto-Yukaghir (Nikolaeva 2006: 65) and since there have, to the best of my knowledge, not been any suggested borrowings or Uralic cognates with **š-* – possibly because such items are rare also in Proto-Uralic – nothing concrete is known about the changes of this sound in shifting from Pre-PY to PY and, later, into the modern daughter languages.

There are numerous suggested borrowings and Uralic correspondences in Yukaghiric with the initial PY palatal **ś-*, and the consequent forms *š-* in KY and *s-* in TY. It is, in fact, rather easy to find further corresponding roots of this type, a few of which will be presented in the chapters below.

However, the governing factors for describing the outcome of the non-palatal, **s-*, are hitherto undetermined. This classical problem must be considered partly indeterminable due to the relatively low number of such lexical items to study. The lack of understanding of all the factors involved has made it difficult both to classify the tentative Yukaghir affiliation to other language families as well as to find further borrowings or even prospective PU -cognates in Yukaghiric. Apparent early scribal errors in registering early Yukaghiric idiolects (Nikolaeva 2006: 10–28) have further confounded the problem. Borrowings into Yukaghiric, mainly, from Yakut, Chukchi, Ewen and Ewenki sources, and some correspondences with Uralic lexicon with an originally known initial non-palatal sibilant have been suggested (Nikolaeva 2006: *passim*), but the final forms in modern Yukaghiric are controlled by confounding variables not yet fully understood in phonological terms.

The sound changes regarding initial sibilants in Yukaghiric, the relevant ones being **s-*, **ś-* and **š-*, and the factors governing their phonological form in moving from pre-Late Proto-Yukaghir into the modern Yukaghiric languages, has so far only been partially understood (Nikolaeva 1988a, 1988b, 2006: 66–68).

1.2. Regarding the Uralic-Yukaghiric relationship

The nature of the Uralic-Yukaghiric relationship remains unproven and controversial with two prevalent schools of thought: a) the relationship is one of borrowing – all lexical and supposedly also morphological, phonological and grammatical similarities are only due to ancient language contact situations, and b) the Uralic and Yukaghiric languages are genetically related language families, the main thesis being that of two parallel language families both going back to an earlier stage, sometimes referred to as Pre-Proto-Uralic. The state-of-the-art of this complex question was most recently summarized elsewhere (Piispanen 2013), and it will provide an adequate introduction to this paper as well.

Indeed, regular sound correspondences linked to lexemes and grammatical formatives may be the only valid means to establish a genetic relationship (Baldi 2002: 2–19). Thus, if lexical correspondences are regular, systematic and even showing chronological chains of sound changes – and are also in accordance with the state-of-the-art known phonological alternations – the case for a real and solid genetic relationship subject to regular sound laws can be made.¹ The linguistic classification problem of the Yukaghir languages – that the many similarities between the Yukaghiric and Uralic languages originate either from borrowing or from a genetic language relationship – has been extensively discussed over the years (for example: Jochelson 1905 & 1975, Collinder 1940, 1965a & 1965b, Angere 1956, Krejnovič 1958, Sauvageot 1969, Fortescue 1988 & 1998, Rédei 1999, Maslova 2003, Nikolaeva 2006, Häkkinen 2012 and, most recently, Piispanen 2013). The publication of the new historical dictionary (Nikolaeva 2006), with particular reference given to the reconstructed Late Proto-Yukaghir forms, has largely facilitated in-depth etymological and morphosyntactic research on Yukaghir.

My own research over the last few years has led me to embrace the idea that the two language families are in fact genetically affiliated, and in the coming years I intend to publish new materials in support of this school of thought with this paper being the second in such a series. While I do not wish to be excessively sanguine about the matter, I will regularly refer to all obviously connected Uralic and Yukaghiric lexicon as cognates until proven otherwise. At the same time, there is no doubt whatsoever about the presence of genuine borrowings, particularly between the Samoyedic and Yukaghiric languages. Indeed, modern population genetic research can prove several ancient periods of tribal contacts between speakers of the early Uralic and Yukaghiric languages, which was conducive both to lexical borrowings and to language shift situations (Piispanen forthcoming). The great challenge in the coming years will be to distinguish such genuine borrowings from all of the genetically related vocabulary.

1. All of this is naturally in direct opposition to *ad hoc*-creations to explain similarities arisen by mere chance, borrowings, areal linguistic features or even wishful thinking; certainly everybody agrees on that it can not be considered scientifically sound to remove uncomfortable lexical items in order to prove any chosen thesis at hand. As such, all exceptions should be explainable within reason.

1.3. Previously suggested sound rules

At the current state-of-the-art the sibilant correspondence rules in Yukaghir studies have not yet been fully evaluated, detailed or classified. These state that:

- Pre-PY *s- > *θ- > PY *l-/*Ø- (Nikolaeva 1988a, 1988b, 2006: 66–68)
- PY *ś- > KD *c*- > *š'/*θ'- > KY š- (Nikolaeva 1988a, 1988b, 2006: 66–68)
- PY *ś- > TD *c*- > TY *s*- (Nikolaeva 1988a, 1988b, 2006: 66–68)

A number of questions must be posed: Which were the exact conditions determining retention, change, lateralization or deletion of the initial sibilant and what were the influences behind this effect? Could new PU–PY correspondences cast light upon clarifying the rules? Further, are there cases when an earlier *s-, as shown by Uralic correspondence, did not change at all into PY? In this paper, it will be shown that the determining factors are purely phonological in nature – it is my hope that demonstrating this will adequately answer all these questions – and allow for detailed reformulation of more concrete correspondence rules. This stands in stark contrast to an earlier hypothesis that the lexical outcome in Yukaghiric, particularly pertaining to vowels, is mainly dependent upon the chronological stage at which borrowed lexicon entered the early Yukaghiric language (as exemplified through suggested Uralic borrowings into Yukaghiric in Häkkinen 2012).² Further, the sound change correspondences established in earlier literature will be shown to be essentially correct through extended reformulations that adequately and regularly produce the proper phonological outcomes. Herein a thesis on a likely origin of the sibilant-changing rules will also be presented.

Furthermore, the accuracy of the reformulated rules is made evident by a few newfound Uralic – Yukaghiric cognates as well as by some borrowings into Yukaghiric with original *s- and *ś-. Furthermore, the sound correspondences and development of pre-PY *ś- into PY, of which little is known, will be evaluated independently using a few tentative cognates as examples, thus adding some insight into the development of the three sibilants.

2. Working hypotheses

2.1. A critical assessment and preliminary assumptions

Some facts can easily be concluded from the aforementioned rules. First of all, given the general form of the rule statement, there should not, accordingly, be any direct Uralic–Yukaghiric cognate suggestions with the correspondence PU *s- and PY *s-. However, this is a grossly simplified view, as will be shown, since such correspondences do indeed exist under special phonological conditions blocking all changes of the initial sibilant.

2. However, it is true that vowel alternations between *o* ~ *u* in borrowings are clearly dependent upon when the borrowing did occur. In early borrowings we find the convergent development of **-o-*, **-u-* > **-o-* (>**-a-*), but in late borrowings the convergent development is instead **-o-*, **-u-* > **-u-* (Nikolaeva 2006: 62–63). These alternations are also recently discussed in Piispanen 2014.

Second, according to the way the above rules were formulated there could not be any pre-PY borrowings still retaining the *s- in unaltered form. The data presented herein does support this as borrowings will be found in altered form in Yukaghiric. However, the reason for this is not that the roots were borrowed *per se*, but rather that this borrowed lexicon happens to not have met the phonological conditions required for blocking sibilant change.

Thirdly, since *s- had already changed to either *l- or *Ø- in PY, this suggests, chronologically, that only the previous stage, Middle Proto-Yukaghir (MY) or even Early Proto-Yukaghir (EY), had the *s-.³ It also means that the observed Tungusic and Turkic borrowings, which have lost the initial s-, had already entered the Yukaghiric language before the PY stage existed. In contrast, as evident from the data presented herein, Post-PY borrowings will thus retain the s-.

However, fourthly, since there are plenty of PY words with *s-, this suggests that only certain phonological structures were subject to sibilant change or deletion. Further, it also suggests that some initial sibilants, i.e. PY *s-, may have emerged from other earlier phonological forms, although only partial evidence of this has been found so far, for example in correlating PU *č-/*ć- with PY *s- in a few lexical examples.

In other words, in summarizing the aforementioned conclusions, there were parallel developments of Pre-PY *s- > PY *l- or *Ø- or *s-, as conditioned by as of yet unknown factors. These conditions will be evaluated and determined in this report.

As for the palatal *ś-, crucial to tracing its development may be Nikolaeva's statement that, "they [i.e. s and ś] are both recorded as c in Jochelson's manuscript dictionaries (KD and TD), which suggests that the pronunciation difference between them at this stage was insignificant."

With the probably correct assumption that Jochelson did not make lackluster recordings, this means that the development into KY ś- and TY s-, respectively, originated from one common sound, recorded by Jochelson as an affricate. The changes occurred relatively late, likely only during the recent centuries, long after the PY stage, and should have developed from an earlier *ś-. Further insight into the changes of PY *ś-, probably differing areally, could possibly be gained from Yukaghir dialectology, which is now possible to some degree given the historical recordings. As for borrowings, it is important to note that most borrowed s-initial vocabulary is now also found in the pairing of KY ś- and TY s-, suggesting a preceding development of *s- > ś, thus synchronically converging the phoneme *s- with *ś- into one common PY phoneme *ś-. It appears as if this change occurred only word-initially, meaning that the phoneme *s- in word-internal positions was never lost. This also leads to the conclusion that the correspondence of s-initial borrowings that occur as KY s- (as opposed to KY ś-) must be taken as representing late borrowings after the change had already occurred. The changes can be summarized in detail, as will be exemplified throughout this paper, as:

3. This earlier stage, since it is unknown exactly when sibilants changed, will henceforth be referred to simply as Pre-PY.

- Pre-PY *s- > PY *l- or PY *Ø- (common) and PY *s- (common); some determining factors are clarified in this paper
- PY *s- (borrowings and other origins) > Post-PY *ś- (convergence with existing *ś-) > KY š- and TY s-
- PY *ś- > unchanged in Post-PY > KY š- and TY s-
- Post-PY *s- > KY s- and TY s-

The significance of the above is then that the two opposing sibilants *s- and *ś- underwent phonological changes at different times and stages. The existence of a sibilant opposition of this type is unique for Yukaghir, since neither Yakut, Ewen, Ewenki, nor Old Russian dialects around Kolyma have such a sibilant opposition (Bogoraz 1901). I suggest that this sibilant opposition, as a phonological feature, actually goes back all the way to the Pre-Early Yukaghir stage from which the Uralic branch, also displaying this opposition, may also have evolved.

3. Parallel developments

3.1. Summary of the state-of-the-art sound rules and beyond

For the sake of clarity, all of the aforementioned will be henceforth divided up into six applied rules:

1. MY *s- > (?*θ- >) PY *l-

This rule is apparently found mostly with inherited vocabulary and with no borrowings, meaning that the change must be an old one.

2. MY *s- > (?*θ- >) PY *Ø- > KY Ø- & TY Ø-

This rule is found in effect both with inherited and (mostly) borrowed vocabulary. The factors governing the outcome in PY, as either *l- or *Ø-, from MY *s- are not known at this point.

3. PY *ś- > KD c- > *š'/*θ' > KY š-

4. PY *ś- > TD c- > TY s-

These two almost universal rules regularly apply to all inherited vocabulary and therefore constitute an excellent basis for systematically detecting new cognates with Uralic if known in full. The final outcome of the rules clearly differ based on idiolect and could perhaps be extendable to other (now extinct) dialects as well using the recorded historical data.

5. Pre-PY *s- > PY *s-

There are quite a few such previously non-reported occurrences, as presented in this paper.

6. Pre-PY *ʔ > PY *ś-

A few cognate suggestions that eventually led to PY *ś- will be presented in this paper.

At the current state of the art, these six sound rules are not yet fully understood and the factors leading to a change, deletion or retention of the sibilant are not known. In order to evaluate the universality of the rules, and to fill in the missing

phonological pieces, a few new cognate suggestions with Uralic *ś- and *s- are presented below. The suggested intermediate dental fricative forms *θ'- and *θ-, respectively, are interesting, and may explain the forms of the t-initial MC idiolect forms for these cognancy sets, and parallel evidence from other sources, from within the Uralic branch, will also be shown. Still, more research into the matter will be required in the future to obtain the full developmental picture. In particular research into exactly which phonological factors (i.e. which vowel features and which consonant clusters) block initial sibilant changes in going from Pre-PY into PY are required; the problem at this point is to find further groups of cognates evidencing various changes systematically.

We shall analyze the development and outcome of these rules in detail below. As far as lexicon is concerned, it must be kept in mind that in *A Historical Dictionary of Yukaghir* (Nikolaeva 2006) only one type of word-initial sibilant is used in the reconstructed Late Proto-Yukaghir roots. However, in actuality, the dictionary's PY *s- refers to both *s- and *ś-. Which form of the two the PY sibilant actually originated from is evident from the Yukaghir dialect and language forms as well as from the forms of the Uralic correspondences or from the sources of any known borrowings. In this paper, the simplified nomenclature of the dictionary is adopted unless further clarification is needed. References to sets (root plus word items) in the dictionary are given in the format: noted in *entry number*. Furthermore, Yukaghir roots have historically undergone shortening, usually being interpreted as having been monosyllabic instead of bisyllabic. They have then very often been suffixed – nominal derivational suffixes to remake a verbal root into a noun root, verbal roots to change a noun root or one of type of verb, such as an intransitive verb, into another type, such as a transitive verb, etc. In order to prove the point, I have taken great care in specifying the root suffixes as far as they are known.

4. Regarding the universality of the *s-sibilant change rules

4.1. Problems with the assumed universality of sibilant sound changes

It must be pointed out, that, while such claims are often implicitly made, the sibilant change rules may not have not been completely universal in application throughout all Yukaghir dialects and languages. The discussion below for the set of PY *larq- should make this clear. Other particular curiosities of interest in this regard are MC *sogond-onde* 'salt' and variants of PY *loɣo-, B *logodu:shinu* 'salt', ME *logtunkeinu* 'salt' and MK *logódy-chonól* 'salt' (borrowed from TU *sakV 'salt') as well as MC *sogote* 'arrow' and variants of PY *joɣo-, KY and TY *joyoti*: 'arrow with a head', KY *joyotə-* 'to hit with an arrow', MU *jögór* 'arrow' (which may be a Uralic cognate, as presented below). These apparently do not fit in perfectly with the assumed universality of the sibilant-change rules. A possibility is that the MC forms could represent remnants of an idiolect resistant to the general change *s- > PY *l- > KY j'-. This thought is also partly substantiated by the very different suffixed compound forms of

these items in the various idiolects, as this suggests independent development in the Yukaghir languages.

However, the root was the same in all of the idiolects and it has been suggested that the MC items are erroneous recordings (Tailleur 1962: 91, 93), which may well be the case. Still, it is actually surprising that both of these MC items are precisely of sibilant-initial forms and nothing else. After all, the discovery of the development *s- > l- came much later and it is very doubtful that the early recorders of the idiolects would have made subconscious corrections to the recordings as influenced by knowledge of the original etymological sources, which did have the initial sibilant. At the same time, the rules clearly also apply to MC, as is evident from Pre-PY *sala > PY *olo- > MC *elanaj* ‘thief’ and Pre-PY *seye > PY *leɣ- > MC *-lyq* ‘food’. With the strong regularity of sound change rules evident in MC, these two MC recordings should be considered improbable erroneous recordings. However, an alternative hypothesis that must also be entertained could state that initial sibilants changed at different rates depending on the phonological environment, and that certain sibilant-initial clusters remained long unchanged in certain dialects. Such a dialectological analysis is, however, beyond the scope of the present work.

All the items will be divided up into clear groups below representing their phonological forms, their suggested phonological development due to conditioning factors, and their semantic identity.

5. Cognates with initial sibilants (*s-) (with a back vowel?)

5.1. Pre-PY *sVr/k(/ɣ?)- > *θVr/k(/ɣ?)- > PY *lVr/k(/ɣ?)- > KY & TY lVr/k(/ɣ?)- (lateralization)

1. Mari *šār*, *wür-šer* ‘blood vein’, Udm. *vir-ser*, *ver-ser* ‘vein’, Khanty *ler* ‘stroke, channel’, *jer* ‘strip, stroke’, *ter* ‘fiber’, *ler* ‘root fiber’, KZ *ler* ‘коренья кедра для связки верши из ранок’, Mansi *tār*, *t̄r*, *tār* ‘root’, Hung. *ér* ‘vein’, PU ***särV** ‘vein, sinew, root’ (UEW 437), PY ***larq-** > KY *larqul* ‘root’, *larxul* ‘root’ (Angere, J. 1957: 132) (noted in 1007).⁴

Suggestion: *särV > *sarV > *sar- > *θar- > *lar- > *larqul*

However, the entry PY ***sar-** (noted in 2158), KJ *šaril* ‘root’ and M *sáril* ‘root’, B *tarrel* ‘root’, ME *tarril*, *tscharill* ‘root’ (no MC noted), as well as KY *šar-* ‘to cover, to bury, to press, to overtake’, *šažil*, *šaril* ‘fog, covering’, *šaro:j* ‘snow storm’, *šaže-* ‘to press’, appears to provide counter-examples to this rule, since they are possibly also related to the PU-like root ***särV** ‘root’ (with *-l* being a suffix and *i* an epenthetic vowel). This would suppose that the KY semantics, specifically, have arisen through secondary development or, even the unlikely event that the set describes items for two homonymous roots, with the items related to *root* belonging to a parallel development

4. I assume that the *-q- belongs to the adjective-forming suffix *-kə (Nikolaeva 2006: 82) while the *-l* is a common nominal derivational suffix (Nikolaeva 2006: 81) used for forming nouns from verbs. The KY word has undergone the change *-k- > *-q- since the plosive was surrounded by back vowels, thus making it synharmonic, while the *-ə- would have changed to the epenthetic form *-u-* instead. The meaning of *larqul* should thus be ‘the sinewy, the veiny, i.e. root’.

of a root **särV~*sarV*. The Yukaghir idiolects with *t-* would presumably have arisen through fortition of an intermediate proto-form **θ-*, which would be quite similar to what occurred in the Samoyed languages. The alternation of *-r- ~ -ž-* in KY is irregular, but appears in several different words. The KZ item is an Udmurt borrowing.

2. Fin. *syö-* ‘to eat’, *syöt-* ‘to feed’, Est. *söö-*, *süü-* ‘to eat’, EM *ševe-*, *säwi-* ‘to eat’, MM *ševe-*, *šive-* ‘to consume, to eat up’, Udm. *ši-*, *šij-*, *šič-*, *šič-* ‘to eat’, *šektal-* ‘to host’, *šuum* ‘wedding party’, KZ *šoj-*, *šu.j-* ‘to eat’, *šoveđ-*, *šod-* ‘to feed’, Khanty *li-*, *i-*, *te-* ‘to eat’, Mansi *tī-*, *tāj-*, *tāj-*, *tē-*, *tōj-*, *tē-*, *tāj-*, *taj-*, *tē-*, *tāj-* ‘to eat’, Hung. *ēv-*, *ē-*, *ész-* ‘to eat’, PU **seœe/*seye* ‘to eat’ (UEW 440), PY **ley-* ‘to eat’ > KY *leg-* ‘to eat’, *legul* ‘food’, M *laktámlla*, *lagúl* ‘to eat, more likely the noun: food’, ME *lagk*, *lagul* ‘to eat, more likely the noun: food’, MK *léi* ‘to eat’, B *lagul* ‘to eat, more likely the noun: food’ (noted in 1019).

Suggestion: **seye-* > **sey-* > **θey-* > **ley-*

Alternative suggestion: **seye-* > **sek-* > **θak-* > **lak-* > **lay-* > **ley-*

This set is the most problematic item in the entire study. This is the only previously suggested lateralized correspondence with a clear **-γ-* and it has a front vowel; the major problem is that there are plenty of similar roots in PY, namely **say-*, **sey-*, **siy-*, **soy-* and possibly also **suy-* and **söy-*, that is with either back or front vowels, as well as many theoretically sibilant-deleted roots of the forms **ay-*, **ey-*, **iy-*, **oy-*, **uy-* and **öy-*, which have not undergone lateralization of the word-initial sibilant. Assuming that the PY item arose from **seœe* – it is very difficult to disregard the connection between the Uralic and Yukaghiric words from both semantic and phonological perspectives – does not solve the problem either (see below). As such, there are no good reasons to assume that this particular root would have changed into the lateralized PY root, and yet it seems to have occurred early on. It may constitute a case of aberrant development in order to avoid homonymy with other similar roots or exemplify some sort of contamination phenomena by other vocabulary. A borrowing scenario does not solve anything either for two reasons: a) even if it were a borrowing from Uralic there are no reasons for its aberrant behavior in comparison to general PY lexicon, and b) there are no reasonably similar roots meaning *food* or *to eat* in surrounding non-Uralic (historical) languages. A non-satisfactory explanation, including some non-trivial sound changes, would be to assume an intermediate step through a back vowel form with a **-k-* (the alternative suggestion above) as this would put the development in line with the other sets in this group.

For the words in this set, there are no traces of anything other than *l-* in the numerous Yukaghir items listed in this group (1019). The reconstruction of the Uralic proto-item is difficult as attested by two suggested proto-forms in the literature: PFU **seœe-* and ?PU **seye*. From a purely phonological perspective, the form **seye-* requires only the exchange of the initial sibilant, and reinterpreting a bisyllabic root as a monosyllabic root, in order to arrive at PY **ley-* > KY *leg-* ‘to eat’ (correspondence noted in UEW 440), which suggests that the form in Pre-PY would have been **seye*. It seems possible that PFU **seœe* (used for this correspondence as a borrowing in Häkkinen 2012) was produced as the continuant underwent lenition from the PU form **seye*. The form **seœe* indeed seems a likely precursor of the Balto-Finnic languages,

e.g. Fin. *syö-* ‘to eat’. At any rate, the proto-item in Pre-EY would likely not have been **seœ-* as that would have turned into the non-attested forms ****(s)ej-* or ****(s)ejl-* in PY as shown by other research on semi-vowels (Piispanen forthcoming); more likely it was **seye* as it did not undergo lenition. The correspondence is less certain due to the unknown phonological factors involved and incompletely understood proto-items, but seems a probable one.

Turning to the other aspirated fricative, **δ*, for clues it is noted that there are no PY roots of the form **sVδ-*.⁵ However, PY roots of the form **aδ-*, **eδ-*, **iδ-* and **oδ-* do exist; could (some of) these have lost a former word-initial sibilant? The concluding remark must be that this set shows aberrant phonological behavior in context with the other data presented in this report.

In evaluating this rule a third, new cognate suggestion was found:

3. Khanty *lökän-* ‘to remain seated on the ground’, *jökän-* ‘to get stuck with a boot in the ground’, *toχän* ‘to meet by happenstance’, Mansi *ta(a)χ-* ‘to fall’, *takn-* ‘to get firmly stuck’, *taχn-* ‘to get firmly stuck, to stay’, Hung. *akad-* ‘to get stuck, to bump into something, to be found, to come together’, *akaszt-* ‘to hang, to attach to’, PFU **sOkkV* ‘to get stuck, to fall, to meet, to encounter’ (UED 1774), PY **joyo-* (< **l’oyo* < **loyo*), KY & TY *joyoti-*, SU *joxoty* ‘arrow with a head’, KY *joyotə-* ‘to hit with an arrow’, *joyortə-* to wound, KY *joyor* ‘wound’, *joyöti:d-abut* (< **joyoti:nt-awut*) ‘quiver, lit. arrow container’, KJ *joyotid-abut*, KD *yohoti:d-abut* ‘quiver’, KK *joyoto-*, *joyote-*; KJ *yoroto-*, *joyote-*, *joyoto-* ‘to wound’, MU *jehotí* ‘arrow’, MC *sogote* ‘arrow’.

Suggestion: **sOkkV* > **sukV* > **θugo-* > **loyo-* > **l’oyo* > **joyo*

This item should be added to the very few correspondences of this group. The phonology is pretty straight-forward with degemination (as per Piispanen 2013), voicing, lateralization, palatalization and, as regularly observed, loss of the initial lateral. Since it apparently breaks the correspondence system, the MC item has been suggested to be a case of erroneous recording (Nikolaeva 2006: 67), but it may actually be showing the original initial sibilant. While viewed at a glance perhaps deemed far-fetched, the semantic explanation is actually straightforward. The Yukaghir base noun reflects a specified function of the Uralic verb meanings, and in particular that found in Hungarian, of *to get stuck in something, to attach to, to bump, to hang (onto) and to fell, to encounter*, i.e. *to bump into something, get stuck and fell*, which is exactly what an *arrow* does when used by a hunter; it is a *sticker* and *feller*. The verbal functions in Yukaghir also clearly hold on to this idea through *to hit with an arrow* and *to wound something*, which is the initial effect of being hit by an arrow. The form in KY displays the transitive/causative suffix **-tə* (Nikolaeva 2006: 83), while both KY and TY exhibit the nominal derivational suffix **-i*: (Nikolaeva 2006: 80). It is of interest to note that the word-initial sibilant was also lost in Hungarian. This also suggests that the PFU root was either **sokko-* or **sukko-*, most likely the latter given that Pre-PY **-u-* is often found as PY **-o-* in other correspondences and borrowings (for example in early Tungusic borrowings).

The sound change rule also applies to early borrowings:

5. Except perhaps in one word, RS *šudešonbyla* ‘violent’, which may have originated from PY **suδe-~*suntə-*. This type of root does exist relatively commonly in the Uralic branch with either a palatalized or non-palatalized sibilant.

4. TU **sakV* ‘salt’, borrowed as: PY **loyo* ‘salt’ > B *logodu:shinu* ‘salt’, ME *logotunkeinu* ‘salt’, MK *logódy-chonól* ‘salt’, MC *sogond-onde* (noted in 1076).

Suggestion: **sako* > **θako* > **θoko* > **loko* > PY **loyo*

The development of this item is similar to the previous item but lacking the final palatalization of lateral. Since it apparently breaks the correspondence system, the MC item has been suggested to be a case of erroneous recording (Nikolaeva 2006: 67), and, again, it may actually be showing the original initial sibilant. All forms show the genitive cluster **-nt-* of a compound.

Of course, vocabulary with an original, initial lateral are still also found as lexicon with an initial lateral. An example, close in end form with PY **loyo* ‘salt’ from above, despite their rather different phonological origins, is given by:

5. POU **lōγ-* ‘to wash’ (Honti 1984: 159) < PU **lukV/*luγV* ‘to wash’ (Rédei 1999: 47), PY **loyo-*, TY *loyore-* ‘to wash (TR)’, *loyod’e-* ‘to wash (INTR)’, *loyorii* ‘rags for washing up; blood of a reindeer used to wash hands after a funeral’ (noted in 1077).

Suggestion: **luko* > **luγo* > **loyo*

The semantics, discussed elsewhere, are identical. The change **-o- > *-u-* is commonly observed. Clearly, structures of the type **-u/oko*, as here and in the above groups, have become aspirated changing as per **k > *γ*. It appears as if the first syllable vowel has some influence in the outcome of the change (i.e. **s- > *l-*) which occurs almost exclusively with a back vowel and **-k/*-r-* and apparently **-γ-* in the second syllable (exception: **seye*). Practically all PY roots of the form **sVr-* are borrowings.⁶ The TY forms exhibit the transitive verb marker **-rə-* (Nikolaeva 2006: 82), intransitive verb marker **-ńčə* (Nikolaeva 2006: 80) and nominal derivational suffix **-i-* (Nikolaeva 2006: 80).

However, it seems unlikely that **-q-* in the second syllable would also have launched the lateralization effect, since there are plenty of PY roots of the apparently unchanged form **sVq-*. This is interesting since according to Yukaghir rules of synharmonism PY **q* and **k* are homonymous forms that appear with back and front vowels, respectively. Since suffixes containing *-q-* or *-k-* do not change to accommodate the root vowel qualities synharmonism appears to be a synchronously non-productive, and instead represent a historical rule. This is also verified by the fact that neither synharmonism nor vowel harmony are strongly operative with recent borrowings. While PY **sVq-* roots still contain the unaltered sibilant, roots of the form **sVk-* did change, which suggests that chronologically synharmonism was operative before sibilant-deletion commenced as a sound change rule. Further, since PU, a prospective parallel language family, did not have **q* as a phoneme, it appears as if these appeared in PY due to an earlier alternation **sVk- ~ *sVq-* based in synharmonism. The chronology of synharmonism > sibilant deletion > PY explains the lack of PY **sVk-*, but frequency of **sVq-*.

Some occurrences of **q* were also formed from by other sources, such as in the unusual cases of **γ > *q* (more below). The low number of items make the analysis

6. Further, many of those that are not can be explained by virtue of having the cluster **-Vrk-*, apparently a sibilant deletion blockage cluster similar to that of the other groups presented in this paper. Other non-deleted forms are curiously derived from roots with long vowels, suggesting assimilative or other irregular changes from earlier clusters, which apparently did not undergo sibilant deletion either.

difficult and it is possible that this group should be divided into subgroups which behave slightly different in regard to sibilant deletion or retention depending on different front vowels for different clusters (i.e. *sVr-, *sVk- and *sVɣ-), as seen with the other groups in this paper. The matter is very complex as most PY roots with word-initial *s- have not undergone sibilant deletion and further research is required regarding lateralization of Yukaghir sibilants to fully understand the details. The developmental behavior of most sibilant-initial phonological clusters is currently not well understood.

The lateralization clearly has close parallels in the Uralic languages, in particular the East Uralic languages. It is known that PU *s- changed into a voiceless lateral, *λ-, in Proto-Khanty (an Ob-Ugric language), to ultimately change into a plosive *t*- only in Southern Khanty, but also in the Samoyedic branch (PU *s- > PS *t-) and in Mansi, while remaining *λ- in other Khanty dialects. An example where the lateral remains is, for example, the Eastern Khanty Surgut dialect⁷ (Reshetnikov & Zhivlov 2011: 100). It was known earlier that this change proceeded from PFU *s- through an intermediate *θ- in POU (Helimski 1999: 94), the lateralization of a sibilant in Yukaghiric likely proceeded through the same phoneme(s) as implied in this chapter.

The chain of development may also have been analogous in Pre-Proto-Samoyed. The initial sibilants also changed quite radically in going from Pre-Proto-Uralic to Yukaghiric, to the Samoyed branch, i.e. PU *s-, *ś- > PS *t-, *s- (> Kamassian *k*-). While the two branches of Samoyed and Ob-Ugric (extensively discussed for example in Salminen 2002) have traditionally been viewed as the first and second split, respectively, from Proto-Uralic, in the forms of Proto-Samoyed and Proto-Finno-Ugric, recently they have instead both been lumped together into East Uralic (or eastern Ugro-Samoyed), as a first split from Proto-Uralic with West Uralic being the Finno-Permic branch (Häkkinen 2009). Indeed, both Yukaghir phonology and lexical semantics find many parallels of development in these two language branches.

5.2. Pre-PY *sVI- > *θVI- > PY *ØVI- > KY & TY ØVI- (deletion)

One cognate set of this type is previously known:

6. Fin. *salaisuus* ‘secret’, *salaa* ‘in secret, covertly’, *sala-* ‘to keep secret, to hide’, Est. *sala* ‘secret, secrecy’, *salaja* ‘secret, furtive, hidden’, *salasta-* ‘to keep secret’, N. Saami *suolâ -llâg-* ‘thief, thievish’, *suoladi-* ‘steal, go stealthily’, EM & MM *sala-* ‘to steal, to steal away’, Mari *šolâ*, ‘thief’, *šolâp* ‘secret’, *šolâšta-*, *šolšta-* ‘to steal’, Khanty *totmaχ*, *lalmaχ* ‘robber, wolferine’, *l̥l̥əγ*, *ʃl̥l̥əγ* ‘secret, furtive’, *laləm-*, *jaləm-*, *totəm-* ‘to steal’, Mansi *tūli* ‘concealing, hiding’, *tōlmək*, *tulməχ*, *tulmək*, *tūlmaχ* ‘thief’, *tōlmā. nt-*, *tulmənt-*, *tulmt-*, *tūlmant-* ‘to steal’, Nenets *tāle-* ‘to steal’, Enets *tali-*, *tare-* ‘to steal’, Nganasan *tolar-* ‘to steal’, Selkup *tel̥j-*, *tełt̥j--*, *tuel-* ‘to steal’, Kamassian *tholi* ‘thief’, *tholer-* ‘to steal’, Koibal *tole* ‘thief’, Mator *teler-* ‘to steal’, PU ***sala** ‘thief, to steal’ (UEW 430-431, PY ***olo-** > KY *olo-* ‘to steal’ (TR), *old’i.nu-* ‘to steal many times’, *olonubo:* ‘thief’, MC (*j*)*enalaj* (<**elanaj*) ‘thief’ (noted in 1625).

The sound changes and semantics are discussed elsewhere.

7. Contrasted with the relatively unchanged PU *t-, *ś-, *n- > Eastern Khanty Surgut *t-*, *s-* and *n-*, respectively.

In addition to the one known example above, at least three new items, uncovered in this line of research, can be mentioned below as representatives of this sound law:

7. Mari *kit-šol* ‘armband, armring’, Khanty *sālə* ‘waist belt of reindeer, traction belt carrying strap over the back of a reindeer’, *sātə* ‘a reinforcement belt of birch bark stitched around a bark box’, *šöl-kel* ‘waist belt of a reindeer’, Mansi *sol-kwaali* ‘belly belt’, Hung. *szalag* ‘belly, strip’, Nenets *šaaraa-* ‘to bind, to knit, to attach’, Enets *seđa-*, *sera-* ‘to connect’, Nganasan *saru.za-* ‘to bind’, Selkup *saara-*, *há(a)ra-* ‘to bind’, Kamassian *saar-* ‘to bind, to tie, to knit, to tighten’, PFU *šalV, PU *šađa, POU *salV ‘band, strip, to bind’ (UEW 461), PY *ule-, KY *ultəč-* ‘to bind’, *uldo-* ‘bind’, *ulumu-* ‘to end, to finish (INTR)’, *ulurəjdej-* ‘to finish (TR)’, *uldəd’ə-* ‘to cavil (INTR)’, TY *uulumu-* ‘to grow thin’.

Suggestion: *salV(~*sađ’V) > *θalV > *θolV > *olV- > *ule-

The forms suggest that the original item in Pre-EY was *salV, like in POU, perhaps reflecting an East Uralic feature, since the initial *s- has been lost in Yukaghir. An alternative fitting form would have been *sađ’V. Both suggestions would follow the rule: Pre-EY *s- > PY *Ø- (and in the latter *-δ’- > *-l-). This item is a fairly close phonological parallel to the known correspondence between PU *sala- ‘to steal, thief’ and PY *olo- ‘to steal’ (noted in 1625) described above; it also suggests that the Pre-EY item for the set presented here was quite likely *sale-~*sađ’V, i.e. an item with two different vowels. The raising of the vowel, i.e. -a- > -o- > -u- likely describes a labialization effect, and is commonly observed throughout the lexicon in this paper. The Yukaghir items bear, among other elements, the transitive verb marker *-č- (Nikolaeva 2006: 79) and the intransitive verbal marker *-ńčə- (Nikolaeva 2006: 80). The semantics of *binding* or *tying* holds throughout the languages with secondary developments. The KY effect of *to finish* must also be a secondary development (with *-δəj~*-ntəj, a causative perfective marker; Nikolaeva 2006: 80), while the development of the TY meaning of *to grow thin* is difficult to trace. The Mari item may be a borrowing from Chuvash *sol* ‘wrist, bracelet’, while the Mansi item is borrowed from Khanty.

8. New cognate: Khanty *sil* ‘edge, room next to the tschuwal⁸’, *siləŋtə-* ‘to lean to the side, to tilt’, Mansi *se:l* ‘edge, side’, Hung. *szél* ‘edge, hem, border’, POU *selV ‘edge’ (UEW 887), PY *ol’-, TY *ol’il* ‘part, share, edge’, *al’iwii-*, *ol’iwii-* ‘to disjoin the vertebrae (TR)’.

Suggestion: *selV > *θelV > *θel- > *θol- > *ol- > PY *ol’- > TY *ol’il*

The item has undergone a fairly close parallel phonological change to the two previous items. Shifts between *o and *e are commonly observed for correspondences. Since the PY root-form carried no vowel, nothing can be said about the original vowel present after the lateral (the *i* in the TY item is epenthetic). In Yukaghir, we find the nominal derivational suffix *-l (Nikolaeva 2006: 81). Based on this, the old borrowing suggestion from NT *oldan > *xoldan ‘side, thigh’ (noted in 1613) may be considered invalid.

9. Fin. *sula-* ‘to melt, to become liquid’, *sulat-* ‘to liquefy’, *sula* ‘unfrozen, soft, liquid’, Est. *sula* ‘soft, loose, fluid, flowing, thawing, pure, unmixed’, *sula-* ‘to melt, to thaw’, ?N. Saami *špl’gi-* ‘to melt (TR)’, EM & MM *sola* ‘unfrozen, melted’, *sola-* ‘to

8. A *tschuwal* is a kind of open hearth with a chimney up to the roof, where a constant fire is kept burning.

thaw, to melt', Mari *šêle-*, *šule-* 'to melt', Udm. *sjl-sjl* 'the soft state of an object (when cooking meat)', *sjlmi-* 'to seethe (of potatoes), to melt, to dissolve', KZ *sjl*, *sjv*, *søl* 'unfrozen, melted', *sjl-*, *sjv-*, *søl-* 'to melt, to thaw', Khanty *lõlõ*, *jõlõ* 'unfrozen', *tõtõ* 'thawed, melted, unfrozen soil', *lål* 'with a soft cutting edge', *lõla-*, *jõla-*, *tåt-*, *lål-* 'to melt', Mansi *tal-võj* 'melting fat', *tal-*, *tālān-*, *tål-*, *tol-* 'to melt', Hung. *olvad-* 'to melt, to thaw (INTR)', *olvaszt-* 'to thaw (TR)', PFU **sula* 'to melt' (UEW 450–451), PY **al'*-, KY & TY *al'a:-* 'to thaw', KY *al'o:-* 'melted', KY *al'a:š-* 'to melt (TR)', *al'o:ja* 'ice-hole, thawed patch', TY *al'uorii-* 'to keep melted' (noted in 35).

The sound changes and semantics have been discussed elsewhere. The palatalization of the Yukaghiric lateral is no doubt a late development. These cognate sets also reveal the exceptions to sibilant deletion: vocabulary with first syllables containing long vowels, such as in PY **sa:lič-* > TY *saaliči-* 'to have a bad headache', are clearly excluded from this group of sibilant deletion. Additionally, palatalized laterals are also exempt from the deletion rule as seen with: PY **sal'impə* > TY *sal'ibe* 'reason', *sal'ibid'aa-* 'to shoot at a target'.⁹

5.3. Pre-PY **sVlk/q-* ≠> **θVlk/q-* with a back vowel (retention, i.e. deletion blockage)

These items constitute a small group of two previously unknown but obvious cognates that had sibilant deletion blocked and thus still carry the phoneme:

10. Mari *šaly-*, *šoy-* 'to stand', Udm. *sjl-*, *sël-* 'to stand, to stand still', KZ *sulal-* 'to stand, to cost', Hung. *áll-* 'to stand, to stand still', to be determined, to apply', PFU **salkV* 'to stand' (UEW 431), PFP **sëlk-* (Sammallahti), PY **sule-*, KY *šule-* 'to stand still'.

Suggestion: **salkV-* > **sulkV* > **sulk-* > PY **sul-* > KY *šule-*

The suggestion constitutes the first example of an item that had sibilant deletion blocked. This is due to the combination of *-k-* in the second vowel and a back vowel in the first syllable (i.e. *-Vlk-* where V = a back vowel), and there are a few more such examples below. Sibilant deletion would likely also be blocked by the cluster *-Vlq-* paralleling what is shown for the blockage cluster **-Vŋk/q-* below. The root was likely interpreted as a monosyllabic root retaining the **-k-* which blocked sibilant deletion. Later, the root was shortened further and given an **-e-*, common in verbal roots. The KY meaning itself is paralleled exactly in Udmurt and Hungarian. Further, the KY item shows unusual traces in other cases of original back-vocalism (i.e. the Inchoative *šula-*), which, given the Uralic tendency for vowel harmony, does strengthen this cognancy hypothesis.

11. ?Fin. *šäly* 'shoulder burden', *sälä*, *sälyttä-* 'dial. to load', ?N. Saami *sälket* 'conscendere in littus', KZ *sel-* 'to become brave, dare', *sel-*, *sev-* 'to sit down, to get into, to sit up, to enter', Khanty *jel-*, *tet-*, *lel-* 'to climb into a boat, to sit on a horse', Mansi *tāl-*, *tõl-*, *tāl-* 'to sit down', Hung. *ell-* 'to get on a horse, to climb onto a donkey', Nenets *tĩ-* 'to sit down in a sled or a boat', Nganasan *tiaji*, *tüüzem* 'to sit down', Selkup *ti-* 'to sit down', Kamassian *ši-* 'to sit down, to sit on a horse', PU **sälke*/**säle*

9. However, I consider PY **sal'ika:n* > TY *sal'ikaan* 'a woman (in folklore?)' to be a cultural borrowing through tales after the language(s) had undergone the sibilant deletions or changes.

‘to sit down, to get in’ (UEW 434–435), PY ***sayanə-** ‘to sit’, TY *sayane-* ‘to sit’, *sayanebul* ‘chair’, *sayanaanube* ‘sitting place’.

Suggestion: *sälke > *salke > *sal’k- > *say- > *say-ə-nə- > PY ***sayanə-**

As in the above case, sibilant deletion was blocked courtesy of the *-Vl(‘)k-* cluster, where V = a back vowel. Pre-PY *ä always finds a correspondence in PY *a, while the *-γ- has likely been formed through an intermediate palatalized *-l’k- after reinterpretation as a monosyllabic root, as indicated by other Uralic–Yukaghir correspondences. *-nə- is an intransitive verbal marker (Nikolaeva 2006: 82).

These two aforementioned cognate suggestions both interestingly relate to complementary movement verbs. Perhaps these sets trace back to an earlier common etymon.

5.4. Pre-PY ***sVŋ-** > ***θVŋ-** > PY ***ØVŋ-** > KY & TY **ØVŋ-** (deletion)

In addition to the two previously known borrowings that underwent sibilant deletion in this category, two new cognate suggestions can be added to the group:

12. EM *semed’e-* ‘to comb, to hatchel’, EM *seme*, *säme*, *sämä* ‘hackle, head brush’, MM *šejeñd’e-* ‘to comb, to hatchel’, MM *sämä*, *semä* ‘hackle, head brush’, Udm. *sjn*, *sân*, ‘comb’, *sjnal-*, *sânal-* ‘to comb, to scratch head, to card wool’, *sjŋa-* ‘to comb’, KZ *sjn-* ‘to comb, to brush’, *sinan* ‘comb’, Nenets *t’ii-* ‘to comb’, Enets *t’iða-*, *t’iere-* ‘to comb’, Nganasan *t’iðizé-* ‘to comb’, Selkup *tipsen*, *tipsin*, *tifi*, *tifi* ‘comb’, Kamassian *t’ilee-* ‘to comb’, PU ***seŋV~*sene** ‘to comb’ (UEW 439–440), PY ***anqə-**, KY & TY *anyi-* ‘to comb, to scratch, to scrape’, KY *anyjə* ‘comb’.

Suggestion: *seŋV > *θeŋV- > *θeŋ(V)-kə- > *eŋkə- > *eŋqə- > ***anqə-** > PY ***anyə-**

The item has undergone velarization, undetermined suffixation, deletion and syncope, lowering of the vowel due to uvularization and sonorization. This suggests that the PY item should instead be ***anyə-**. The semantics are strongly correlated, and, indeed, combs are known to belong to, at the very least, Paleolithic technologies.

13. Fin. *suo-* ‘to allow, to permit, to want, to give’, Est. *soovi-* ‘to allow, to wish’, Votic *soovi-* ‘to hope, to wish’, *sovi* ‘hope, wish’, KZ *ši-* ‘to allow, to permit, to want’, *bur-ši* ‘to bless, to good will’, Khanty *länka-*, *jänka-* ‘to love, to want, to wish’, Mansi *tan̄k-* ‘to want’, PFU ***soŋe** ‘to wish, to want’ (UEW 447), PY ***oŋon-**, TY *oŋod’i-* ‘to ask for, to beg for (TR)’, *oŋod’i-* ‘to beg for smth and get it’, *oŋodoj-* ‘to get a strong desire to do smth’.

Suggestion: *soŋe > *θoŋe- > *θoŋə- > *oŋə-ntə- > *oŋo-ntə- > TY *oŋod’i-*

The root appears to bear a transitive verbal marker *-ntə- (Nikolaeva 2006: 80) and to have undergone progressive vowel assimilation.¹⁰ The original meaning of *wanting something* finds secondary development with *asking or begging for something* in Yukaghir, while one item, *oŋodoj-*, still retains the original meaning.

The change is also found in effect with two borrowings:

14. TU ***saŋar** (TMS 2 62), borrowed as: ***PY yŋer** > KY *iŋer* ‘pit, hole’, *iŋertə-* ‘to dig’, *iŋed-oži-* ‘pool, i.e. pit water’, ME *inger* ‘grave’ (noted in 2641).

Suggestion: *saŋar > *θaŋar > *θaŋer > *θiŋer > PY ***yŋer**

10. There are other words that have undergone similar developments. An example: PY ***oŋq-**, KY *oŋ-* ‘damp, wet’, *oŋd’ə* ‘raw, undercooked’, *oŋunbə-* ‘to get wet’, but TD *oŋonbe-* ‘to get wet’.

15. PA ***sįri**, borrowed as: PY ***įćǎ-**, KY & TY *įd'i*: 'sinew, thread', KY *įd'i:-* & TY *įd'e:-* 'to sew', *įd'irgi*: 'woman's bag for sewing supplies made of animal or fish skin' (noted in 580).

Suggestion: ***sįri** > ***θįd'i** > PY ***įd'i**:

It is noteworthy that PY *-**į-** is reflected, in addition to *-ŋ-*, in many different forms in the Yukaghiric idiolects depending on various phonological factors. Possible reflexes include: *-**į-** > *-g-* (entries 321, 1551), *-**į-** > *-ng-* (entry 674), *-**į-** > *-**ɣ-** (entries 712, 1485), *-**į-** > *-n-*, *-ń-*, *-č-*, *-g-*, *-ng-* (entry 1279, an extreme example) and *-**į-** > *-q-* (entry 2261).¹¹

5.5. Pre-PY ***sVŋk/q-** => ***θVŋk/q-** with a front vowel (deletion)

16. Khanty *lękar* 'upper arm', *jękar* 'arm from the shoulder to the wrist, whole arm', *tękar*, *länkär* 'armpit, shoulder', Nenets *ćękaat* 'lower arm', *t'aąkaad* 'upper arm', PU ***seŋkV**~***sǎŋkV** 'upper arm, forearm' (UEW 439), PY ***eŋk-** > TY *egi:l* 'back of the head' (noted in 470).

Suggestion: ***seŋkV** > ***θeŋk-** > PY ***eŋk-**

The deletion of the sibilant suggests, as will be shown below, that the Proto-Uralic item was ***seŋkV**, with a first syllable front vowel, which does undergo sibilant deletion, as the other alternative would be blocked from doing so on account of the back vowel: ***sǎŋkV** > ***saŋkV** ≠> ***aŋk-**, as will be demonstrated in the next group. Further, while Rédei notes in the UEW that the PU-item could also be reconstructed as having been *š-initial, such a form would not have undergone sibilant-deletion in the corresponding PY form, which is why it seems unlikely; that would instead, as also demonstrated below, have found a correspondence in PY as ****čeŋk-**. The strange semantic shift of a relocated body position can also be found elsewhere in Yukaghir.

5.6. Pre-PY ***sVŋk/q-** ≠> ***θVŋk/q-** with a back vowel (retention, i.e. deletion blockage)

Two new cognate suggestions clearly show the factors blocking sibilant deletion:

17. Mari *šoŋyâ* 'old', *šoŋyo* 'old, old man, age', Hung. *agg* 'old man, very old', *agg-*, *avul-* 'to get old', *ó* 'old', PU ***soŋkV**~***soŋV** 'old, to get old' (UEW 448), PY ***luŋe**~***liŋe** 'old' > KY *lige-* 'old', *ligumu-* 'to grow old', TY *luge-* 'old', *lugumu-* 'to grow old', *lugul'uu* 'aged', *lugumun-poyod'e* 'pension money, i.e. oldness money', B *ligai* 'age'.

Suggestion: ***soŋke** > ***θoŋke** > ***θuŋke** > ***luŋke** > ***luŋe** (a regular exception to the sound change rule due to the *-**oŋk/q-** cluster with a back vowel)

11. This group excludes an earlier suggestion of PFP ***simV** 'rust' (UEW 758–759), PY ***em-**, KY *emu-* 'dark', *embä-* 'black', *emid'ə* 'blackness, birthmark', *emidej-* 'to grow dark', *emike:-* 'to darken', *ammal-* 'to spend the night', *emil* 'night', MC *emenij* 'dark' (noted in 449). It must be considered invalid as a cognate set both since the semantics are less convincing and as there are plenty of PY roots of similar forms (of either back or front vowels), ***sam-**, ***sem-**, ***som-**, ***san-**, ***sin-**, ***son-**, ***syn-**, which have not undergone sibilant deletion. The item of PY ***siŋ-**, TY *sijii* 'right bank of the river next to the range of hills stretching from the south to the north' must be considered either a later development from other phonological sources or a late borrowing, as it has not undergone sibilant deletion as expected.

At first glance, this item breaks the regular sound change rules, (as it has the *-ŋ-*, it should lose the sibilant) but it obviously does not. There is one plausible explanation, as is also implied by the other items: the particular cluster of **-oŋk/q-*, i.e. with a back vowel, may have been resistant to change, i.e. blocked deletion. The evidence is discussed in detail below. This item is otherwise pretty straight-forward with regard to both semantics and phonology. Late Proto-Yukaghir **-ɣ-*, as is apparent in many correspondences, has arisen from the convergent development of **-k-* and of clusters, such as **-ŋk-*, **-ðk-*, **-l'k-*, and so on, or simply as a continuation of an earlier **-ɣ-*. It is consequently commonly found as *-g-* in the KY and TY lexicon. The semantic overlap between the languages is very good and clear.

18. Fin. *suvi*, ‘summer, dial. thaw weather, south wind, spring’, Est. *suvi* ‘summer’, N. Saami *sâgñâ-* *-ŋ-* ‘to be thawed, to become ice free’, Khanty *lõŋ, jõŋ, tõŋ* ‘summer’, *jõŋim* ‘snowfree place’, Mansi *toj, tuj, tuw* ‘summer’, Nenets *taaz, tanz* ‘summer’, Enets *tô* ‘summer’, *tojio, toe* ‘summery’, Nganasan *taŋa* ‘summer’, Selkup *taang, tagi* ‘summer’, Kamassian *taŋa, taŋâ* ‘summer’, PU **suŋe* ‘summer, time of melting’ (UEW 451), PY **soŋqəncil’ə*, KY *šoŋd’ile* ‘season when the ice begins to drift and float (May)’, TY *sayund’ile* ‘spring’, *sayund’ilime* ‘in spring’. Furthermore, MC *tylama* ‘early spring’ and SD *šong-šille* ‘late spring’ likely also belong to this set due to both semantic and phonological considerations (instead of to PY **čawa~*čowo* in 235); the second part of the SD compound, *-šille*, appears to be from PY **sinlə*, KY *šillə* ‘crust of snow, early spring’, giving the SD compound the meaning ‘thaw weather of early spring, i.e. late spring’.

Suggestion: **suŋe* > **suŋ(e)-qəncil’ə* > PY **soŋqəncil’ə*

This new suggestion, like the previous one, and many other PY items, includes the cluster **-oŋq-*, i.e. with a back vowel, which seems resistant to sibilant deletion. It is noteworthy that the Yukaghir item has been heavily suffixed, which also appears to be the reason the item did not undergo sibilant alternation; it acquired the cluster early on through apocope, making it resistant through a sort of ‘saving grace’. The first-syllable vowel change in this item, as well as in many other suggestions, is paralleled by that found in older Tungusic borrowings in Yukaghir (i.e. **-u-* > **-o-*), and is thus likely a common, possibly universal sound change in early Yukaghiric. The semantic overlap between the languages can be considered quite astounding given how very specific the descriptions are.

6. Phonological factors governing the **s-* sibilant deletion rule

6.1. Summary of the **s-* deletion rule

The phonological change of MY **s-* into either PY **l-* or **Ø-* has previously been a problem without a clear description regarding controlling factors. However, the factors controlling the phonological outcome of PY **s-* in the Yukaghir languages have now become more evident with the aid of the newfound cognates. The reasons for the change are not, as perhaps expected, related to prosody, nor do they reflect different

stages of borrowing into Pre-PY. Rather they are controlled by purely phonological factors. The results can be described in descriptive terms and rules. Evidently, *-k/q- in the second syllable is correlated with a lateralization of the initial sibilant, whereas velarization, and by extension, deletion occurs with *-ŋ- in any syllable. Thus, in the combined cluster of *-ŋk/q-, there are competing forces of change in effect, the outcome of which is ultimately controlled by the first-syllable vowel. A back vowel in this place will resist sibilant deletion, with the sibilant thus continuing unaltered or as a lateral, while a front vowel facilitates sibilant deletion.

The following phonological correspondence pattern emerges, with a clear development from Uralic-like stems:

First group, loss of sibilant *s-:

*sV(C)-ŋV > PY *ØV(C)-ŋV

*sV₁ŋ-CV₂ > PY *ØV₁ŋ-CV₂; however, this is blocked by *sV₁ŋ-k/qV₂ where V₁ is a back vowel

*sV(C)-IV > PY *ØV(C)-IV

In other words, the loss of the initial sibilant occurs with *-ŋ- in the first or second syllable or with *-l- initially in the second syllable. In the rare cases of *sV₁ŋ-k/qV₂ and *sV₁l-k/qV₂ where V₁ is a back vowel, the items will either not undergo sibilant deletion or the sibilant will instead change into the lateral as in the second group below. The factors determining the retention of the sibilant or its changing into the lateral are not clear for vocabulary containing these particular clusters.

Second group, lateralization of sibilant *s-:

*sV(C)-γV > PY *IV(C)-γV

*sV(C)-kV > PY *IV(C)-kV ; however, this too is blocked by *sV₁l-k/qV₂ where V₁ is a back vowel

*sV(C)-rV > PY *IV(C)-rV

In other words, the change into a lateral occurs universally with *-k-, -γ- or -r- in the second syllable. The exception is if the first syllable contains an *-ŋ- in which case the development defaults to the first group above. The PY form may naturally have undergone further common changes along the way. Clearly, the presence of *-ŋ- is a very dominant factor that in almost all cases causes the *s- to disappear, except if followed by *-k/q- as per above.

The evidence, suggesting the blockage of regular sibilant deletion by certain clusters is strong. There are actually many similar, non-altered items in Late Proto-Yukaghir, regardless of their etymological origins. Let us review these in detail in order to properly evaluate the involved parameters: PY ***soŋqə**-/***soyo**-, KY *šoγorpət*- 'to be reconciled with (TR)', *šoγurpə*- 'to heal, to close a wound', PY ***soŋqən**-, KJ *šoγod'iebo* 'the planet Venus', PY ***soŋq**-, KY *soye*-, TY *saya*:- 'to lose one's way, to be lost', ?PY ***soŋkə**, MU *songa* 'maidservant', PY ***soŋqəncil**'ə, KY *šoŋd'ilə* 'May' (more on this one below), PY ***suŋq**-, TY *suusej*- 'to throw, to turn down, to bring down, to take down', but also PY ***saŋqəncə**-, TY *sayad'eγa* 'dry high place on a plane', PY ***saŋqəne**-, TY *sayane*- 'to sit', *sayanebul* 'chair' and PY ***saŋqər**, TY *sayare* 'left side of the yurt, West'.

A striking fact is that all of these sibilant-deletion-resisting items contain a back vowel (*-a-, *-o-, *-u-) just as in the unchanged items presented throughout the

chapters; there are in fact no reconstructed PY roots having the cluster **sVŋk/q-*¹² with a front vowel (such as **-e-*, **-i-*, **-ü-*, **-ö-*), whereas the sibilant-deleted (possibly in Pre-PY) forms of PY **Vŋk/q-* with a front vowel certainly do exist: PY **öŋkə-*, KY *oŋo-* ‘to stand’ etc., PY **öŋkə-*, KJ *ogone-* ‘to eat’, *ogoneš-* ‘to feed’, PY **eŋ-*/**eŋk-*, TY *egur* ‘withers’, PY **eŋuj-*/**eŋkuj-*, KY *eguj-* ‘to lean on’, PY **(w)eŋumə-*/**(w)eŋkumə-*, KY *ejmānumān-* ‘to get tired’, PY **iyirə-*/**iŋkirə-*, TY *igiremul* ‘fur boots turned inside out during the spring thaws’ and PY **iyit-*/**iŋkit-*, KY *igittej-* ‘to cool (with snow or water), to open the door slightly (TR)’.¹³ The reason for this must be that items with the cluster having a front vowel, in contrast to a back vowel, did undergo the regular sibilant deletion rule as controlled by the *engma*, **-ŋ-* in the second syllable.

Thus items of the form **sVŋ/l-k/q-*, where V is a back vowel, were clearly blocked against sibilant deletion. The initial sibilant will therefore instead be found as either an unchanged **s-* or a changed **l-* in PY, the factors governing this not being clear at this point. While it has not been demonstrated, one may also assume that the form **sVn/m-k/q-*,¹⁴ where V is a back vowel, would also resist sibilant deletion; indeed there are early items of this structure with the sibilant intact: ?PY **sanqə*, TD *sanhai* ‘to squat’ and PY **samqəj*, TY *samqaj* ‘tea-pot’. Likewise, there are no reconstructed PY roots of the form **sVn/m-k/q-*, where V is a front vowel, whereas an example of a (possibly) deleted form **Vn/m-k/q-*, where V is a front vowel, does exist: PY **enkə-*, TY *engeneŋ* ‘very, too’.

Clearly, sibilant deletion or change has been fairly limited to certain phonological structures only. The word-initial sibilant in most Yukaghiric vocabulary has remained unchanged, including in clusters such as **san-*, **sap-*, **saq-*, **samp-*, etc. and in forms with a long vowel in the first syllable, including **sa-* (PY **sa-* > KY *sa:l* ‘tree, wood, stick’, PY **sa:j-* > TY *saajuu-* ‘to rock, to swing, to stagger from side to side (INTR)’, PY **sa:jəs-* > KY *ša:jəš-* ‘to plane, to trim, to cut’, PY **sa:mpijə* > TY *saabije* ‘one of two men living with the same woman as husbands’, PY **sa:rəj* > TY *saarej* ‘kind of coffin made in the form of a boat standing on two poles’, PY **sa:ruł’ə* > TY *saaruł’e-labunme* ‘wood grouse (Tetrao urogallus)’, **se-* (PY **se:ŋə* > TY *sieŋa-* ‘to rustle’, PY **se:rŋi-* > TY *sierdiid* ‘reindeer not selected for slaughter’), **si-* (PY **si-* > TY *siigije* ‘brook, rapid (of a river)’, *siid’i-* ‘to drip often’) and **so-* (PY **so-* > TY *suose-* ‘to miss one’s target, to make a mistake’).¹⁵ Some of these may

12. This naturally excludes the aforementioned Pre-PY **seŋkV* > PY **eŋk-* > KY *egi:l* ‘back of the head’, which clearly did undergo deletion. In the case of PY **söŋe:/sönke:* > TY *sögie* ‘saliva’, the correct proto-item has been demonstrated to be **söŋe:* on account of it being a cognate with PU **šül’ke* ‘spittle, to spit’ (Piišpanen 2013). There are also: PY **seŋə:k/*seŋkə:k* > TK *segeriek* ‘if’ and PY **siŋerəčə/*siŋkərəčə* > TY *pugud’e-sigereče* ‘match-maker’; I’ll argue that the first suggested proto-form in each pair is the correct one, as such clusters will not be subject to sibilant deletion, unless, alternatively, these are recent borrowings as suggested by their very limited geographic spread in which case either proto-form in the pairs is of viable form.

13. However, PY **öŋe-/öŋkə-*, KY *ege-* ‘to peep in, to look out (TR)’, etc. must originate from PY **öŋkə-*, not PY **öŋe-* on account of it being a borrowing from Yakut *eŋej-* ‘to look after somebody’ (Piišpanen forthcoming).

14. Although the cluster **-mq-* is atypical morpheme-internally in PY such may have arisen through earlier syncope.

15. However, I consider PY **so:tkə* > TY *suotke* ‘a man’, *suotke-lawjemdie* ‘a lake’ to be cultural borrowings through tales after the sibilant deletion and change rules occurred.

have originated through syncope, while, from a prosodic viewpoint, others may be considered borrowings.

7. Origin of the sibilant deletion rule

7.1. The Yakut language

Firm evidence can be presented that the origin of the Yukaghir sibilant-deleting sound change, a loss through velarization, is due to intensive language contact situations with Yakut (Sakha in older literature), a Turkic language. Of all the Turkic languages, only Yakut (and by extension also Dolgan, more of this below) exhibits a regular word-initial sibilant-deleting sound change rule identical to that found in Yukaghiric.

In order to put the sound changes in perspective, a presentation of historical Yakut phonology is required (a comprehensive overview is found in Anderson, G. D. S. 1998). Yakut has undergone a chain-shift of many phonemes from Old Turkic (OT), which would appear to be the reason for the loss of the word-initial sibilant *s*-. In general terms, the following applies for Yakut sound changes:

OT **t*- > Yakut *t*-; unchanged

OT **-t*-, **-s*-, **-z*-, **-ð*- > Pre-Yakut **-θ*- > Yakut *-t*-

OT **-š*-, **-t*-, **-z* > Yakut *-t*

OT **s*- > Pre-Yakut **h*- > Yakut Ø-; numerous examples below

OT **-š*-, **-č*-, **-nč*-, **-z* > Yakut *-s*-; in contrast Yakut *-s*- has more complex origins

OT **y*-, **č*- > Yakut *s*-; interestingly, this is paralleled by dialectal development in Koryak, a Chukotko-Kamchatkan language, where Paren Koryak *y*- corresponds to Kamonskoye Koryak *s*- (Bogoras 1917: 4).

Similarly, I conjecture that some Yukaghir words with word-initial *s*- also originate, sometimes quite irregularly, from other phonological sources (such as **č*- and **ć*-) as well as from later borrowings. The majority of *s*-initial Yukaghiric words, however, contain clusters that do not facilitate changes or deletion of these initial sibilant, which is why these are still found intact in the modern Yukaghir languages. In other words, only certain word-internal clusters will facilitate changes to the word-initial sibilant.

The deletion process can clearly be followed through the lexical development from Proto-Turkic (PT) (Clauson 1972; Nadeljaev et al. 1969; Anderson, G. D. S. 1998) into Yakut:

19. PT ***süŋgü** ‘lance, spear’ > Yakut *üŋüü* ‘lance, spear’.

20. PT ***siŋir** ‘sinew’ > Yakut *iŋiir* ‘sinew’, Dolgan *iŋiir* ‘sinew’.

21. PT ***siŋek** ‘mosquito, fly’ > Yakut *yŋyrja* ‘bee, wasp’, Dolgan *yŋyrja* ‘id.’.

22. PT ***siŋ-** ‘to sink, to submerge’ > Yakut *iŋ-* ‘to sink, to submerge’.

23. PT ***si/yŋ-** ‘whining or buzzing noise, to whine, to moan’ > Yakut *iŋerij-* ‘to neigh, to coo’.

24. PT ***sö:ŋö/ek** / ***süŋök** ‘bone’ > Proto-Yakut ***soong-** > Yakut *uŋuox* ‘bone’, *uoŋ ary:ta* ‘bone marrow’, Dolgan *oŋuok* ‘bone’.

7.2. The Dolgan language

The same development is also true in the Dolgan language, spoken in the Taimyr Peninsula (along with Nganasan further north¹⁶), as it evolved directly from Old Yakut (Menges 1955: 122, 131 & 1958/1959: passim, Schönig 1997: 155, 2001: 86). Yakut used to be a *Lingua Franca* along the reindeer trail from Dudinka, near the Yenisei River, to Khatanga, near the crossing of the Kheta and Kotuy Rivers. In this area, Dolgan developed as an apparent creole of Yakut grammatical structure and vocabulary, Ewenki (a Tungusic language) vocabulary and Russian vocabulary (an Indo-European language) vocabulary. Researchers have debated whether Dolgan is a dialect of Yakut or a separate language (Dolgikh 1963; Anderson, D. 1992). Analysis is made more complicated by the fact that there are two different dialects of Dolgan: that spoken by the Tehlar living in the Avam Tundra in the west and that spoken by the Hakhalar living in the Khatanga district in the east. The Hakhalar dialect is much closer to standard Yakut, being in closer geographic vicinity to Yakut speakers, than the Tehlar dialect. In fact, the Tehlar dialect speakers of Dolgan are unable to fluently understand standard Yakut, with limited intelligibility (Ziker 1998: 235). Thus, we are talking about an extreme dialect continuum with the Tehlar dialect of Dolgan representing one edge in the west and standard Yakut representing another edge in the east, and with the Hakhalar dialect of Dolgan residing somewhere in the middle, intelligible by both neighbors. Important for our purposes, however, is that all forms of Dolgan have arisen from Yakut after the sibilant-deleting sound change had already occurred and thus also independently possess vocabulary having undergone the same aforementioned sound change as Yukaghiric. This author has not seen the aforementioned sound changes described in Yakut in terms of being controlled by groups of vowels and consonant clusters, although this may simply be an oversight by this author due to not being involved in the field of Turkology; instead, the impression has been that word-initial sibilant deletion in Yakut was a universal phenomenon.

7.3. Evidence for language-contact-influenced sound changes

There are three points of evidence to suggest that the sound change in Yukaghiric was directly influenced by contacts with Yakut speakers. First, it is of great interest to note that all of these sibilant-deleted Yakut words have a front vowel.¹⁷ This goes well in hand with the fact that the cluster *SVŋk/q-, specifically with a front vowel, and all of the simpler structure *SVŋ-, underwent sibilant deletion in shifting from Pre-PY into PY; this fact must be correlated with this sound change in Yakut, the only other language to undergo this change, although in the Yakut case the deletion was universal for all clusters. Furthermore, this sibilant-deleting process in Yukaghiric also affected, as has been shown, early nativitized borrowings from other language sources, such as from the Tungusic languages. Secondly, there are, in fact,

16. For example, the Ust Avam community was populated in 1996 by ca. 370 Dolgans, ca. 310 Nganasan and ca. 80 of other ethnicities (Ziker 1998: 193).

17. The co-articulatory factors controlling all changes to word-initial sibilants with regards to vowels and other clusters in Yakut are very complex. A good, recommended overview is found in Anderson, G. D. S. 1998.

large numbers of unilateral Yakut borrowings in the Yukaghir languages resulting from at least a millennium of relatively intense language contact situations between Yakut and Yukaghir speakers, showing that Yukaghiric has been severely affected by Yakut, but not necessarily vice versa. Thirdly, genetic studies also support extensive admixture between these two populations (Piispanen forthcoming) and long periods of bilingualism would have been expected, thereby strengthening this hypothesis. Yakut may not be without phonological influences back from Yukaghir either; it has been suggested that the change $-y > -r$ in northeastern Yakut dialects was influenced by contacts with Yukaghiric speakers (Korkina 1992).

Regarding the chronology of these changes, it is known that Yakut $s-$ must have been deleted before the later change PT $*č-$, $*š-$ and $*y-$ $>$ Yakut $s-$ occurred, reintroducing word-initial sibilants. Since the initial $s-$ of Mongol borrowings from the 12th to 15th centuries is still intact in Yakut the deletion of initial sibilants likely occurred long before that period of time (and likely also in Yukaghiric). These changes were followed by $s^{\wedge} > s-$ and $-h-$ in Yakut during the 18th century, which were followed only in Dolgan by the deletion $s- > \emptyset-$.

To conclude, both lexical borrowings and certain phonological influences, such as the deletion of sibilant rule (i.e. Pre-PY $*sV\eta-$ $>$ PY $*V\eta-$), likely originate from an early period of common Yukaghir–Yakut bilingualism.

8. Other phonological parallels between Yakut and Yukaghir

8.1. Synharmonism

Since the sound change resulting in loss of the sibilant in Yukaghiric is influenced by similar changes in Yakut, could there be other phonological influences in the Yukaghir direction as well and are there other parallels in phonological developments?

First, Yukaghir has vowel harmony in that every root can have either front or back vowels. The concept of synharmonism states that the Yukaghir phonemes k and g can only appear with front root vowels while the phonemes q and γ can only appear with back root vowels (Nikolaeva 2006: 40–41).¹⁸ Synharmonism is naturally not observed in recent borrowings. Interestingly, the same was also true in the Common Turkic allophonic pair $*k/*q$ where $*k$ could only appear with front root vowels while $*q$ could only appear with back root vowels (Anderson, G. D. S. 1998). It seems possible that Pre-Yakut, also featuring this, has influenced Yukaghir to form its synharmonism rule.

18. Inflectional suffixes are exempt from this as the quality of the plosive is dependent only on the vowel of the suffix, not the root. However, earlier materials by Jochelson show that synharmonism then operated also with inflectional morphemes. Vowel harmony was, as Nikolaeva points out, also more widespread, especially in the recorded but now-extinct Korkodon variety of Kolyma Yukaghir. I conjecture that Yukaghir vowel harmony be a very, very old feature of the language.

8.2. The change *j- > *s- > (?l-)

Further, Yakut, alone among the Turkic languages, has, to the best knowledge of this author, undergone the aforementioned very limited sound change in the form of OT *jVŋ- > sVŋ-. Examples of this are **26**. OT ***jaŋ’ak** ‘jaw bone, cheek’ > Yakut *syŋaax* ~ *syŋyax* ~ *sygax* and **27**. OT ***jiŋ’čke** ‘fine, thin’ > Yakut *si(n)n’e* ‘langes Haar unter dem Hals des Rentiers’. Note the presence of the palato-velar nasal in OT, ŋ’ (its presence in Proto-Turkic was argued in favor of in Stachowski 2007), a sound not present in PY, the closest equivalent of which would be *ŋ. Thus, if this sound change also extended also into Yukaghiric, it may suggest, somewhat closely paralleling what happened to the former OT items, the presence of an almost unrecognizable Uralic cognate:

28. Possible cognate: Fin. *jousi* ‘bow’, PU ***joŋksV** ‘bow’ (UEW 101–102), PY ***suŋq-**, TY *suŋa*: ‘bow-string’, *suusej-* (< ***suysə-** > ***suŋk-sə**, change noted in 2338) ‘to throw, to turn down, to bring down, to take down’ and perhaps also ?PY ***loŋqə**, MU *longgá* ‘bow’.

Suggestion: ***joŋksV** > ***soŋksV** > (***loŋk-** > ***loŋqə** > MU *longgá*) + ***suŋksə** > ***suysə** > TY *suusej-*

The evidence for this case of possible cognancy, however, is not solid due to somewhat limited semantic overlap (i.e. bow ~ bowstring), (my) incomplete understanding of the actual OT rule and its possible transferred version into Yukaghiric. However, in favor is that this cluster (*-ŋk-), as shown previously, would indeed have been blocked against sibilant deletion and so the suggested cognancy set presented here may hold. The MU item, retaining the original meaning exactly, and the TY item, having undergone a semantic shift from the bow to the string itself, could exemplify parallel development – suggesting again that the sibilant changes may not have been universal transformations in all idiolects – where the MU form was lateralized, whereas the TY form was not. Further evidence to reinforce this hypothesis of very limited sibilantization (*j- > *s- > l-) of certain clusters may be implied by the previously suggested set of:

29. PFU ***joŋkćV**~***jokće** ‘swan (Cygnus Cygnus)’ (UEW 101), PY ***l’añćá**, KY *jaŋžə* ‘goose’ (suggested in UED 191 and Häkkinen 2012).

In light of the observed phonological process of lateralization of sibilant, the phonological forms of this and the previous set may be explainable by assuming a developmental chain of *j- > *s- > *l- > *l’-, as another representative of the aforementioned group of Pre-PY *sVŋk/q- ≠> *θVŋk/q- w/back vowel (deletion blockage). This chain would clarify the somewhat odd, although not impossible, phonological correspondence for this set between the PFU and PY forms of *j- <> *l’-, respectively. Indeed, according to the rules presented so far the cluster *sVŋk- with V = back vowel, as in both of these sets, would be effectively blocked against sibilant deletion and hence would likely develop into the form of *lVŋk- or *sVŋk- instead, which are likely phonological precursor for both of the Yukaghir proto-items of these sets. If correct, the word-initial semi-vowel may have developed into a sibilant in these two sets in a manner very similar to what evidently did occur in (contemporaneous?) Yakut.

If the change *j- > s- has been an active sound change also in the Yukaghiric languages, it was likely in such a case restricted to certain phonological forms and clusters only, but would produce some modern s- initial Yukaghir words that originally had been *j-. On the other hand, all of the above conjecture may be unnecessary as one must keep in mind that changes like *l' < *j- < *ń- are not at all usual in Yukaghir. This would suggest a very simple developmental chain of *j- > PY *l' > KY j-.

As a final note regarding changes in Yakut, it seems that sibilant deletion has been much more prevalent, in an almost universal fashion, in Yakut, which is in contrast to Yukaghiric where deletion is limited to certain phonological clusters only; this can be attributed to a substrate phenomenon. The phonological parallels between Yakut and Yukaghir may thus be ascribed to a *Sprachbund* substrate phenomenon, which may theoretically also include some other languages in the area.

8.3. Possible applicability of the rules beyond Yukaghir

Are the phonological rules outlined in this paper regarding word-initial sibilants also applicable to the development of the Yakut language? Perhaps partly, but fully answering this question would require further research. Whereas there are a few Yakut words where word-initial sibilants apparently have not been deleted from Proto-Turkic, these are generally believed among Yakutologists to reflect a Mongolian intermediary borrowing (i.e. Proto-Turkic > Mongolian > Yakut). Such items include Yakut *sitim* 'thread', *sil* 'spittle', *siŋk* 'nasal mucus', *sap* 'thread', *suŋuox* 'plait, braid', *sanas* 'left' and *soxso* 'trap' (Pakendorf & Novgorodov 2009). Indeed, if Yakut were also subject to the rules outlined here, none of these words would retain the word-initial sibilant unaltered and thus, if these results are also at all applicable to Yakut, there are good reasons to believe they are indeed later borrowings.

However, the outlined rules could, arguably, if at all applicable, explain scattered examples of sibilant-retaining Yakut vocabulary. Examples include PT *sanaa- > Yakut *sanaa*- 'to think' and PT *saŋri- > Yakut *saari*- (Korkina 1982: 98), which both contain the clusters *sVn- and *sVɣ- with back vowels which would be clusters blocked towards sibilant deletion in Yukaghiric. In other words, it seems plausible that the outlined phonological rules for Yukaghiric may also find applicability to some degree in Yakut instead of necessitating a Mongol intermediary stage for every single item in Yakut retaining an unaltered word-initial sibilant.

9. Cognates with initial sibilants (*ś-)

9.1. PU *ś- <> PY *ś- > *š/*θ'- > KY ś-; PY *ś- > TY s-

Let us next turn our focus on *ś-. The correspondence rule of PU *ś- <> PY *ś- is common and it is relatively easy to find further cognates belonging to this category. It also clearly suggests Pre-PY *ś- > PY *ś-. While the PY items are given with *s- in Nikolaeva's dictionary, many of these are really of the form PY *ś-. These are presented below, i.e. as representing the changes PY *ś- > *š'- > KY ś- and PY *ś- > TY s- with phonology and semantics. The phonology of seven older suggestions implies five additional, new cognate sets, which are thus mentioned below as representatives of this sound law:

30. ?Fin. *sukku* 'crushed condition', Khanty *jöŋ-säk* 'fragile ice', *säk* 'finely crumbled', *säkayəl-* 'to suffer damage, to become broken', Hung. *szak* 'little piece, part, rubble', *szakad-* 'to tear, to break', PFU ***sakkV**/***šukkv** 'piece, part' (UEW 457–458) – PY ***suk(sə)**- (actually: *s'uk(sə)) > KY *šukšə* 'piece of painted willow bark used for cleaning a gun' (noted in Piispanen 2013).

31. ?Fin. *sali-* 'zu spleissen', *sale* 'Kienholzsplesse', PU ***šale-** 'to split, to cut' (UEW 459–460), PY ***söl-~*sel-** (actually ***šöl~*šel**), KY *šolgi:-*, *šolgi:-* 'to beat', TY *salgarei-* 'to castrate' (noted in 2270)

32. Fin. *salava*, *salaja* 'Palmweide, salix fragilis l. caprea', PU ***šala** 'elm tree' (UEW 458–459), PY ***ša:-** (actually ***ša:-**), KY *ša:l*, *-ra*, *-za* 'tree, wood, stick', *ša:n-ya:r* 'bark, lit. tree skin', KD *can-palka* 'tree bulge', *ca:llil* 'sap of poplars and willows', KJ *šan-nume* 'winter stay, lit. wooden house', TY *sa:l* 'tree, wood, stick', *sa:d-oŋoj* 'chest, strong-box, lit. wooden bag', *sa:pe* 'small poles', *saase-* 'to put a stick or a chip into a kettle with reindeer and bird meat, to tie a stick to a reindeer's neck', *sa:n-gičil* 'forest tundra' and many more compound words (noted in 2118).

The phonology and semantics have been discussed elsewhere. The second part of the KY compound *-ya:r*, is, of course, another cognate, namely from this set:

33. Fin. *kuori* 'bark, crust', Est. *koor* 'Schale, Rinde', EM & MM *kar* 'Bastschuh', KZ *kjrs* 'Baumrinde, dicke Rinde unter der Birkenrinde', Khanty *χārə* 'grüne Birkenschale', *χārī* 'rötliche Schicht oder Haut der Innenseite der Birkenrinde', *χurəp* '(Brot)Rinde, Schorf', *χūrəp* 'Rinde (des Brotes, der Pirogge), dickes Stück Leder', Mansi, *χorp*, *χurup* 'crust, peel', Nenets *šar* 'skin (under the hair)' (Aikio 2002: 50), PS ***kar** 'skin', PU ***ko(o)re** 'Schale, Rinde' (UEW 184–185), PU ***kari** 'skin' (Aikio 2012: 233), PY ***qa:r**, ***qajr**, KY *qa:r* 'bark', TY *qajr* 'skin from the head of an animal'.

Cognancy was previously suggested with PFU ***kore**/***ko:re** 'skin, bark' (noted in 2018). However, cognancy should instead be considered with Aikio's recently reconstructed PU form as it solves several phonological problems.

Suggestion: ***kari** > ***qari** > (***qarj** >) PY ***qajr** (metathesis) > KY *qa:r*, TY *qajr*

The plosive change ***k**- > ***q**- is due to the Yukaghir rules of synharmonism. No vowel palatalization is noted for the *-**aj-**, possibly because this structure may have arisen relatively late and due to the uvularization effect of the initial *q-*, which keeps the following vowel low. A final metathesis neatly explains the hitherto unexplained

j before the *r* in TY; the reason for this metathesis is that a Yukaghir morpheme cannot end in *-rj* (Nikolaeva 2006: 34), while *-jr* is syntactically allowed, at least in the modern languages.

34. Fin. *salko* ‘long staff’, N. Saami *čuolgo* ‘lever, crowbar’, PU **šalkV~*čalkV* ‘staff, pole, Stecken, Baumstamm’ (UEW 460–461), PY **čolqə* (noted in 311), KY *čolyə* ‘spike for breaking ice’, *čulgo* ‘crowbar’ + TY items (noted in 311)

Suggestion: **šalka* > **čalkə* > **čalqə* > **čalqə* > **čolqə*

This constitutes a case of the rarer correspondence PU **š-* <> PY **č-*, which is also seen below. The reason for this particular change is likely connected to the presence of the *-k/q-* in the second syllable, which in some clusters blocks sibilant deletion for Pre-PY **s-*. The semantics and phonology of this old suggestion are discussed elsewhere.

35. Hung. *szag-* ‘taste, smell’, *szagol-* ‘to smell’, Selkup *sanga-*, *haaku-* ‘to taste’, PU **šanjkV* ‘taste, smell, to taste, to smell’ (UEW 462–463), PY **čöŋ-*, KY *čöŋu-* ‘tasty, sweet’, *čöŋčə* ‘fat, lard’ (noted in UEW 462–463; UED 946)

Suggestion: (**šanjkV* >) **šan-* > **šöŋ-* > **čöŋ-* > **čöŋ-*

After reinterpretation as a monosyllabic root, unless this root was actually suffixed in Uralic only, the vowel was raised (**ša-* > **šo-* is commonly observed in the data) and finalized by a rare affrication. Semantically, the meaning of *taste* in this old cognate suggestion overlaps in all languages, with secondary development in KY to *sweet* and *tasty fat*. The semantics and phonology of this old suggestion are discussed elsewhere.

36. ?L. Saami *čar(a)va* ‘snow frozen so hard that one can walk on it’, KZ *čareŋ* ‘hard ice crust on snow’, Hung. *szirony*, *szilony*, *szilogy*, *sziroty*, *szityor*, *szürügy* ‘refrozen surface of snow after a thaw, rime, hoar-frost, mushy snow’, Nenets *sirra*, *hirraa* ‘snow, winter’, Enets *siđa*, *sira* ‘snow’, Nganasan *siru* ‘snow, winter’, Selkup *sír*, *sêr*, *ser*, *hêr*, *sjre* ‘snow’, Kamassian *sære* ‘snow, snowfall’, PU **šarV* ‘frozen snow, ice crust’ (UEW 464–465), PY **se:r-* (actually **še:r-*), KY *še:ril*, *šežil* ‘snow on trees’, TY *siarul* ‘hail’.

Suggestion: **šarV* > **šar-* > **šer-* > PY **še:r-*

The item has been palatalized and the vowel in Yukaghir is lengthened due to prosody (i.e. CV:C- is a valid noun root, while CVC- would not be). Semantically all items relate to *crust of hard snow*. This new suggestion may invalidate the previously assumed borrowing from PS **ser* ‘ice’ (as noted in 2204); such a borrowing would only be valid if borrowed directly into PY, as the item would then have undergone only the regular sibilant change into the KY and TY branches, as well as vowel lengthening for prosodic reasons. As a Pre-PY borrowing it would have been reflected as PY ***ler-*, and as a post-PY borrowing as ***KY s:er*, neither of which is the case. Instead, they are simply cognates. Yukaghir exhibits the nominal derivational suffix **-l* (Nikolaeva 2006: 81).

37. PU **šelV* ‘to become dry, to dry up’ (UEW 473), PY **syla* (actually **šyla*), TY *silä-* ‘dry’, *siljal’e-* ‘to get dry’.

This new suggestion may invalidate the previous suggestion as a borrowing from TU **sile-* ‘to get dry’ (noted in 2351), although there really is no easy way to differentiate between cognancy and borrowing in this case.

38. ?N. Saami *čær'dâ* ~ *šær'dâ* ‘species, kind, sort’, Mari *sær*, *šâr*, *sâr* ‘Gemüt-sart, Charakter, Art und Weise’, KZ *šer* ‘обычай, нрав, обыкновение, мастерство, Gewohnheit, Sitte, Weise’, Khanty *-sur*, *sir*, *šir* ‘beschaffen, Sitte, Gewohnheit, Gesetz’, *sër*, *sir* ‘Art, Beschaffenheit’, *sür* ‘Geschlecht, Ursprung’, *sïr* ‘Geschlecht, Sippe’, Mansi *sir*, *šir*, *sër*, *šir* ‘Art, Weise, Sitte, Gewohnheit, Phratrie, Geschlecht’, Hung. *szër* ‘Mittel, Gerät, Art, Weise, Reihe, Ordnung, Gemeinschaft, Geschlecht’, Nenets *šerz* ‘Sache, Angelegenheit, schlechte Sache, auf Weise (as postposition), wie’, Enets *šiez*, *šieroz* ‘Sache’, Nganasan *sier* ‘Sache’, PU *šerV ‘row, order’ (UEW 475–476), PY *sa:r (actually *ša:r), KY *ša:r* ‘something’ (noted in UEW 475–476; UED 971).

Suggestion: *šerV > *šer- > *šar- > ša:r-. The vowel is lengthened for prosodic reasons. The semantics and phonology have been discussed elsewhere.

39. Fin. *sotka* ‘eine Entenart’, PFU *šodka ‘a kind of wild duck’ (UEW 482), PY *sol’qə/*sal’qə (actually šol’qə/*šal’qə), TY *sal’ya* ‘loon, i.e. *Gavia arctica*’, *sal’ya-laawje* ‘small lake’ (noted in 2280)

Suggestion: *šodka > *šodkə > *šol’kə > PY *šol’qə > TY *sal’ya*

Since the corresponding PY form does not have *č-, as in the two previous cases, it may be assumed that the change *-δk- > *-l’k- occurred after the initial sibilant had changed. The change *-k- > *-q- is due to synharmonism. The semantics and phonology are additionally discussed elsewhere.

40. PFU *šola ‘intestine’ (UEW 483–484), ?PY *solijə (actually *šolijə) > RS *šolje* ‘intestine, gut’.

RS lexically represents the Omolon Yukaghir that was documented by Shiefner in 1859 and 1871, which is quite close to Kolyma Yukaghir, and hence the regular correspondence with š- is found.

Suggestion: *šola > *šolə > PY *šoli-jə-

Suffixation would have changed the final vowel of the root to an epenthetic *-i- although the suffix is not identified. Semantically the meanings are identical in this older cognate suggestion (noted in 2273).

41. N. Saami *čuk’ča-* -vč- ‘black-cock’, EM *suvožej*, *suvožen*, *sužij* ‘grouse’, MM *suvoži*, *šuži* ‘grouse’, Mari *suzô*, *suzo*, *šužo*, *subuzo* (< *suwuzo), *šužü* ‘grouse’, KZ *čukči* ‘grouse, black-cock’, PFP *šOkčV ‘grouse, black-cock (Tetrao urogallos)’ (UED 1624), PY *šökči: (actually *šökči:), TY *sökčii* ‘black-painted leather’.

The comparison, like the following two, suffers from the comparison being with a PFP-item perhaps making these less certain. As to semantics, relating objects in nature with certain colors is quite common. The semantics closely parallel KY *embə-* ‘black’ > KY *embətkilbən* ‘black wood grouse’ and also in the opposite direction PFU *puna ‘hair’ > Fin. *punainen* ‘red’. In this case, the common original meaning must have just been only *black*, although these semantic curiosities make this a tentative suggestion at best.

42. Fin. *solki* ‘buckle, clasp’ (> Saam. N *söä.ləKa*, *soleKi*), dial. *solkipuu* ‘support, crossbar’, Est. *sõlg* ‘buckle, breast clasp; rod, crossbar, bolt’, N. Saami *čulgum* ‘side-piece of a Lapp winter brogue made of shank-shin; side-piece of winter legging or driving gloves of reindeer-skin’, L. Saami *tjul’kum* ‘wedge-shaped gusset in a glove; the side part of a fur-shoe’, EM *šulgamo*, MM *šulgam* ‘breast clasp’ (>

Russ. dial. *сюлгам*), Mari *šolkamá* ‘buckle on the front side of a shirt’, *šâlkama* ‘pin’, *šârka* ‘woman’s breast buckle’ (> Chuv. *šalGeme*, *šülGeme* ‘breast decoration of the Chuvash and the Mari’), Udm. *šul* ‘sole of a sledge, skid’, *šedšul* ‘sole of a sledge’, ?KZ *dođ-šul*, *dojd-šuv* ‘slider rail, sledge runners’, PFP **šolkama* ‘buckle, part of a shoe’ (Sammallahti 1988), PFP **šolke* ‘buckle, part of a shoe’ (UEW 774–775), PY **šölkil-* (actually: **šölkil-*), TY *sölgiligije* ‘fringe on the front of a fur-coat’.

Suggestion: **šolke* > **šölkə* > PY **šöлки-l*

Although a noun, the original Pre-PU **-lk-* is found intact in a Yukaghir noun root. The reason for this must be that this root has not undergone desyllabilification, but retained its original phonotactic structure, including the **-lk-* (instead of becoming **-γ-*). The reason for this may be avoidance of homonymy with PY **söγε-*, TY *sögie* ‘saliva’, which in itself is a cognate of PU **šul’ke~*šil’ke* ‘(to) spit’ (UEW 479) (noted in Piispanen 2013). Since PU **š-* corresponds trivially to PY **š-* (Nikolaeva’s dictionary does not differentiate between PY **š-* and **s-*, but **š-* finds a direct correspondence in TY *s-*), this PFP item must go back to an earlier **š-* as well for this to constitute a cognate set. The vowel changes in Yukaghir through palatalization while the nominal derivational suffix **-l* (Nikolaeva 2006: 81) changes the last vowel, from the prosodically expected **-ə-* into the typically epenthetic *-i-*, possibly by hypercorrection. This root has been further suffixed with unidentified suffixes. Sammallahti’s reconstruction includes a Uralic suffix **-ma*, which is a later addition to an earlier root **šolkV*. The semantics are tricky as (*decorative*) *buckle*, *fringe of a coat*, *sidebar* or *sledge rail* are suggested, only the latter three of which may be connected to a common meaning of *sideline*, *fringe*, *rail*. Perhaps the Uralic set actually consists of two phonologically similar items with different meanings that have phonologically converged, the other being related to *parts of a shoe*. The N. Saami and Yukaghir meaning are surprisingly identical and likely reflect a very old, common meaning. The word has even been borrowed into both dialectal Russian and Chuvash. The reconstructive difficulties, the questions regarding overlapping semantics and the limited spread in Yukaghir, however, must make this a plausible, but somewhat tentative suggestion.

43. ?Fin. *salmi* ‘street; strait, narrow waterway’, Est. *salm(e)* ‘narrow strait between two islands’, N. Saami *čoaľ’bme -lm-* ‘marked contraction of a lake; sound between two lakes or reaches of a fjord’, L. Saami *tjâl’mē* ‘strait; trickle, gullet; the water of an excavated watercourse in a delta’, ?T. Saami *čuailm* ‘strait’, ?Udm. *šum* ‘pond (created by a flood); swamp; bay’, ?KZ *šon* ‘valley, gully, depression (between two slopes)’, PFP **šolma* ‘valley, lowland’ (UEW 775), PY **šölö* (actually **šölö*), KY *šölö(n)* ‘wooded hill; island’.

Suggestion: **šol-* > **šöl-* > **šölə* > **šölö*

Suggestion 2: **šolma* > **šöləm(ə)* > **šölöm* > KY *šölön*

The item has undergone one of two developments, the former being more likely: palatalization of a short, original root which acquired a nominal derivation suffix in Uralic but not in Yukaghir, or vowel palatalization, epenthesis of the cluster **-lm-*, progressive vowel assimilation and apocope (similar to PFU **kolme/*korme* > Hung. *három* ‘three’). Semantically, the item seems to have meant ‘area surrounded by

water’, as indicated by both the PFP and KY items, although while the phonology works, the semantic differences, and the fact that the entire Uralic set is marked as uncertain in the UEW, manage to make this a tentative suggestion at best.

10. Cognates with initial sibilants (*š-)

10.1.PU *š- <> PY *č-

While there have been several cognate suggestions between Proto-Finno-Ugric *ć- and irregularly Yukaghir *č-, *ć- and even *ś-, to the best of my knowledge there have been no cognate suggestions for Yukaghir with Uralic items beginning with *š-. As such, neither have the aforementioned sibilant-rules been extended to cover such occurrences. While Uralic *ś- is clearly often reflected in Late Proto-Yukaghir *ś-, the expected Yukaghir reflection of Uralic *š- is less obvious. For example, Uralic *ś- turned into Late Proto-Finnic *s-, just as it did in TY, while Uralic *š- instead turned into Late Proto-Finnic *h-, which evidently cannot have happened in PY as it lacked the phoneme *h.¹⁹ While this latter transformation also occurred with Uralic *č-, turning it into Late Proto-Finnic *h-, the correspondence of this in Yukaghir is instead *č-, *ć- or *s-. With these in mind, and assuming a somewhat parallel development in Yukaghir, Uralic *š- could theoretically be reflected in Yukaghir as any one of *h- (possibly followed by > *Ø- since PY *h- is lacking), *č-, *ć- or *s-. In order to adequately study the matter in this line of research three tentative cognates in Yukaghir in correspondence with Uralic *š- were found.

44. Fin. *hiiri* ‘mouse’, Est. *hiir* ‘mouse’, ?L. Saami *šneerra* ‘mouse’, EM *čejer*, *čever* ‘mouse’, MM *šejer* ‘mouse’, Udm. *šjr*, *šâr* ‘mouse’, KZ *šjr* ‘mouse’, Khanty *lõŋkær*, *jõŋkær*, *teŋkær*, *loŋkær*, *leŋkær* ‘mouse’, Mansi *tãŋkær*, *taŋkær* ‘mouse’, Hung. *egér* ‘mouse’, PFU *š*ijiri* ‘mouse’ (Sammallahti), PFU *š*ije-re* ‘mouse’ (UEW 500–501), ?PY *č*inipandæ*, MO *činipandæg* ‘mouse’

Suggestion: *š*iji*- > *č*iŋi*- > *č*ini*-. The Uralic suffix *-re- was not present in Yukaghir. The Yukaghir root must be either unusually suffixed or a compound word, but the second part is etymologically unidentified. The MO word is no doubt a compound. *-ŋ- in Yukaghir has, as has been mentioned, depending on several complex and not yet fully evaluated factors, a continuation in either -ŋ-, -n-, -ń-, -g- or -ɣ- and supposedly also -ng- (examples given in an earlier chapter). This case exhibits a tentative correspondence of PU *š- and PY *č-. Semantically, all items are completely identical. The analysis, however, is made complicated by similar items in other Paleo-Siberian language groups, such as TM *š*ijere* ‘mouse’; this word for mouse may simply be a common Siberian *Wanderwort*.

45. Fin. *hyvä* ‘good’, *hyvin* ‘very, well’, Est. *hea*, *hüva* ‘good’, N. Saami *hivve* ‘good fellow’, *sávve-* -v- ‘to heal (of wound, sore)’, EM *čiv* ‘good, able, brave’, MM *čiva* ‘hospitable’, Mari *šu* ‘healthy, fresh’, Udm. *šońer* ‘straight, right, real’, KZ *šan*

19. Other language families have taken a bit different courses, as exemplified by the debuccalization Proto-Yakut *s- > Verxojansk Yakut *h*-. This is similar, but contrastive to the developments Early Proto-Finnic *č- & *š- > Late Proto-Finnic *h-, as well as Early Proto-Finnic *s-, *ś- & *ć- > Late Proto-Finnic *s-.

‘good, able, beautiful’, Hung. *igen* ‘greatly, yes’, PFU *šəŋä ‘good, healthy’ (UEW 499), PY *čəŋt-, KY *čəŋdo:-* ‘tender, kind, beautiful’, KY *čəŋdu:-* ‘quiet, beautiful, calm’, KY *čəŋdo:-* ‘tender, kind, beautiful’

Suggestion: *šəŋä- > šəŋe > *čəŋ- > *čəŋ-t(e)- > *čəŋt-

I assume that the Yukaghir *-tə- is from a transitivity suffix, while *-u- is a nominal derivational suffix (Nikolaeva 2006: 83). Since the -ŋt- cluster is unusual morpheme-internally in PY it likely originates from suffixation after reinterpretation as a monosyllabic root. The semantics has undergone narrowing regarding human qualities in the various languages. The Yukaghir meanings of *tender* and *kind* are reflections of *good, healthy* human qualities, which have produced the N. Saami concept of *good fellow*. Further, the Yukaghir meaning of *beautiful* is found in both KY and KZ, where it reflects the concept of *inner beauty*. N. Saami *hivve* is likely a Finnish borrowing, and well reflects the Finnish expression of *hyvä mies* ‘a good man, fine human being’. This case again exhibits a tentative correspondence of PU *š- and PY *č-.

46. Udm. *šug* ‘difficult, arduous, bother, sadness, grief, affliction, narrow, uncomfortable’, KZ *šog* ‘grief, concern, sorrow, distress’, ‘dial. weariness, agony’, Hung. *aggód-* ‘to worry’, *óg-* ‘to be anxious, to worry’, PFU *šəŋkV ‘(to be) narrow, distress’ (UEW 501), PY *čəŋ-~*čəŋq-, KY *čəŋutə-* ‘to infect’.

Suggestion: *šəŋkV > *šəŋk- > *šəŋq- > *čəŋq- > KY *čəŋ-u-tə-*

The KY item is suffixed with a causative/transitive suffix, *-tə- (Nikolaeva 2006: 83), and preceded by an epenthetic vowel, giving the root the meaning of *to cause distress, affliction, weariness or sorrow* – noun meanings found in most Uralic languages – *in someone* > *to get infected, to become diseased*. It is noted that the recording of the second syllable consonant of the KY word is uncertain (noted in 299), but the presented interpretation may be correct as indicated by the excellent phonologic correspondence with the PFU item.

To summarize, PU *š- appears to have a correspondence in PY *č-, based on the limited available data. It is unclear why the found correspondences all have the *-ŋ-, but this may be a coincidence.

II. Summary and conclusions

II.1. Summary of the reevaluated, expanded sibilant rules

It has been suggested (Nikolaeva 2006: 66–67) that TY *s-* and KY *š-* both originate from a common *ś – a thesis that agrees perfectly with the research presented in this paper – and that these sound changes were relatively recent as they are both recorded merely as *c* in Michelson’s dictionaries recording KD and TD. However, borrowings into PY with *s- also ended up with the same TY-KY forms, indicating that there were no true differences in pronunciation between PY *ś- and *s- at that chronological stage.

However, earlier sibilant-initial lexicon has undergone precise changes depending on which sibilant, *s-, *ś- or *š-, was present in the item; these three have different

outcomes once reaching the PY stage of Yukaghiric. There are also irregular overlaps with the affricate series both for cognates and within the Yukaghiric branches. Examples: KY *-sömör* ‘top’ <> TY *čumur* ‘back, hill’, noted in 314; PFU **čappV* ‘to hit, to beat with a popping sound’ (UEW 29), PY **sapa-*, KY *šapaγəɖaj-* ‘to strike, to hit’, noted in 2150; PFU **čäčä* ‘trap for birds, hare or fox’ (UEW 30–31), PY **sas-*, KY *šašil* ‘triangle shaped trap for hare or willow ptarmigan’, noted in 2169.

The following regular sound changes, as controlled by the sound features of other phonemes in the lexicon, apply to both inherited and borrowed vocabulary with very few, if any, exceptions:

- (1) Pre-PY **sVk/γ/r-* > PY **IVk/γ/r-*
- (2) Pre-PY **sVŋ/l-* > PY **ØVŋ/l-* (however, unchanged with **sVI-* and **sV:l-*)
- (3) Pre-PY **sVŋ/k/q/m/n-* > PY **ØVŋ/k/q/m/n-* ; V = front vowel
- (4) Pre-PY **sVŋ/k/q/m/n-* > PY **sVŋ/k/q/m/n-* ; V = back vowel
- (5) Pre-PY **ś-* > PY **ś-* > KY *š-* & TY *s-*
- (6) PY **s-* and **ś-* > Post-PY (i.e. Old Yukaghir) **ś-* > KY *š-* & TY *s-*
- (7) Pre-PY **š-* > PY **č-*
- (8) Pre-PY **ć-* (some) > PY **ś-* > KY *š-* & TY *s-*
- (9) Pre-PY **č-* > PY **č-* (common)

The exceptions relate to irregular correspondences between affricates and sibilants in various Yukaghiric branches, as shown above. That the three known **s-* > **l-* correspondences all pertain to Uralic vocabulary and to no borrowings must be considered a coincidence, as the fact is clearly derived from the phonological forms. The changes leading either to lateralization or deletion must be limited to certain phonological clusters since there were many **s-* roots in PY; thus, in most cases, the sibilant will have found a continuation in an unchanged form.²⁰ More research is required in order to clarify this picture (i.e. the limits and extents of the changes) further.

11.2.A comparison to Samoyed

It may be illustrative to briefly mention the parallel development of initial sibilants in the Samoyed languages. Proto-Uralic **s-* and **ś-* changed into **t-* and **s-*, respectively, in Proto-Samoyed. PS **s-* was palatalized into *k-* in Kamassian, while PS **b-* and **d'-* became *m-* in Mator and Kamassian (Sammallahti 1988; Aikio 2002).

11.3. Phonological formulation of the sibilant rules

The sound change rules governing the phonological outcome of proto-sibilants and proto-affricates in PY can be reformulated as universal rules:

20. Which can be seen with the aforementioned seemingly unchanged clusters, such as **san-*, **sap-*, **saq-*, **samp-* etc. and unchanged clusters containing first syllable long vowels, such as **sa:-*, **se:-*, **si:-* etc., roots that are relatively common in the Yukaghiric languages.

Pre-PY *s > PY *l/ _V[r,k,ɣ] ; a regular velarization of sibilant sound change in Yukaghiric into a lateral that results from an alveolar trill, voiceless velar stop or voiced velar fricative.

Pre-PY *s > PY *Ø/ _V[l,ŋ], V = front ; a sibilant-loss rule results from an alveolar lateral approximant or a velar nasal. Structures of the type *sV₁ŋ-k/q/m/nV₂, where V₁ is a back vowel, pose an exception where sibilant deletion does not occur. However, if V₁ was a front vowel, it did undergo either sibilant deletion or a change into a lateral, i.e. the sub-rule: Pre-PY *s > PY *Ø/ _V[ŋ/k/q/m/n], V = front.

This sibilant-deletion rule is clearly an influence from language contacts with Yakut, which may also have been the source of further as of yet non-attested sound changes. These influences should probably be classified as a *Sprachbund* substrate phenomenon. Nothing concrete can be said regarding the potential development of the sibilant from Pre-PY *sVVCV-like roots where the consonant(s) are other than *-k-, *-ɣ-, *-l-, *-q-, *-r-, *-ŋ-, *-m- or *-n-. Some *s*-initial modern Yukaghir words may have originally been *j- if the influence from Yakut where the change occurred has been significant enough, but the evidence for this is scarce at best.

Pre-PY *š > PY *š > KY š- & TY s-, with Yukaghir lexicon in these cases possibly having developed through intermediate *θ and š'/*θ', respectively from a voiceless, palatalized alveolar fricative.

Pre-PY *š- > PY *č-; the regular correspondence of PU palato-alveolar fricative *š- is *č- in PY. All of these sound changes are controlled by phonology and seemingly affect borrowings as well as inherited vocabulary from before PY, and do not affect borrowings into post-PY (i.e. Old Yukaghir).

11.4. Regarding PY *s-, PY *š- and post-PY *s-

Both PY *s- and PY *š- likely originate from several converging sources. While early borrowings with *s- in Pre-PY were subject to the sibilant changes presented in this paper, late borrowings with *s- into various idiolects, in contrast, underwent no noticeable change to the sibilant (see below). Borrowings directly into PY changed to produce the common opposition KY š- <> TY s-.

I will argue that late local borrowings with word-initial *s*- into KY did not change into the KY palato-alveolar sibilant š-. This is shown, for example, by Yak. *sa:ry* or Ew. *sa:ri, sa:ry*, borrowed as: KY *sa:ri*: ‘boots made of smoked black leather’ (set 2162). Logically this means that the sound change PY *š- > KY š- occurred only during an early period after the PY stage, but it had ceased to be an active sound change law by the time more lexical borrowings with *s*- entered the KY idiolect, which is why these remain unaltered with regard to the sibilant in the modern language.

Regarding the origin of PY *š-, which is a regular continuation of Pre-PY *š-, other correspondences such as PFU *čappV- ‘to hit, to beat with a popping sound’ (UEW 29) to PY *šapa- (actually *šapa), KY *šapaɣəɗaj-*, *šoboyəɗaj-* ‘to strike, to hit’, *šapaɣaj-* ‘to tumble, to fall down’, *šapaj-* ‘to hit’ (noted in 2150 and discussed in Piispanen 2013), and, in fact, other similar correspondences, instead suggest that PY *š- is, among other sources, sometimes a direct continuation of the pre-PY *č-.

However, pre-PY *č-, like pre-PY *č-, also manifests quite commonly as PY *č- or PY *č- in other lexicon, and the factors governing the exact phonological outcomes have, to the best of my knowledge, not yet been fully evaluated or clarified. One factor making analysis more difficult is the suggested differences in pronunciation between male and female Yukaghir informants. As Nikolaeva has pointed out, during the 19th century, male speakers of Kolyma Yukaghir pronounced both the phonemes č and š as the phoneme č, while female speakers of the same always distinguished between the two phonemes (Jochelson 1898: 153–154); this makes interpreting the exact phonological forms of lexicon in the older dictionaries more difficult. I note that this is actually paralleled by Chukchi where males pronounce a given phoneme as č, while females pronounce it as š, or by Koryak where men pronounce a given phoneme as č, while females pronounce it as š or t instead (Bogoras 1917: 5).

11.5.PU č- <> PY *č-

There are, of course, also direct PU *č- <> PY *č- correspondences. A new cognate set exemplifies this:

47. EM *čije-* ‘to run’, Hung. *siet-* ‘to rush, to hasten’, PFU *čeŋV-/*čekV-/*čeŋV-/*čiŋV-/*čikV-/*čijV- ‘to run’ (UEW 59), PY *čen-, KY *čenžə-* ‘to rush after, to run fast’, TY *čenguru-* ‘to fly, to flit’, TK *t’enjdej-* ‘to come flying’²¹

Suggestion: *čeŋV- > *čeŋ- > PY *čen-.

The item has undergone reinterpretation as a monosyllabic root and fronting of the final consonant, likely due to the influence of the following consonant-initial suffix. The continuation of PY *-ŋ- in syllable- or root-final position is often -ŋ-, but on occasion it appears alternatively as -n- (example of *-ŋ- > -n-: Yak. *diŋne:q ‘real, authentic’, borrowed as: KY *dinna:q* ‘indeed, all the same’, noted in 384) or -g- in the modern Yukaghir languages (example of both *-ŋ- > -n- and -g-²² from one root: PY *nyŋ-, KY *niŋd’ida-* ‘to fight’, TY *n’uŋuŋji-* ‘to fight’, TD *n’uŋuŋil* ‘fighting competition’ (noted in 1562). Actually, TK *nuguil* ‘fighting’, previously assigned with PY *nuŋ-, KY *nug-* ‘to find, to kill’ (noted in 1533), likely, as supported from both a semantic and phonological viewpoint, instead belongs in this set, i.e. 1562). All of the Yukaghir items carry clusters developed quite expectedly from an original *-ŋ-. One form, TY *čenguru-*, (< *čeŋ-u-ru-) also suggest a relatively unusual *-ŋ- > -ng- transformation. Semantically, the original item clearly pertained to *running*, which through the use of different suffixes in Yukaghir, became extended to *moving very fast, either on land or through the air*. This correspondence suggests that the Proto-Finno-Ugric root was *čeŋV.

21. This also suggests another related cognate that belongs in this set: *čeŋ- > *čeŋ-čəW (nominal derivational suffix) > *čiŋ-čəW > PY *čincə > KY *čimčə* ‘leg muscles, i.e. the fast runners’. While *-čəW would likely turn into *-čə: in most cases, it is shortened here due to prosodic reasons obtaining the valid noun structure CVCCə. Also, it is indeed noted in this set (280) that -č- may belong to an old suffix.

22. A comparison of interest in this case may be that Middle Chinese borrowings with word-initial engma, *ŋ-, found regular counterparts as word-initial *g- in Old Japanese (Heffernan 2000). In contrast, word-final *-ŋ in such borrowings was simply deleted, since Old Japanese lacked this phoneme, just as it was between vowels in Finnic (see the cognate for ‘mouse’ above).

Abbreviations

Pre-EY = Pre-Early Proto-Yukaghir	I. Saami = Inari Saami
EY = Early Proto-Yukaghir	L. Saami = Lule Saami
MY = Middle Proto-Yukaghir	Udm. = Udmurt
PY = Late Proto-Yukaghir	KZ = Komi-Zyrian
KY = Kolyma Yukaghir	EM = Erzya Mordvin
TY = Tundra Yukaghir	MM = Moksha Mordvin
PU = Proto-Uralic	Chuk. = Chukchi
PFU = Proto-Finno-Ugric	Ew. = Ewen
PS = Proto-Samoyed	Ewk. = Ewenki
POU = Proto-Ob-Ugric	Kor. = Koryak
OT = Old Turkic	Yak. = Yakut
PA = Proto-Altaiic	PT = Proto-Turkic
Fin. = Finnish	NT = Northern Tungus
Est. = Estonian	MK = Kolyma materials of Mueller/ Lindenau (anno 1741)
Kar. = Karelian	BO = Materials of Boensing (anno 1781)
Lud. = Ludic	KJ = Kolyma Yukaghir materials of Jochelson (anno 1898 & 1900)
Olon. = Olonetsian	MO = Omok materials of Matjuškin (Wrangel anno 1841)
N. Saami = Northern Saami	TU = Tungusic
S. Saami = Southern Saami	
T. Saami = Ter Saami	
K. Saami = Kildin Saami	

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