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On **p*- and Other Proto-Turkic Consonants

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On $*p$ - and Other Proto-Turkic Consonants

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ABSTRACT

The present study takes as a starting point the question of whether Proto-Turkic had an onset **h-* or **p-* and aims at reconstructing its consonantism. The answer to the initial question is searched for in the fourteen Turkic lexical loans of adjacent languages such as Mongolic, Kitan, Yeniseian, and Samoyedic. At first sight, the data provided by these loanwords seem ambiguous. However, once it is demonstrated that both the daughter languages of Proto-Turkic, namely Proto-Bulgar Turkic and Proto-Common Turkic, had the historically unattested initials **d₂-* and **n₂-*, these data can be taken to point to the existence of **p-* in these languages as well as in Proto-Turkic. The discussion is extended with the question of rhotacism and lambdacism. As regards the rhotacism, Proto-Turkic is assumed to have two rhotic consonants, phonologically denoted as **/r₁ r₂/*. The lambdacism, on the other hand, turns out to be a tougher problem. Based on several lexical borrowings into and from Turkic, a further consonant **t₂/* is posited for Proto-Turkic. This consonant, originally of affricate and probably later of fricative pronunciation, yielded */š/* in Common Turkic and */l/* in Bulgar Turkic. Thus, the Proto-Turkic consonantism is reconstructed as having a series of consonants **/t₂ d₂ r₂/* that underwent serious changes in historical Turkic. Finally, **k₂/* is added to this series to explain the correspondence of *k-* and vocalic onset between some Turco-Mongolic cognates. In addition, significant sound changes in the prehistory of Turkic are dated through external evidence.

Key words: Proto-Turkic, onset consonant, lexical borrowing, consonantism

To my first teacher in Mongolian,

Claus Schönig (1955–2019)

CONTENTS

Abstract	i
1. Introduction	3
2. Turkic Loanwords in Adjacent Languages Indicating an Onset <i>*p-</i>	6
3. Discussion	29
4. Conclusion	56
Abbreviations	58
Appendix 1: Reconstructed Proto-Turkic Forms of the Words Cited in this Study and Related Loanwords in Adjacent Languages	65
Appendix 2: Xiongnu Words Surviving in Altaic Languages	69
References	71

ON **P*- AND OTHER PROTO-TURKIC CONSONANTS

1. INTRODUCTION

One of the main pillars of the Altaic theory is the onset **p-*. If some Tungusic languages are disregarded, this initial has been mainly reserved for “Proto-Altaic” and employed as an argument in support of a genetic relationship between the subfamilies (cf. Ramstedt 1916–1920, Pelliot 1925, Aalto 1955). The “Proto-Altaic” **p-* is assumed to have been dropped in Turkic, yielded *h-* in Mongolic, and was partly preserved and partly changed to *f-* / *h-* / *Ø* in Tungusic.

As in earlier studies the reconstruction of Proto-Turkic was dealt with only in the framework of the Altaic theory, the question of whether Proto-Turkic had an onset **h-* or **p-* has not been scrutinized with the attention it deserves. In the rare cases, such as Poppe (1958: 96–97; 1965: 152–154), where this question was directly addressed, the existence of the onset **p-* and **d-* in Proto-Turkic has been strongly argued against, with the claim that these consonants cannot be reconstructed by means of inner-Turkic data.

Earlier attempts at the reconstruction of Proto-Turkic as an independent linguistic entity made it possible for such questions to be discussed separately. G. Doerfer, an eminent opponent of the Altaic theory, was the first scholar to explicitly reconstruct **p-* for Proto-Turkic (what he called *Urtürkisch* in his German terminology) (TMEN I 97). He maintained this opinion also in his later works (KhM 163–165). Nevertheless, systematic studies on the subject are still lacking to date. Recent works have mostly put forward various assumptions without further discussion. A. Róna-Tas (1998: 71; 2022: 64) postulated **p-* for Proto-Turkic, whereas M. Erdal (2004: 80–81, 101–102) posited **h-*. These assumptions in their given formulations do not go beyond educated guesses.

The difficulty arises from the shallow time-depth of the extant historical texts of Turkic in contrast to the antiquity of the protolanguage. Even in its earliest written records, Turkic exhibits no *p-*, *f-* or *h-* in word-initial position. Some Turkic names and titles preserved in Tibetan, Chinese and Bactrian transcriptions provide us with early instances of *h-* (Venturi 2008; Sims-Williams 2002; Kasai 2014).¹ The Old Uyghur texts written in 'Phags-pa also show examples of the Turkic *h-* (Zieme 1998). Otherwise, we

¹ See also hòulófúfùlèi 候婁匐勒 **hulug bägräk* ‘Great Son of Heaven (大天子),’ a title assumed by Āfúzhīluó 阿伏至羅 of the Gaoche 高車 (Ligeti 1986: 431).

find the Turkic onset *h*- only in Khaladj as systematically preserved although there are also a few secondary cases. Kabul Afshar, a south Oghuz language spoken in Afghanistan, also seems to have preserved the initial *h*- in many cases (Doerfer 1985b). In some modern Turkic languages such as New Uyghur or the Anatolian dialects of Turkish, *h*- has been sporadically retained. The alternation of the onset vowel and the consonant *y*- in Old Turkic is also considered an indirect indication of an earlier **h*-. All this material has largely been collected and discussed by Doerfer (1981, 1982). For a list of verbs with the initial alternation of *Ø*- ~ *y*- in Old Turkic, see Erdal (OTWF 858b–859a; 2004: 81).

We can safely assume that the Turkic *h*- that appears scattered temporally and spatially goes back to a prehistoric **p*- although we have no direct sources that confirm this suggestion. Four facts strengthen this assumption:

1. **Phonological gap in Turkic:** Although */b/* [*v*] and */p/* [*b p*] stand in phonological contrast in word-medial position, we find word-initial */b/* realized as [*b*] only in native words. Thus, we may conclude that the onset **h*- and non-initial *-p*- were in complementary distribution in Early Common Turkic and Early Bulgar Turkic.²
2. **Areal sound change:** The sound change of *p* > *f* > *h*- is very common in the language families of the area. It is directly observable in Mongolic (if Kitan included), Tungusic, Samoyedic and Yeniseian.
3. **Universal sound change:** The sound change of *p* > *h* is universally common, e.g., PIE **p*- > Arm. *h*-/*Ø*- (Olsen 2017: 426), Common Celtic *Ø*- (P. Sims-Williams 2017: 363); Proto-Dravidian **p*- > Classical Kannada **p*- > Modern Kannada *h*-/*Ø*- (Andronov 2003: 54–55, 81).
4. **Secondary nature of /h/:** The glottal fricative */h/* is a weak segment and often a result of lenition of stronger obstruents such as */p s k/* (Lass 1976: 156–163).

The main purpose of this paper is to bring together the linguistic material that attests to the prehistoric Turkic **p*- and to answer the question whether the Proto-Turkic language had an initial **p*-, **h*- or another consonant.

² Erdal (2004: 102n.) was skeptical of this distribution and suggested that the Proto-Turkic **h*/ may have been the primary sound. This supposition raises many questions as to how **h*/ developed in medial and final position and what **p*/ yielded in the onset.

The only possible way to answer this question properly is to demonstrate that one of the two main branches of Turkic, namely Common Turkic and Bulgar Turkic, or both, had the initial **p*-. This can be shown only if it is supported by the external evidence provided by the adjacent languages. In particular, the loanwords whose reconstructed donor forms correspond to the Common Turkic words containing /š/ and /z/ are of special importance for us. If the existence of **p*- in one or both branches of Turkic cannot be proved successfully, then it should be assumed that Proto-Turkic had only an onset **h*-, as Common Turkic does.

If we can prove that Proto-Turkic had a **p*-, there arises one more question: Why do the daughter languages of Proto-Turkic lack any trace of this onset consonant?

2. TURKIC LOANWORDS IN ADJACENT LANGUAGES INDICATING AN ONSET *P-

In the following section, the linguistic material that is relevant to the prehistoric Turkic *p- is given in a random order. There is a total of fourteen lexical comparisons in differing degrees of reliability. In most cases, these comparisons present “borrowing chains” from Turkic to Tungusic via Mongolic. In others, they hint at ancient ties between Turkic and Yeniseian or Turkic and Samoyedic without any intermediary. Where needed, commentaries are added.

Borrowings of different periods and/or into different recipient languages are numbered successively. Possible scenarios pertaining to the same loan process are marked with the same number followed by different letters.

In this section, <R> is used to denote the consonant that surfaces as /r/ in Chuvash and in related loanwords but as /z/ in Common Turkic. Avoiding the traditional <r₂>, it is intended to keep the neutrality of the notation with regard to the question of rhotacism and zetacism. The same applies to <L> which replaces <l₂>. It is used to denote the consonant that surfaces as /l/ in Chuvash and in related loanwords but as /š/ in Common Turkic. In rare cases, <R> is used to signal the uncertainty of whether the phoneme should be identified with /r/ or /R/.

The vowel signs */ă ă ĭ ĭ ǫ ǫ ü ü/, which appear at coda position in reconstructed Turkic forms throughout the study, do not necessarily signal phonetically reduced vowels. They indicate (probably unstressed) vowels that were dropped in the course of time and were completely lost in historical Turkic. In medial position, on the other hand, the vowel signs */ă ă/ stand for vowels that gave the archphoneme /X/ in historical Turkic and /A/ in Mongolic.

LEXICAL COMPARISON 1

Tu.: CT *öküz* ~ *höküž* ‘ox’ (ED 120; ÈSTJa I 521–523; TMEN §397) < CT **höküž*; Chuv. *văkăr* (Müll. *wukor*) ‘byk’ (ChuvRSI 68) < BT *(h)*ökür*.

Mo.: PM **hüker* ‘bovine, ox’ (N 367; K 143; PhM 311) < PPM **pökür*, cf. Bu 9 *pü[ker]* ‘ox’ (Vovin 2019: 126).

Kit.: Ø

Tg.: Barguzin Evk. *hukur* ‘cow’ (Khabtagaeva 2017: 89) < PEvk. **hökör* ‘Rind’ (Doerfer 1978: 80).³

Remaining lgs.: Hung. *ökör* ‘ox’ (TLH 663–667).

Borrowing(s):

Tu. **pökür* → PPM **pökür* > PM **hüker* ~ **hökör*⁴ → PEvk. **hökör*

Commentary: The Turkic word can be analyzed as a compound of **pög* and **kür*. The Common Turkic cognate of the latter, i.e., **küz* may be linked to PY **kuʔs* ‘lošad’ (Starostin 1995: 240), **kuʔt* / **kuʔs* ‘Pferd’ (Werner 2002: I/457), **kus* ‘horse’ (Fortescue-Vajda 2022: 268).⁵ Tuhan *hös* ‘cow’ (Ragagnin 2013: 359) and WYug. *kus* ‘bovine’ (contaminated with CT *höküž*) (Roos 2000: 313) can be regarded as survivals of CT **küž* ‘cow.’ **pög* survives in CT *ög* ‘four-year-old (animal)’ (ED 99) and CT **högäč* ‘two-/three-year-old ram or sheep’ (Li 2003: 568). The initial **h-* is preserved in Tt. dial. *högeč*, *högüč* ‘1. baharda bir yaşında olan koyun, toklu; 2. iki, üç yaşındaki erkek koyun’ (DS 2428), *höveč* ‘1. yaşına girmiş enenmiş erkek koyun; 2. üç yaşında erkek koyun’ (DS 2439) as well as in Arm. *hogač* ‘gelded ram’ (Dankoff 1995: 183) and Kurd. *hōgač*, *hōgič*, *ōgač* ‘dvuxgodovalyj baran, jalovaja ovca’ (ÈSKJa I 445).⁶ DLT *ög at* ‘four-year-old horse’ shows that *ög* was used mainly adjectivally. The Late Proto-Turkic form may have emerged as a result of the simplification of the consonant cluster **/gk/*: **pögkür* > **pökür*. See Berta (2005: 191–196) for another possible etymology of CT **höküž*.

³ Cf. MT (§156) and SS (II 341) for the other Tungusic forms.

⁴ Cf. Kmg. *üker* ~ *ökör* ‘1. krupnyj rogatyj skot; 2. vol, kastrirovannyj byk; 3. korova’ (KmgRSl 301) for a similar alternation.

⁵ The word has come to mean ‘cow’ in Ket. The Xiongnu juéti 騊豸 **kuti* ‘horse’ must be somehow related to the Yeniseian word family (Vovin 2000: 91). The same transcription is reconstructed as *kuet-dei* < **kwët-dê* by Schuessler (2014: 273).

⁶ In Khaladj, we only find forms without *h-*: *eyäč* (*ūgač*, *ūgač*, *ōwgač*) ‘dreijähriges (männliches) Lamm’ (WCh 112), *ögäč*, *ogäč*, *ögäč* ‘Schaf, 2–3 Jahre alt’ (LSpCh 303–304). As terms of animal husbandry, they must have been borrowed from Azerbaijani (Doerfer 1981: 98). The relationship of Alb. *hokoç* (with variants *hakoç* and *harkoç*) ‘uncastrated boar’ (Orel 1998: 150) to the Turkic word is also questionable.

LEXICAL COMPARISON 2

Tu.: CT *oz-* ‘to outstrip, to escape, to surpass, to precede, to flee’ (ED 279; ÈSTJa I 425; Wilkens 2021a: 520),

Kh. *oʻz-* ‘verlassen’ (LSpCh 304), Kh. *həzzuq* ‘Durchgang’ (LSpCh 293) < CT **hoz-*.

Mo.: PM **horgu-* ‘to flee’ (N 360; K 149, 158) < PPM **poruku-*.

Kit.: Ø

Tg.: Ø

Remaining lgs.: Ø

Borrowing(s):

Tu. **porukū-* (> CT **ozuk-*) → PPM **poruku-* > PM **horgu-*

Commentary: Unexpectedly, the Khaladj verb *oʻz-* does not exhibit **h-*. It must be a loanword from Oghuz languages (cf. Tkm. *oz-*). The noun *həzzuq*, however, secures the initial **h-*. If Chuv. *vara* ‘potom, posle; popozže, nemnogo pogodja’ (ChuvRSI 64) goes back to **(h)or-a*, it also belongs here. Its Common Turkic equivalent *oza*, on the contrary, means ‘formerly, before’ (ED 280).⁷

As no verbal formative **-gU-* is known in Mongolic, the loanword must have originated from an unattested *-(X)k-* derivative of the Turkic verb. Note that Chuvash has numerous *-Āx-* derivatives with no counterparts in Common Turkic (Levitskaja 1976: 172–174). This formative must have been more productive in prehistoric times.

LEXICAL COMPARISON 3

Tu.: CT *üz-* ‘to tear, to pull apart or to pieces’ (ED 279–280; ÈSTJa I 621–622), OU *üz-* ‘abschneiden,’ *yüz-* ‘zerreißen’ (Wilkens 2016: 1099, 1121), Kh. *hüʼz-* ~ *hiz-* ‘zerreißen’ (WCh 133), Kh. *hüz-* ‘zerreißen’ (LSpCh 293) < CT **hüz-*.

⁷ Räsänen (1920: 119) sought the origin of Chuv. *vara* in a form cognate with Tat. *ari* ‘jenseitig; nach, hinter.’ In this etymology, the onset *v-* remains inexplicable. Ramstedt (1922–1923: 14), on the other hand, equated it to the Old Turkic *özä* ‘oben’ which has later come to be transcribed as *üzä* (ED 280–281).

Mo.: PM **hürtesün* ‘scrap, rag, shred; piece, morsel’ (K 158; Khabtagaeva 2017: 141) < PPM **pürüte*.

Kit.: Ø

Tg.: Nercha Evk. *urtasun*, *urtahun* ‘rags’ (Khabtagaeva 2017: 141) (← Mo. *ürtesün*).

Remaining lgs.: Ø

Borrowing(s):

Tu. **pürütä* (-ö?) → PPM **pürüte* > PM **hürtesün* > *ürtesün* → Evk. *urtasun*, *urtahun*

Commentary: In the Altaistic tradition, CT **hüz-* is commonly linked to the Mongolic **hürü-* ‘to rub off (with the hands), to grind, to sharpen, to grate, to file’ (N 371; K 145) (see KWb 459; Ramstedt 1957: 149; Poppe 1960: 12, 111, 132). Poppe (1927: 113), however, compared it earlier with Mo. *üre-* ‘untergehen,’ which can be identified with WM *üre-* ‘to waste, squander; to destroy, ruin, erase, eliminate’ (L 1011). Tekin (1995: 175) also equated the Turkic verb with Mo. *üre-* ‘to destroy, ruin.’ Although both comparisons are phonetically satisfying, the semantic discrepancies are conspicuous. Furthermore, WM *üre-* may underlie a phonetic **üree-* (cf. Ord. *uurē-*), which is the causative of the intransitive base **üre-* ‘to perish, to be destroyed’ (cf. Oir. *üre-*, Kalm. *ürχə*).⁸

If we leave the older comparisons aside, we can see that the Common Turkic nominal derivative *üzük*⁹ ‘broken, torn; piece, fragment’ (ED 285) is more similar in meaning with SH *hürtesün* ‘(geschnittene) Seidenstreifen, Seidenlappen (碎裁帛)’ (Haenisch 1939: 79) and ZY *hürdesü* ‘morceaux (d’argent)/(silver) morsels’ (Kara 1990: 300) than the verbs mentioned above. The base of CT *üzük* is certainly **hüz-*. Yet, it is disputable whether PM **hürtesün* is derived from the aforementioned **hürü-* or **(h)üre-*. Kara (1990: 300) is in favor of the former whereas Khabtagaeva (2017: 141) favors the latter. Interestingly, CT **hüz-* has also similar secondary meanings as **(h)üre-* (see ÈSTJa I 621–622). As plausible as Khabtagaeva’s etymology may seem, it fails to be convincing because the initial **h-* of

8 Bur. *üri-* and Khal. *ürex*, both of which are transitive, contradict this assumption. Either we have a secondary shortening in these languages, or we must posit **üre-* both as a transitive and intransitive verb.

9 Also cf. Tt. dial. *üzük* ‘yıpranmış kumaş ve elbise’ (AD 406), Kaz. *üzik* ‘1. interruption, break, intermission; 2. narrow part of a river; 3. river connecting two lakes; 4. thick felt covering yurt; 5. strait, sound; 6. ragged, torn-off, alienated (from), cut off (from)’ (Shnitnikov 1966: 285), Tel. *üzük* ‘ein abgerissenes Stück, Zwischenraum’ (RI 1895).

**(h)üre-* cannot be established.¹⁰ Furthermore, in both etymologies, it remains inexplicable why the second vowel got syncopated.

After long consideration, I am convinced that PPM **pürüte* ‘rags’ was borrowed from Turkic as a derived noun. This form formally corresponds to CT **hüz-üt*, which is preserved in Tuv. *üzüt* ‘razobščennyj’ (TuvRSI 446).¹¹ Semantically, however, it matches better with *üzük* ‘torn off’ as attested in İrk Bitig (Tekin 1993a: 67). A similar borrowing from Turkic into Mongolic, which contains the formative *-(U)t*, is PM **dalda* ‘hidden, concealed, secret’ < PPM **daluta* ← Tu. **dazută* (-*ö* ?), cf. CT *yaš-ut* ‘hidden, secretly’ (ED 977).

PPM **pürüte* ‘rags’ yielded **hürte.sün* in Proto-Mongolic, and this form got contaminated with **hürüdesün* ‘filings, sawdust,’ a derivative from **hürü-* with *-dAsUn* (Poppe 1991 §144) and the synonym of **hürübtēsün*. As regards PM **hürü-*, it cannot be linked to PTg. **puru-* ‘to cut, to chop, to grind, to break’¹² (SS II 354) as is done by many scholars of Altaistic tendency. The Tungusic word is clearly back-vocalic as is signaled by Man. *furungga* ‘finely cut’ (Norman 2013: 126).

LEXICAL COMPARISON 4

Tu.: CT *ayāz* ‘bright, cloudless’ (ED 276; VEWT 11), WYug. (*aq*) *xayas* ‘jasnoe nebo’ (Malov 1957: 134), Kh. *hayāz* ‘wolkenloser Tag, wolkenloser Wetter’ (WCh 127) < CT **hayāz*; Chuv. *uyar* ‘jasnaja pogoda; vëdro; jasnyj, vedrennyj; yasno; vedrenno’ (ChuvRSI 521) < BT **hayār*.

Mo.: Ø

Kit.: Ø

Tg.: Ø

¹⁰ Kara’s (2009: 323) equation of the preclassical WM *üre-* with Dag. *xur-* ‘to scatter, to sow (seeds)’ is unacceptable. The Dagur verb is probably an analogical formation from the noun *xur* ‘seed.’

¹¹ CT *üzüt* ‘soul’ (ED 281), attested since Old Uyghur, is probably a metaphorical use of the same word. See Özertural (2018: 65–69) for an argumentation in favor of a derivation from *öz* ‘self, spirit’ with *+(X)t*.

¹² See also Nan. *попиыр* ‘pilit’, *raspilivat*’ (Protod’jakonov 1901: 331), Spoken Man. *furumə* [furum] ‘to chop, to cleave’ (Yamamoto 1969 §1730), *fulum* [fu’lum] ‘cut (切)’ (Kim et al. 2008: 71), Bala *p’urun*, Alchuka *p’ulun* ‘丝、菜肉丝’ [shreds, shredded pork with preserved vegetable (a dish)] (Mù Yèjùn 1987: 9).

Remaining lgs.: PY **puʔr* ‘jasnyj (o pogode)’ (Starostin 1995: 75), PY **pʰəλ¹³* ‘klar, schön, heiter (vom Wetter)’ (Werner 2002: I/344).

Borrowing(s):

Tu. **payār* → PY **pʰəλ*

Commentary: The vocalism of the Proto-Yeniseian form is at first sight problematic. Nevertheless, a contraction of the sequence /aya/ is possible. Moksha *aepa* ‘1. rezkij, pronizyvajuščij (o vetre); 2. vetreno, prokladno’ (MRSI 26), which is a loanword from Old Chuvash (Paasonen 1897 §6), exhibits a similar weakening of this sequence. Imbat (C) *hyel, hyel’* and Yugh (C) *fyer* ‘heiter, klar’ (Werner 2003: 132) might also point to a disyllabic origin.

LEXICAL COMPARISON 5

Tu.: OU *özKän ~ yözKän* ‘rain’ (Tezcan 1989), *özkän ~ yözkän* ‘starker Regen’ (Wilkens 2021a: 917), Kangat (Khakas) *üskän* ‘dožd’ (Borgojakov 1973: 113), Tof. *ösken* ‘dožd’ (Rassadin 1971: 214), *ö”sken* ‘dožd’ (Rassadin 2005: 80), Yak. *öksüön* ‘trübes, regnerisches Herbstwetter (mit Schnee)’ (Monastyrjew 2006: 123), Yak. *öhüön* ‘langandauernder Regen’ (Monastyrjew 2006: 124) < CT **hözgän¹⁴* < CT **hözgä-*.

Mo.: Bur. *ühee* ‘1. zatjažnoj dožd’; 2. atr.; *ühee boroo* prolivnoj dožd’ (BurRSI II 361) (← Yak. **ösän*).

Kit.: Ø

Tg.: Orok *nyṗē* ‘morosit’ (o dožde)’ (SS II 44), *nyṗē* ‘morosit’, *sejat’sja* (o dožde)’ (OrokRSI 274), *nyṗəj* ‘dožd’ (melkij)’ (SS II 44), *nyṗəj* ‘melkij dožd’ (OrokRSI 275) < STg. **pörägä-*; perhaps related to the Mankova Ev. *ur’o* ‘syopat’sja, posyopat’sja’ (EEW §12170), Barguzin Evk. *urō* ‘syopat’sja’ (EEW §12171) < NTg. **pörō-* (?).

¹³ Considering the correspondence of PY **pʰəλ* ‘Fischblase, Blase’ (Werner 2002: I/342) and PS **pəʔr* ‘Blase’ (SW 114), it is clear that the Proto-Yeniseian **/λ/* was originally a rhotic consonant. Note that the same lexeme is reconstructed as **pəʔr* (‘~ -r) ‘puzyr’ (rybij)’ by Starostin (1995: 247).

¹⁴ Perhaps related to CT *ögrän ~ örgän* ‘river, brook’ (Róna-Tas 1999) and *özän* ‘river, brook’ (see ÈSTJa I 510–512).

Remaining lgs.: Ø

Borrowing(s):

1. Tu. **pörügä*- → (Mo. →) STg. **pörägä*-

2. Tu. **pörä*- → (Mo. →) NTg. **pörö*-

Commentary: The Old Uyghur alternation of the vocalic onset and /y/ is a clear indication of the Common Turkic **h*-. Yak. *öksüön* comes from a metathesized **öksän* < **ögzän* whereas *öhüön* goes back to the more original form **ösän* < **özgän*. The latter proves that the velar in this word was originally voiced. /ö/ is secured by the Tofan and Yakut forms. All these point to an Early Common Turkic **hözgän*.

As regards the formation of this noun, it is likely to be a derivative with the suffix -(X)n. This formative mostly has a dominant vowel in Old Uyghur. However, there are contrary cases such as OU (Maitrisimit) *yaru-n* ‘dawn, daybreak’ and (Kšanti Kılğuluk Nom Bitig) *kišä-n* ‘horse’s hobble, fetters’ where the archiphoneme of the suffix is non-dominant. **hözgän* must be one of these cases. If so, its verbal base has the form **hözgä*- ‘to rain.’ This form is, in my opinion, related to STg. **pörägä*-, which surfaces as *nyṗä*- in Orok.

Although the relevant words in Turkic and Southern Tungusic are poorly attested, the comparison is phonologically and semantically impeccable.

Regarding the Northern Tungusic forms, it is difficult to identify their origin. If they indeed go back to **pörö*-, they may be related to the base of **hözgä*-, which is to be analyzed as **höz-üg+ä*-, cf. *kur(u)g+a-* and *tat(ı)g+a-* as similar derivatives (OTWF 421, 423–424). DLT *özük* ‘any land that is swampy or flooded’ (CTD I 111) may be the otherwise unattested base of **hözgä*-. If so, it must be read as *özüg* and separated from *üzük sūw* ‘an arm of a river’ given under the same entry.

LEXICAL COMPARISON 6

Tu.: Talas 3 *oš* ‘vnutr’ (Batmanov 1971: 12–13, 51), Īrk Bitig *oš* ‘abdomen, internal organs, intestines’ (Tekin 1993a: 61), DLT *oš*¹⁵ ‘the heart, centre (*qalb*) of a tree-trunk, branch or horn’ (ED 255), FZG <’NY> recte: <’ŠY> *oš*¹⁶ ‘intestines (iškanbeh)’ (Dankoff 1987: 12), Yak. *osoyos* (< **ošakač*) ‘Bauch, Darm’ (Böhtlingk 1851: 26), *ot is* (< **oš ič*) ‘část černyx vnutrennostej u konnago skota’ (Pek. II 1894), *is-ös* (< **ič oš*) ‘život’ (Pek. I 961) < CT *(h)*oš*.

Mo.: Ø

Kit.: Ø

Tg.: Ø

Remaining lgs.: PY *pɔʔɔ́le* ‘žirnyj’ (Starostin 1995: 251), PY **p^holə* ‘fett’ (Werner 2002: I/327), PY **powtə* ‘fat’ (Fortescue-Vajda 2022: 270).

Borrowing(s):

Tu. **polā* → PY **p^holə*

Commentary: For the Proto-Yeniseian word, a semantic development of ‘stomach, intestines’ > ‘fat, fatty’ must be assumed. Seeing Latin *aruīna* ‘fat, lard’ going back to the Proto-Italic **arow-i-* ‘entrails’ (de Vaan 2008: 56) as well as Old Prussian *instran* ‘fat’ related to the Proto-Slavic **ętrò* ‘liver, entrails’ and Sanskrit *āntrá-* ‘intestine’ (Derksen 2015: 558–559), such a change would not be unparalleled. The weakest point of this comparison is, however, that the Turkic word has not been attested with **h-*.

LEXICAL COMPARISON 7

Tu.: CT **kuñāš* ‘the blazing heat of the (midday) sun, the sun’ (ED 679) < CT *kün* ‘sun’ + *(h)*āš* ‘heat,’ Chuv. *xěvel* (Str. *kuell*, Müll. *chwel*) ‘X propisnoe Solnce, solnečnyj; solnce, solnečnyj’ (ChuvRSI 551) < BT

¹⁵ Read as *oš* ‘the core (*qalb*) of a tree or branch or horn’ by Dankoff & Kelly (CTD I 89).

¹⁶ The word must be regarded as a 3SG possessive form.

**kuñāl* < BT **kūn* ‘sun’ + **(h)āl* ‘heat;’ CT **čōgāš* (later assimilated to **čōgāč*) (Yak. *suos*) ‘heat (of the sun)’ (Kałużyński 1962: 189) < CT *čōg* ‘heat’ + **(h)āš* ‘heat.’

Mo.: WM *asa-* ‘to burn, catch fire, ignite, burn’ (L 55), CM *asa-* ‘to catch fire, burn, flame up’ (Sūn 1990: 121), Kmg. *asaxu* ‘zažigat’ sja, zagorat’ sja, oxvatyvat’ – o plameni’ (KmgRSI 28).

Kit.: Ø

Tg.: Ø

Remaining lgs.: PY **p^hal* ‘heiß, warm’ (Werner 2002: I/276).¹⁷

Borrowing(s):

1. Tu. **pāl* → PY **p^hal*

2. CT **(h)āš+a-* → Mo. *asa-*

Commentary: In this comparison, a nominal root that has never been directly attested is assumed to have existed. It probably lives on in CT **kuñāš* and **čōgāš*. Berta (1997) asserted that the former goes back to a compound of *kūn* ‘sun’ and **yaš(i)* ‘heat.’¹⁸ This cannot be true if **čōgāš* is also taken into account as a similar compound.¹⁹ Instead, I presume that the second part was **(h)āš* with the meaning of ‘heat.’ The palatalization of /n/ may have arisen as a compensation for the assimilation of /ü/ to /u/ due to vowel harmony.²⁰ For the same reason, *kūnāš*, a variant of **kuñāš* in which the assimilation was progressive, does not exhibit any palatalization.

¹⁷ Including the Ket and Yugh words into the word family, Werner (2002: II/56) gave a completely different reconstruction, namely **ap^hə(l)*. This comes near to Starostin’s (1995: 182) reconstruction **ʔapV* ‘žara, žar; pot’ (further **ʔapV-l* ‘teplyj, žarkij’ for Kott and Arin). Instead of assuming an irregular aphaeresis in Kott, Assan and Arin, it is more appropriate to assume two distinct roots.

¹⁸ Seeing that its verbal derivatives *yaši-* and *yašu-* revolve around the idea of ‘light’ and not the ‘heat,’ **yaš* must have rather signified ‘shine, light, illumination.’

¹⁹ Eren (1999: 97a) considered *čogač* as the primary form and *+ač* as a suffix. Tezcan (2020: 86) instead remarks that the morphology of the word is obscure.

²⁰ **(h)āš* might have had an early variant in **yāš* which palatalized the coda consonant of *kūn*. The examples of such a palatalization of **h-* in front of /a ā/ are very rare: OU *amrak* ‘lieb; Liebe; Geliebte(r), Liebe(r)’ ~ *yimrak* ‘liebenswürdig’

Even though its onset **h-* cannot be confirmed, this root agrees with the Proto-Yeniseian **pʰal*. A verbal derivative of the Common Turkic noun formed with the denominal formative *+A-* may be the origin of the Mongolic verb *asa-* ‘to catch fire, to burn’ attested in Written Mongol and modern central Mongolic languages.²¹

There is, however, a problem regarding the Bulgar Turkic **kuñāl*. This form, in my opinion, must have been influenced by its Common Turkic cognate. Otherwise, it must be surmised that the Proto-Turkic form **kün paX(i)* has developed almost identically in Common Turkic and Bulgar Turkic independently of each other. Considering the emergence of the palatal nasal in both branches, this scenario seems quite unlikely to me. The assumption of an early contact between both branches is inevitable.

LEXICAL COMPARISON 8

Tu.: CT *idiš* ‘cup, vessel’ (ED 72, ÈSTJa I 328–329), KB *ïdiš* ‘kap’ ~ *ïdiš* ‘kadeh, tas, bardak, içki’ (Arat 1979: 182, 188), Kaz. *ïdiš* ‘vessel, plates and dishes, kitchen utensils’ (Shnitnikov 1966: 241), Kklp. *ïdiš* ‘posuda; tara’ (KklpRSI 753), Yak. *isit* (< **itis*) ‘Gefäß’ (Böhtlingk 1851: 39), Kh. *hidış* ‘Gefäß, Behälter’ (WCh 131) < CT **hidiš*.

Mo.: WM *pila* (Khal. пѣл) ‘plate, dish’ (L 649) (← Man. *fila*), Dag. *xila* ‘bljudo’ (Ivanovskiy 1982: 54), Dag. *χ’ila* ‘bljudo’ (Kałużyński 1969–1970: 139), Dag. *xila*: ‘盥’ [plate, dish] (Enkhbat 1984: 114) (?← Kit. **pilia*).

Kit.: Kit. 匹裂 **pilia* (**pilia* / **pile*) ‘a small wooden pitcher / drinking cup (小木罍)’ (Vovin 2003a: 243; Shimunek 2007: 88; Sūn & Niè 2008: 92).

Tg.: Jur. *fila* [非刺] ‘dish (櫟)’ (Kiyose 1977: 110), Jur. *fila* [非刺] ‘plate (櫟)’ (Kane 1989: 249), Man. *fila* ‘a plate’ (Norman 2013: 114), Spoken Man. *filaa* [fila] ‘dish, plate’ (Yamamoto 1969 §566), Sol. *ilā* ‘tapelka,’ Oroch *pilē* ‘tapelka,’ Udh. *pilai* ‘tapelka (melkaja),’ Ulch. *pili(n-)* ‘tapelka,’ Nan. *pilia* (Kili *falga*, Bikin *fil’e*)

(Wilkens 2016: III/912, 1114), OT *alpagut* ~ *yilpagut* ‘warrior’ < **halp* (transcribed as hé 合 and hēlà 賀臘 in Chinese sources) (Kasai 2014: 122); OT *āl* ‘device, trick, deceit’ (ED 120) ~ **yāl* (cf. Tuh. *yalda-* ‘to deceive’) > **jāl* → WM *jali* ‘ruse, craft, cunning, trick, deceit’ (L 1031) and CT *alay* ~ *yalay* > *jalay* (in Tatar dialects and Altai) ‘level open ground, high ground’ (ÈSTJa I 134–135).

²¹ The Old Turkic formative *+A-* forms both transitive and intransitive verbs.

‘1) tapelka; 2) čaška, miska’ (SS I 303) < PTg. **pila* ~ **pilia* ~ **pilai* ‘wooden vessel, formed like a cask’ (EEW §5045).

Remaining lgs.: PS **petâ* ‘(irdenes) Gefäss’ (SW 122).

Borrowing(s):

1. Tu. **pidälä* → Kit. **pidala* > **pilala* > **pila* → PTg. **pila* (~ **pilia* ~ **pilai*) > Man. *fila* → WM *pila*
2. Tu. **pidälä* > **pidälä* → PPS **petâl’(e)* > PS **petâ*

Commentary: The change of the intervocalic /d/ to /l/ in Kitan has to date remained unnoticed. It occurs at least in three Kitan words in Chinese transcription and in the Kitan Small Script.

Kit. 雅魯 **ñalu-* ‘to bow and dance (拜舞)’ (Vovin 2003a: 241; Shimunek 2007: 86) < **ñadu-*, cf. PM *naad-* ‘to play’ (Mog. *nɔtu-* ‘to dance’) (N 450).

Kit. 札刺 **jala*, 只刺里 **jilar(i)*, 阡腊 **jala* ‘行人、通事’ [pedestrian, interpreter] (Sün & Niè 2008: 124–125) < **jadag*, cf. OT *yadag* ‘pedestrian, on foot’ (ED 887).

Kit. 兀土卡 [028.067.041] <š.eu.r> **šeur* ‘dew (露)’ < **šiyüler* < **sigüder(i)*, cf. PM **siüderi(n)* ‘dew’ (N 498).

Indirect evidence is also offered by PTg. **nurga* (Man. *nuġan*) ‘fist’ (MT §197) that relates to Mo. **nīdurga* ‘id.’ and Tu. *yīdruk* ~ *yudruk* ‘id.’ The loss of /d/ must have taken place in Kitan following its change to /l/: Tu. **nūdurukä* → Kit. **nūdurga* > **nūlurga* > **nurga* → PTg. **nurga*.²²

This sound change also explains how the Kitan **pidala* became **pila*. After the change of /d/ to /l/, the intermediate form **pilala* has been simplified through haplology.

PS **petâ*, without any Uralic etymology, probably goes over **petâj* ultimately back to **petâl’(e)*. I assume that this form was borrowed from the palatal variant of **pidälä*. Tu. **pidä-*, possibly the verbal root from which Tu. **pidälä* is derived, may be related to PS **pät-* ~ **pätz-* ‘in den Topf legen’ (SW 118).

²² Doerfer (1988: 220) explained the loss of the intervocalic /d/ in Manchu as an assimilation (**nūdurga* > **nūdrġa* > **nurga* > *nuġan*) whereas Doerfer (2001: 201) as an analogy to or a contamination with Tg. *čurga* ‘fist’ (SS II 416).

LEXICAL COMPARISON 9

Tu.: CT *ūküş* ~ *üküş* ~ *yüküş* ‘many’ (ED 118), Osm. *ügüş* ~ *yügüş* ‘çok’ (TS 3069–3072), IM *yüküş* ‘mnogočislennyj, mnogo’ (Melioranskij 1900: 118), RH *yüküş* ‘much’ (KD 268), Tt. dial. *öğüş* ‘çok’ (DS 3323) < CT **hūküş*, VB *ekil* ‘viel’ (Erdal 1993: 143) < BT **(h)ükül*, cf. OU *‘wyswd-’* *üşüd-* (recte *üşüt-* ?) ‘(for stream) to grow bigger, to get stronger’ (Zieme 1975: 113); Tuñ. 8 𐰽𐰺 *üş(ü)g* ‘grown in number’ < CT **(h)üşü-*.

Mo.: PM **hüle-* ‘to remain, to be left’ (N 368; K 140), PM **hüleü* ~ **hileü* ‘superfluous, more than; surplus, excess’ (N 368) < PPM **pülü-*.

Kit.: Kit. 𐰽𐰺𐰸 *ṗ=ul=u₂* ‘intercalary (of months) (閏)’; **extra/surplus/excess*’ (Shimunek 2007: 89), 𐰽𐰺𐰸 *ṗ.wl.u* ~ 𐰽𐰺𐰸𐰺 *ṗ.wl.u^w* *pulu* ‘intercalary (閏)’ (Shimunek 2017: 362), 𐰽𐰺𐰸 *ṗ.ul.uh* *puluğ* ‘intercalary month, surplus’ (Wu & Róna-Tas 2019: 69).

Tg.: PTg. **pülä-* ‘to remain, to be in excess’ (SS II 364–365; MT §38; EEW §11656), cf. Man. *funče-* (< **fule-če-*) ‘to be left over, to be in excess’ (Norman 2013: 125), Jur. *funče-* (< **fule-če-*) ‘to remain’ (Kiyose 1977: 137), Jur. 蒲里 (蒲烈) **puli* ‘强、优、有余’ [extra, abundant, surplus] (Sün 2004: 243).

Remaining lgs.: PS **pü-* ‘laichen’ (SW 132).

Borrowing(s):

1. Tu. **pülü-* → PPM **pülü-* (> PM **hüle-*) → PTg. **pülä-*
2. Tu. **pülü-* → PPS **pül’ü-* > PS **pü-*

Commentary: The voiceless velar in CT *ūküş* is secured by the runiform, Tibetan and Brāhmī spellings of the word. The base of *ūküş* ~ *yüküş* has been mistakenly assumed to be †(*h*)*ük-* ‘to heap up, to accumulate’ (ED 118; OTWF 267). However, Doerfer (1981: 120, 134) and Tekin (1993b) demonstrated that this verb should be read as (*h*)*üg-* with a short vowel (cf. Tkm. *üv-*) and pointed out that *ūküş* cannot be derived from it. DLT *ūküş* (only once), Osm. *ügüş* ~ *yügüş*, IM *yüküş*, RH *yüküş* and Tt. dial. *öğüş*, on the other hand, point to a long vowel with an onset **h-*, namely **hūküş*. Doerfer (1981: 134) also gave this word as *ūkəš* and stated that its base must be reconstructed as **ūk-* or **hūk-*.²³

23 Unfortunately, Shor *üktü-* ‘sich vermehren’ cannot be segmented as *ük-tü-* as Doerfer did. It is simply a survival of OT

CT **hūkūš* is, in my opinion, metathesized from **hūšük* whose base is **hūšü-* ‘to grow, to increase.’ This root may have been preserved in OU (Ernte 24) *üšü-d*²⁴ ‘(for stream) to grow bigger.’ Zieme (1975: 142) and, following him, Wilkens (2021: 830) read and interpreted this verb as *üšüt-* ‘vereinigen (?)’, assuming that it might be a causative form of *üš-* ‘to crowd together, collect in a crowd’ (ED 256). Röhrborn (UW 81b; UW Nb II/1: 80, s.v. *akin*) read and translated the verb as *üšütmiš* ‘gekühlt’ and so identified it with *üšüt-* ‘to chill (someone or something)’ (ED 258). Erdal (OTWF 792) agreed with Röhrborn on this identification. Ayazlı (2016: 424n.), on the other hand, emphasized that the verb must have signified ‘büyütmek, çoğaltmak’ and embraced the interpretation *ös-üt-* ‘wachsen lassen’ proposed by Semih Tezcan and mentioned by Zieme (1975: 142). Identically spelled and occurring in a similar context, which involves flowing of waters, another instance of *üšüd-* is found in the fragment SI 5594 (Kr IV 267), albeit interpreted as ‘kühlen’ by Zieme (2020: 650): (1) *||kāmīš sävinč-lig akm[ɫ]š s[uv]-l[ar] baš-l[ar]y[uu]l-l[ar]* (2) *||y tökünü tökünü üšütü turur [...]*.

Another word derived from the verbal root **hūšü-* may be hidden in the eighth line of the Tuñukuk inscription if the square-shaped letter is interpreted as having the sound value of *wš*: **𐰽𐰺** *üš(ü)g* ‘grown in number, increased.’ Elsewhere (Ünal 2013), I interpreted *wč^wk* in the same line as *oçuk* ‘diminished, decreased’ and linked it to the DLT (Oghuz) *ūč* (read: *ōč*) ‘the depletion (nafāḍ) of a thing’ (CTD I 94) and Yak. *uohun-* (< **ōču-n-*) ‘1. allmählich verschwinden (z.B. Reichtum); 2. erlöschen, nachlassen, zu Ende gehen (z.B. Geist, Interesse, Geduld usw.)’ (Monastyrjew 2006: 184). The whole sentence in Tuñ. 8 can be then interpreted as follows: ‘The enemies around (us) were as if they were diminished [but] we [instead] have grown in number.’ The Old Turkic *üš(ü)g* corresponds exactly to PM **hüleü*, which goes back to PPM **pülügi*.²⁵

VB *ekil* is unexpected. If the initial form were **hūkūl*, its regular reflex would be **wekil*. A sporadic unrounding of the vowel in the first syllable may account for *ekil* if the initial form is

ükli- (ED 107).

24 *-(X)d-* is added in one further instance, namely *uyad-* ‘to be ashamed,’ to a disyllabic verbal base (OTWF 643–644).

25 Another possible reading for **𐰽𐰺** is *(ä)š(i)g*, which could be related to the common base of Tat. *išlē* ‘numerous,’ *išäy-* ‘to multiply’ and Yak. *ihägäy* ‘generous, virtuous.’ Its Bulgar Turkic equivalent may be the source of Hung. *elég* ‘enough, sufficient.’ However, if the letter **𐰽** simply had the sound value of *š*, it becomes unclear why particularly this rare letter was used here.

reconstructed as **hüküül* with a short vowel. As already implied under (7), the parallel metathesis points to an early contact between Bulgar Turkic and Common Turkic.

The semantic difference between the Turkic and Mongolo-Tungusic forms is obvious. For the polysemy of ‘to grow, to increase’ and ‘to remain, to be left over,’ the Turkic verb *art-* may be given as an example. The Uyghur instances of the verb clearly attest to both meanings (UW Nb I/1: 76–77). See Röhrborn (2006) and Erdal (2012) for a different interpretation of the semantic change.

The Proto-Samoyedic **pü-* has no Uralic etymology. Nonetheless, some phonological and semantical difficulties arise if we wish to consider it a loanword from Turkic. Yet it may still be related if it goes back to PPS **pül’ü-*.

LEXICAL COMPARISON 10

Tu.: CT *ariš* (~ *arič* ~ *arač* ~ *ärč* ~ *eriš* ~ *iriš*) ‘1. oglobli, ogloblja; dyšlo; bokovoj šest na kuzove telega; verxnjaja čast’ arby vmeste s oglobljami; ostov (telegi); seredina dvuxkolesnoj arby, gde sidit čelovek; 2. vysšaja stupen’ plemennogo delenija; krupnoe rodovoe ob’edinenie, gruppa rodov, ob’edinennyx obščim proisxoždeniem; otdel plemeni; 3. lestnica; 4. pograničnyj kamen’, pograničnyj znak; 5. suprug’ (ÈSTJa I 189–190), Krmch. *iriš* ‘shaft / ogloblja’ (Ianbay 2016: 100) < CT **hariš* (**hāriš*?).

Mo.: PM **aral* ‘shaft of a cart’ (N 271); Dag. *p’ára* ‘sani’ (Ivanovskiy 1982: 41), Dag. *pār* ‘爬犁、雪橇’ [sledge, sleigh] (Enkhbat 1984: 89).

Kit.: Ø

Tg.: PTg. **para* ‘Deichselstangen’ (B 18; SS II 316–317), cf. Spoken Man. *farə* [far] ‘shaft’ (Yamamoto 1969 §1252), Bala *p’alai*, Alchuka *p’alia* ‘雪橇、车辕’ [sledge, shaft of a cart] (Mù Yējùn 1987: 9).

Remaining lgs.: Tabg. báliélán 拔列蘭, báliélán 拔烈蘭 **parialan* ‘beam, joists (梁)’ (Chen Hao 2020: 533).

Borrowing(s):

1. Tu. **parǎlǎ* → Tabg. **parialan*

2. Tu. **parǎl* → Tabg. **paral* > **para* → PTg. **para* → Dag. *para* ~ *pār*

3. Tu. **harül* (or **harǎl*) → PPM **aral*

Commentary: Clauson (1962: 234n.; ED 239) regarded the Turkic word as a loanword from the Arabic ‘*arīš* ‘bewachsene Laube, Gartenlaube; Hütte aus Zweigen; Bude; Geländer (für Weinstöcke); Deichsel’ (Wehr 1985: 827). It is true that the word occurs only in those languages that had direct or indirect contact with Arabic. However, Doerfer (TMEN §454) argued against Clauson and deemed a borrowing from Arabic unlikely because of the short vowel in Turkmen and the spelling of the word with ‘*alif*’ in Turkic sources written in Arabic script.

Even though the Turkmen form does not contain a long vowel in the first syllable, the Common Turkic form may be reconstructed as **hārīš* if it is taken to be cognate with **hāra* ‘between’ that yielded Kh. *hāⁿra* ‘Abstand, Intervall, Zeitspanne, Zwischenraum’ (WCh 122). Another derivative from the same hypothetical base **hār-* surfaces as *arīt* ‘Entfernung’ in Yakut (Stachowski 1993: 42) and *arīt* ‘1. **Zwischenraum*; 2. dünnstehend, gelichtet [Wald], licht [Bäume]’ in Dolgan (Stachowski 1998: 34).

Shimunek (2017: 135, 361) considered the Tabgač surname disyllabic as is given by Eberhard (1949: 317) and reconstructed it as *pary-al*, which he connected to the Mongolic verb **bari-* ‘to build, to construct.’ Chen Hao (2020: 533n.), however, remarks that the sources other than *Weishu* 魏書 give the Tabgač surname as *bálièlán* 拔列蘭 and *bálièlán* 拔烈蘭. The Later Han pronunciation of both transcriptions is *bat-liat-lan*²⁶ (Schuessler 2007: 153, 343, 357–358), which obviously renders the Tabgač form **parialan*.²⁷ The Chinese *Liáng* 梁 that replaced this surname offers only an approximate meaning. In my view, the Tabgač form means ‘shaft,’ and it originates from the Turkic **parāġā* (> CT **harīš*).

26 The Old Northwest Chinese pronunciation of 拔 is given as **bāt-* by Coblin (1994a §662). It is employed to transcribe the Indic syllable *-bal-* in the translation of *T 1* completed at Chang’an in 413 (Coblin 1994b: 167 §25.1). The rendering of the Tabgač **p-* by the Chinese initial *b-* is unexpected. The same character is also used in the transcription of the ethnonym *Tuóbá* 拓拔 which surfaces as *Tavgač* in Old Turkic. This also points to an earlier /b/. Even though the Northwestern Medieval Chinese exhibits a change of *b-* > *p^h-* (Anderl & Osterkamp 2017: 223), its emergence, as far as we can trace it, is more recent. The choice of the character 拔 ‘to pull up; to pull out’ in the transcription of the surname may be explained through its semantics. Another possible explanation is that the opposition of strong and weak consonants in the onset was weakened in Tabgač.

27 Concerning the Chinese final consonants, I follow the reasoning put forward by Vovin (2007 §11, §13).

As regards the Proto-Tungusic form, it cannot be reconstructed as **pāral* as is done by Benzing (B 18). The attested forms can only be traced back to **para*. This may have been borrowed from a second Tabgač form in **para* going back to **paral* whose origin lies in a younger Turkic **parāl* (< **parālā*).

The loss of coda liquids in Tabgač can be exemplified by **mukolo* (rather **mokolo*) ‘bald head, baldy’ (Vovin 2007: 200–202), which comes from an older **mukolor* and corresponds to SH *muqular* ‘hornlos, ungehörnt, Stumpfhorn (Rind)’ (Haenisch 1939: 111), related in turn to PM **muku-r* ‘blunt, hornless’ (N 449).²⁸ Tabg. **mukolo* is the donor form of Man. *moholo* ‘a hornless castrated bovine’ (Norman 2013: 267). Shimunek (2017: 148) is right when he sees a constraint against **lVr* in Tabgač which probably also applied to the reverse sequence **rVl* and changed **paral* to **para*. In all Mongolic languages of the Qinghai-Gansu region, the very same sequence leads to simplifications when it is found in the middle of words (N 42n.).

LEXICAL COMPARISON 11

Tu.: DLT *üšā-* ‘to search carefully’ (CTD II 281), TĪEM 73 *üšā-* ‘1. eşelenmek; 2. dalmak’ (Kök 2004: 642; Ünlü 2004: 716), RQ *üšā-* ‘eşmek, eşelemek’ (Ata 2004: 728), Tuv. *üže-* ‘to search’ (Anderson & Harrison 2003: 98), Kh. *hüšā- ~ hišā- ~ šā- ~ šö-* ‘wollen; lieben’ (WCh 194; LSpCh 293, 311) < CT **hüšā-*; RQ *üš-*²⁹ ‘aramak, araştırmak’ (Ata 2004: 728), Tt. dial. *üş-* ‘eşmek, kazmak’ (DS 4078), Tt. dial. *hüşgü et-* ‘bir şeyi karıştırmak, altını üstüne getirmek’ (DS 2452) < CT **hüş-*.

Mo.: Ø

Kit.: Ø

Tg.: Ø

Remaining lgs.: PS **pe-* (? **pej-*) ~ **pö-* ~ **pü-* (? **püj-*) ‘suchen’ (SW 119; Helinski 1997 §308).

Borrowing(s):

Tu. **pülā-* → PPS **pül’e-* > PS **püj-* ~ **pü-*

²⁸ Shimunek (2017: 147–148, 354) also related the Tabgač word, albeit given as **muqul*, to the same Middle Mongol word.

²⁹ Eckmann (1976: 316) read and translated this verb as *üšā-* ‘to search, seek, inquire curiously, spy.’

Commentary: For the Proto-Samoyedic word, no Uralic etymology has been proposed yet. The comparison of the Turkic and Proto-Samoyedic forms is phonetically and semantically unproblematic. I regard CT **hüşä-* as a derivation from CT **hüş-*. The best instance of the rare verbal formative *-A-* in Old Turkic is *tara-* ‘to disperse; to be dispersed’ (CTD II 285; Zieme & Kara 1979: 110; Zhang & Zieme 2011: 146) derived from *tār-* ‘to disperse’ (ED 529). The possible existence of an ‘*-A-* expansion’ has already been discussed by Erdal (OTWF 524, 675). Erdal rightly stated that this remains only a possibility until a certain example of the Uygur *tara-* is attested. We now have such an example in Zhang & Zieme (2011: 138) and may firmly posit an unproductive *-A-* in prehistoric Turkic. CT *irä-* ‘to be distant; to keep away (from something *Abl.*)’ (ED 190) may also contain the very same formative if its base is taken to be CT *ir-* ‘to part, to separate, to send away,’ which is attested since Middle Turkic and best preserved in Osm. *ir-* ‘1. ayırmak, cüda kılmak; 2. ayrılmak, geçmek, uzaklaşmak’ (TS 1969–1972) and Tt. dial. *ir-* ‘uzaklaştırmak, ayırmak, kovmak’ (DS 2488).

LEXICAL COMPARISON 12

Tu.: OU (AYS) *äšin* ‘Stiel (von Pflanzen) (?)’ (UW Nb II/2: 304) < CT **(h)äšin*, cf. Osm. *işkin* ‘filiz, sürgün’ (TS 1992), Osm. *işkin* ‘tendril’ (Dankoff 1991: 45), Tt. dial. *işkin* ‘asmanın taze sürgünü, fışkın, asma bırığı’ (AD 182), Tt. dial. *eşkin* ~ *eşgin* ~ *eşkin* ‘filiz, sürgün’ (DS 1793–1794), *işgün* ~ *ičgün* ~ *ičkin* ~ *işkin* ‘bir yıllık ağaç sürgünü’ (DS 2494) < CT **häsKin* (?).

Mo.: PM **hesi* ‘handle, grip; stalk’ (N 354; K 139), cf. WM *esi* ~ *isi* ‘trunk of a tree, stem of a plant, stalk, slip, graft, shoot, scion; grip, handle’ (L 334) < PPM **pesi*.

Kit.: Ø

Tg.: PTg. **päsin* ‘handle’ (SS II 371; B 44; EEW §3581, §3715, §8385, §9001).

Remaining lgs.: Ø

Borrowing(s):

Tu. **päšin* → PPM **pesi* → PTg. **päsin*

Commentary: The Mongolo-Tungusic cognate set has been compared with **ās* in CT *āsiki* ‘old’ and Chuv. *aslă* (< **āslig*) ‘big, old’ by Ramstedt (1916–1920 §13). Pelliot (1925: 246) rightly deemed this comparison as “moins sûr.” Röhrborn (UW Nb II/2: 304), on the other hand, connected the very same cognate set with the Old Uyghur hapax *āšin*. As the Old Uyghur word occurs with *kuluŋa* ‘offshoot,’ it is also possible to interpret it as ‘offshoot,’ and not as ‘stalk (of plants),’ and to relate it to Osm. *iškin*. The correspondence of the Ottoman Turkish /i/ to the Old Uyghur /ä/ is irregular. The Ottoman form also exhibits an additional /k/ whose origin is unknown. Even if it may be regarded as a derivative from the same base, the identity of the bases is far from being certain. On the other hand, the occurrence of *iškin* ‘Mönchsrhabarber’ in Evliya Çelebi’s *Seyahatname* (Boeschoten 2012: 32), which goes back to the Old Turkic *išgun* ‘rhubarb’ (ED 259), proves that *iškin* ‘tendrils’ is not identical with it.

As is already noted by Röhrborn (UW Nb II/2: 304), the possibility that the Old Uyghur hapax may simply be a scribal error should also be taken into account.³⁰ Even if this is the case, a Turkic noun corresponding to the Mongolo-Tungusic cognate set can be found elsewhere. I think that CT *ešič* ~ *āšič* ‘an (earthenware) cooking pot’ (ED 257),³¹ without any solid etymology, may have been derived from **āši* ‘handle, grip.’³² Tt. dial. *kulplu* ‘dibi geniş, üstü dar, iki kulplu toprak kap’ (DS 4571), derived from *kulp* ‘handle, grip,’ is a good semantic parallel. There are also other transparent and opaque names for containers and utensils ending in +(A)č, e.g., CT *bak(i)rač* (< *bakir* ‘copper’) ‘small copper pail, copper tray’ (see ÈSTJa II 45–47), OT *bukač* ‘a jar or cooking pot of clay’ (ED 312), *kamič* ‘ladle’ (ED 626), *küzäč* ‘a jug or a vessel’ (ED 757), cf. MP *qwz* /küz/ ‘jug’ (?) (Durkin-Meisterernst 2004: 215). Tt. dial. *išle-* ‘fidan sürgün vermek, fidanın filizleri sürmek’ (Aksoy 1945–1946: III/435), which is a hapax, *might* be related to the hypothetical **āši* provided that it also meant ‘shoot, sprout, scion’ as WM *esi* ~ *isi* does. Unfortunately, neither the given etymology of *ešič* nor its onset **h-* can be confirmed.

³⁰ The word has already been emended to *ičinin* by Bang & Gabain (1928: 252) and Çetin (2020: 281, 399) and to *ičiniŋ* by Tezcan (BTT 3: 73n.).

³¹ See also OU *ešič* ‘Kessel, Topf’ (Wilkens 2021a: 264), QA *āšič* ‘cooking pot (hung in the *tannūr*)’ (Boeschoten & O’Kane 2015: 606), FZG *āšič* ‘earthen pot (dığ-i gilīn)’ (Dankoff 1987: 5), RH *isič* ‘cooking pot’ (KD 146, 278).

³² Stachowski (1993: 62–63) derived his Proto-Turkic **āšič* from **aš* ~ ? **āš* ‘food’ and assumed a secondary palatalization because of /š č/.

LEXICAL COMPARISON 13

Tu.: CT *äš*- ‘to dig; to row’ (ED 255–256), Kh. *häsü*- ‘graben, ausgraben’ (WCh 130)³³ < CT **häs(ü)*-; Chuv. dial. *al*- ‘paxat’ nov’ (ChuvRSl 29) < BT **äl*-, Chuv. *alt*- ‘1. kopat’, ryt’; 2. dolbit’, vydalblivat’ (ChuvRSl 31) < BT **äl-it*-.

Mo.: precl. WM *ete*- ‘to extirpate (?)’ (Cleaves 1949: 85, 108), WM *ete*- ‘to pick, to pluck out’ (L 335), WM *etege*- ‘to scratch’ (L 1222), Khal. *etex* ‘to pick or pluck out; to dig out; to instigate’ (Hangin 1986: 863–864), Bur. *etexe* ‘otgrebat’; otmetat’ (BurRSl II 681), Kalm. *etχə* ‘kratzen od. in der erde graben (nicht tief), schaufeln, pflügen’ (KWb 128), Kmg. *ete*- ‘otgrebat’; otmetat’ (KmgRSl 357), EYug. *hte*- ‘掘’ [to dig] (Bolčuluu et al. 1984: 60) < PM **hete*- (cf. Ramstedt 1916–1920 §14; MT §696) < PPM **pete*-.

Kit.: Ø

Tg.: Man. *fete*- ‘1. to dig, to dig out, to dig up; 2. to criticize; 3. to analyze, to scrutinize’ (Norman 2013: 112), Spoken Man. *fetəmə* [fɛtəm] ‘to dig’ (Yamamoto 1969 §1743), *fətəm* [fə’təm] ‘dig (挖)’ (Kim et al. 2008: 70), Nan. (Bikin, Kur-Urmi) *fete*- ‘kopat’ (SS II 305) < PTg. **pätä*-.

Remaining lgs.: Ø

Borrowing(s):

1a. Tu. **päšä*- → PPM **pese*- > **pete*- → PTg. **pätä*-

1b. Tu. **pät₂ä*- → PPM **pete*- → PTg. **pätä*-

Commentary: The correspondence of the Mongolic /t/ to the Turkic /s š/ is also attested in the following words: PM **itege*- ‘to believe, trust’ (N 377) ← Tu. **išä*- > CT *išän*- ‘to trust, believe in, rely on’ (ED 264), PM **budaj* ‘mist’ (N 289) < **butaj* ← Tu. **būsay* > Tt. dial. *pusañ* ‘sis’ (DS 3489), cf. CT *būs* ‘mist, fog’ (ED 370), Chuv. *päs* ‘par, parovoj’ (ChuvRSl 280).

Elsewhere (Ünal 2017: 32–33), I have argued for a change of **s/* to */t/* in prehistoric Mongolic. As this might still be true, I consider it possible that in this case we may be dealing with a transitory sound in Turkic. The consonant that I transcribed as *t₂* above is likely to be the missing link between */l/*

33 Despite Doerfer (WCh 130), KB 5212 *äšü*- (Arat 1947: 519) cannot be identified with CT *häs(ü)*- ‘to dig.’ It is certainly an instance of CT *äšü*- ‘to cover, envelop’ (ED 256).

and /š/. PY **kətə* 'winter' (Werner 2002: I/475; Werner 2006: 126), a possible loanword from a cognate form of CT *kış* 'winter' and Chuv. *xěl* 'id.', makes this assumption even more likely. Otherwise, we must assume independent fortitions in Mongolic and Proto-Yeniseian. The Bulgar Turkic form of the same word is borrowed into Proto-Samoyedic as **ke* (< **kel*) 'winter' (Helimski 1997 §522).³⁴

It is worth noting that the Bulgaric **(h)äliün*, the equivalent of Osm. (sixteenth c.) *äšin* 'çukur, hendek, mezar' (TS 1555), derived from the same verb, entered Mongolic as *elü* 'hole, cave, den, burrow, lair' (L 310).

LEXICAL COMPARISON 14

Tu.: DLT *išil-* (*-māk*) ~ *yışil-* (*-γān*) 'to become accustomed (hand to work)' (lit. 'to be smoothed') (CTD I 193; CTD II 176, 188), CT *iš-* ~ *yış-* '1. (na)teret' – vo vcex istočnikax rubriki; potirat'; stirat'; 2. sledat' gladkim, otpolirovat', vystrugat'; 3. seč' (sablej)' (ÈSTJa I 667–668), CT *iši-* ~ *yışı-* '1. (na)teret' – vo vcex istočnikax rubriki; massirovat'; 2. otčiščat'; skoblit', strogat' 3. česat'; 4. gladit' (ÈSTJa I 667–668), Alt. *yış-* 'steret', sgladit' (rěz'bu s metallā i t. p.)' (Verbickij 1884: 473), Yak. *ihī* (< **išig*) 'Meißel' (Monastyrjew 2006: 207), Tt. dial. *hiški* 'ağaç yontmaya yarayan, iki tarafında tutulacak yeri olan, ortası madenî bir çeşit bıçak' (DS 2379), DLT *üşäj* ~ *yüşäj*³⁵ (recte *üşüj* ~ *yüşüj*) 'smooth (rock)' (CTD I 156), Tt. dial. *hüşüntü* 'rendeden dökülen kırntı, talaş' (DS 2452), Tt. dial. *hüşküre* ~ *hüşgüre*³⁶ 'rende' (DS 2452) < CT **hiš(i)-* ~ **hiš-* ~ **hüş-*.

Mo.: WM *ili-* ~ *ile-* ~ *ele-* 'to caress, stroke with one's hand; to rub, massage' (L 407–408), IM *ili-be* 'düzeldi, düzeltti, düz oldu, eşitledi' (Ar. استوى) (Gül 2016: 142), Khal. *ilex* 'to caress, stroke with the hand; to rub, massage; to iron, press, press with a pressing iron; to plaster; to cement' (Hangin 1986: 275–276), Kalm.

³⁴ The Proto-Samoyedic form is reconstructed as **kil* 'winter' by Róna-Tas (1988: 743). See Donner (1924: 5), Joki (1946: 211–213; 1952: 175–176), Hajdú (1953: 77–78), Doerfer (TMEN III 481), Ligeti (1986: 497) and Róna-Tas (1988: 743) for the discussion concerning the direction of borrowing. It is important to note that Joki regarded the Samoyedic word as a loanword from Yeniseian whereas Hajdú maintained that Samoyedic is the donor language. Róna-Tas has agreed with Hajdú.

³⁵ The forms in question are written as <USANK> and <YUŠAUNK> in fol. 80 and as <YUŠANK> in fol. 607.

³⁶ Tt. dial. *küštüre* ~ *köstere* ~ *köštere* ~ *kustüre* ~ *kürtür* ~ *küštüne* ~ *küşderi* 'tahta rendesi' (DS 3052) probably represent aberrant variants of the same word.

ilxə ‘glätten, streicheln’ (KWb 207), *ilx* (илх) ‘1. gladit’; *razglaživat*’; 2. *massirovat*’, *delat*’ *massaž*; 3. *laskat*’ (KalmRSI 269) < PM **(h)ile-* ~ **(h)ili-*; WM *ilegür* ~ *ileür* ~ *iligür* ‘flatiron, iron for pressing’ (L 408), Khal. *ilüür* ‘1. float (plasterwork); 2. long-handled smoothing tool used in needlework; 3. drag-harrow’ (Bawden 1997: 194), Ord. *ilūr* ‘truelle’ (Mostaert 1968: 384b), Kmg. *ilüür* ‘samodel’nyj utjužok’ (KmgRSI 166), Bur. *yeliür* ‘1. katok; 2. gladkij kak katok’ (BurRSI I 336), Oir. *ily:r* ‘烙铁’ [flatiron] (Čoyijungjab & Gereltü 1998: 29), Kalm. *’ilūr* ‘glatt, eben,’ *’ilūr* ‘glätteisen (der schneider)’ (KWb 207), EYug. *helür* ‘烙铁’ [flatiron] (Bolčuluu et al. 1984: 56) < PM **hile-γūr* ~ **hili-γūr* < PPM **pile-* ~ **pili-*; Bao. *fula-* ‘鞣、揉、按摩’ [to tan, to knead, to massage] (Chén Nǎixióng 1985: 56), Bao. *fəl-dzi gua-* ‘scrape, rub, grate harshly (over); wash’ (Sūn 1990: 508), Bao. *fəla-* ‘to soften, tan; knead’ (Sūn 1990: 256), Bao. *fula-* ‘rub between hands (揉)’ (Li & Dwyer 2020: 70), Kgj. *fūli-* ‘揉’ [to knead, to rub] (Sečenčogt 1999: 285a), Dgx. *hulu-* [χulu-] ‘揉搓、揉’ [to rub, to stroke] (Mǎ & Chén 2012: 185b) < PM **hüli-*³⁷ < PPM **püli-*.³⁸

Kit.: Ø

Tg.: Spoken Man. *fise-* ‘rasieren’ (Stary 1990: 26) < Jurc. **pise-*.

Remaining lgs.: PS **picâ-* (~ **pücâ-*) ‘scheren, rasieren’ (SW 124; Helimski 1997 §293) (< PU **pečkä-*?).

Borrowing(s):

1. Tu. **pit₂ă-* ~ **püt₂ă-* (~ **pit₂ă-*) → PS **picâ-* (~ **pücâ-*)
2. Tu. **pilă-* (~ **pîlă-* ~ **pülă-*) → PPM **pile-* ~ **pili-* > PM **hile-* ~ **hili-*
3. Tu. **pülă-* (~ **pîlă-* ~ **pilă-*) → PPM **püli-* > PM **hüli-*
4. CT **pišă-* (~ **pišă-* ~ **püşă-*) → (Mo. →) Jurc. **pise-* > Spoken Man. *fise-*

Commentary: The Turkic and Mongolic verbs have already been considered as cognates by Ramstedt (KWb 207) and Tekin (1975: 280). DLT *išil-* ~ *yışil-* and CT *iš(i)-* ~ *yış(i)-* clearly point to an older **hiš-* ~ *hiš(i)-*. The verb appears in a variety of meanings such as ‘to scrape, to plane (wood); to comb (textile);

³⁷ I am indebted to Dr. Hans Nugteren (Göttingen) who kindly shared with me his unpublished collected data and opinion on PM **hüli-*.

³⁸ Mgr. *fula-* ‘1. 犁地, 2. 套(车等)’ [to plow (the ground); to harness (a cart etc.)] (Khasbaatar 1985: 62), *fūli-* ‘1. 犁, 犁地, 2. 拱’ [to plow, to plow (the ground); to rout (as a pig with its snout)] (Lǐ Kèyù 1988: 111) is likely to be a further cognate of the same Mongolic verb.

to rub; to cut with a sword.' The basic meaning, however, seems to have been 'to smooth (out), to scrape something to make it smoother,' which is also confirmed by the Mongolic **hile-* ~ **hili-*.

Despite Clauson (ED 263) and Erdal (OTWF 337), DLT *üšäŋ* ~ *yüšäŋ* 'smooth (rock)' cannot be derived from *üšä-* 'to search' (see No. 11 above) for semantical reasons. Even though *üšä-* may also have meant 'to scratch about,' the signified action has the intention of searching and not of smoothing. I think that this adjective is a corruption of **üš-üy* ~ **yüš-üy*, which is derived from **hüş-*, a variant of **hiš-*. This variant also serves as the base of Tt. dial. *hüşüntü* 'wood shavings' and *hüşküre* ~ *hüşgüre* 'plane (tool)'. The formal equivalent of the former found in Bashkir dialects, *yışındı* 'stružka' (DSBJa 131), proves that we are dealing with the same verbal root.

The connection between PPM **pile-* ~ **pili-* and PPM **püli-* is only tenable if the latter is not considered as a secondary form of the former but as a distinct borrowing. So, the vowel fluctuation originates from the donor language. The semantic discrepancy can be explained in the same way. The meanings of both verbs lie within the range of that of the Turkic one.

Sammallahti (1979: 34 §146) and Rédei (UEW 367–368) related the Proto-Samoyedic verb with Saamic and Volga-Finnic forms and derived it from the Proto-Uralic **pečkä-* (**päčkä-*) 'schneiden.' Prof. Juha Janhunen (pers. comm.) pointed out that this etymology involves irregularities particularly regarding its vocalism. Despite the irregularity, he deemed the correspondence between Mordvinic and Samoyedic relatively good both semantically and phonologically and suggested an original **pečkä-*, in which case only the second-syllable vowel in Samoyedic would be secondary.³⁹ Filippova (1986: 46), on the other hand, considered the Samoyedic verb a loanword from the Turkic *bič-* ~ *bič-* 'to cut' (ED 292–293).

In my opinion, we are dealing here with a possible loanword from the Turkic **pit₂ä-* ~ **püt₂ä-*. Considering its central meaning, 'to scrape,' the Turkic form can easily be linked to the Proto-Samoyedic verb that signifies 'to shave beard, to cut hair.' In many languages, a single verb is used to signify both actions, e.g., Tat. *kir-* '1. schaben; 2. rasieren; 3. reiben; scheuern' (TDW 141).

³⁹ PM **hečke-* 'to cut' (N 351–352), which can be traced back to **pečke-*, is strongly reminiscent of Erzya *pečkems* and Moksha *pečkoms*, both meaning 'to slaughter; to cut off,' although these languages never had direct contact in ancient times. The similarity is probably coincidental.

The Proto-Samoyedic */c/ is preserved only in part of the Selkup dialects where it is realized as a dental affricate or a retroflex stop. In other Samoyedic languages, it has indistinguishably merged with */t/ (Janhunen 1998: 462). Under the entry of *püče-*, Alatalo (2004 §461) gives the Selkup infinitives *pödz^əgu*, *püttš^əgu* and *pittš^əgu*. In view of these sound values, we may conclude that the Turkic */t₂/, whether it may have an archaic or innovative origin, was also realized close to the affricate [ts].

The Spoken Manchu verb *fise-* ‘to shave’ is rarely attested. If it is genuine, it may well be an indirect loanword from the Early Common Turkic **pišă-*.

3. DISCUSSION

The most important piece of information that can be inferred from the comparative material presented above is that in the earliest Turkic loanwords of the neighboring languages the onset **p-* never occurs with non-initial **-z(-)* but only with **-R(-)*. On the other hand, **p-* occurs in six cases with medial **-L-* and only in three ambiguous cases with medial **-š-* although two of the latter hint at a possibly related **-t₂-*.

Table 1 Turkic loanwords in adjacent languages indicating **p*-

Nr.	Co-occurring Consonants	Prehistoric Turkic	Reference Forms	Common Turkic
1	<i>*p – *R</i>	<i>*pökür</i>	PM <i>*hüker</i>	<i>höküz</i>
2	<i>*p – *R</i>	<i>*porukŭ-</i>	PM <i>*horgu-</i>	<i>hoz-</i> (<i>*hozuk-</i>)
3	<i>*p – *R</i>	<i>*pürütä</i>	PM <i>*hürtesün</i>	<i>hüz-</i> (<i>*hüziüt</i>)
4	<i>*p – *R</i>	<i>*payār</i>	PY <i>*p^həλ</i>	<i>hayāz</i>
5	<i>*p – *R</i>	<i>*pörügä-</i>	STg. <i>*pörägä-</i>	<i>*hözgän</i>
6	<i>*p – *L</i>	<i>*polä</i>	PY <i>*p^holə</i>	(<i>h</i>)oš
7	<i>*p – *L</i>	<i>*pāl</i>	PY <i>*p^hal</i>	<i>*(h)āš</i>
8	<i>*p – *L</i>	<i>*pidilä</i>	Kit. <i>*pilia</i> PTg. <i>*pīla</i> PS <i>*petā</i>	<i>hidiš ~ hidiš</i>
9	<i>*p – *L</i>	<i>*pülü-</i>	PM <i>*hüle-</i> PTg. <i>*pülä-</i>	<i>hüküş < *hüşük</i> <i>üşüt-</i> <i>üşüg</i>
10	<i>*p – *L</i>	<i>*parälä > *paräl</i>	Tabg. <i>*parialan</i> PTg. <i>*para</i>	(<i>h</i>)ariš
11	<i>*p – *L</i>	<i>*pülä-</i>	PS <i>*püj-</i>	<i>*hüş-</i>
12	<i>*p – *š</i>	<i>*päšin</i> (or <i>*päši</i>)	PM <i>*hesi</i> PTg. <i>*päsin</i>	(<i>h</i>)äšin (or <i>*(h)äši</i>)
13	<i>*p – *š (*t₂)</i>	<i>*päšä- / *pät₂ä-</i>	PM <i>*hete-</i> PTg. <i>*pätä-</i>	<i>häš(ü)-</i>
14	<i>*p – *š (*t₂)</i>	<i>*pit₂ä- ~ *püt₂ä-</i> <i>*pilä- ~ *pälä- ~</i> <i>*pülä-</i>	PS <i>*picä- (~ *pücä-)</i> PM <i>*hile- ~ *hili-</i> PM <i>*hüli-</i>	<i>*hiš- ~ *hüş- ~ *hiš(i)-</i>

This information can be interpreted in two different ways. Accordingly, two tentative scenarios are proposed below.

1. The corpus of Turkic loanwords that indicates an initial *p- is borrowed from a stage before the split of Bulgar Turkic and Common Turkic, or, to formulate this differently, from Late Proto-Turkic. Thus, Late Proto-Turkic was a language with onset *p- and non-initial opposition of *r: *r₂ and *l: *l₂. The aberrant *š and *t₂ are either due to false comparisons or were genuine but younger developments.
2. The loanwords in which *p- and *-R(-) and *p- and *-L(-) co-occur are borrowed from Proto-Bulgar Turkic. Those that exhibit *p- and *-š- together are borrowed from Proto-Common Turkic.

From the typological point of view, the first scenario would not be surprising at all. The presence of two rhotic phonemes is attested in many languages, e.g., in Albanian, Armenian, Basque, Catalan and Spanish (all have a tap and a trill). Czech and Nivkh are two languages that have two trills. The change of a rhotic to a voiced sibilant is exceedingly rare but quite real (Kümmel 2007: 76, 162–163). In the world's languages, the co-existence of two lateral phonemes is not uncommon either. For instance, Proto-Yeniseian is also reconstructed as having two lateral phonemes, a dental and a palatal one (Werner 2005b: 204–205). Regarding our central question, in both scenarios it can safely be assumed that Proto-Turkic had an initial *p- that yielded the Common Turkic *h-.⁴⁰

Even though the main question of this study is already answered, we need to determine which scenario is closer to the truth. Unfortunately, the answer does not lie in the data treated above and no direct evidence in favor of the first or the second scenario can be found. If we adopt a broader perspective, however, we can discern that there is indirect compelling evidence for the second scenario. This evidence comes from two other ancient initial consonants preserved in the Turkic loanwords of adjacent languages. The base and a nominal derivative of the Common Turkic verb *yaši-* 'to be weak, emaciated, lazy, calm' (VEWT 192; ÈSTJa IV 20–21; TMEN §1865), which must have had an initial *h- in

⁴⁰ The third possible scenario in which *p- is attributed to Pre-Proto-Turkic is chronologically inadmissible.

prehistoric times, occur in Mongolic both with *-l-* and *-s-*. This leads us to the conclusion that it entered Mongolic once from Bulgar Turkic and once from Common Turkic.

BT **nalā* (CT **yaš*⁴¹) → Mo. **nala* > **nalai*⁴² > WM *nalai*- ‘to be quiet; to be good-natured; to be carefree; to be slow, sluggish, careless’ (L 561), Khal. *nalayx* ‘to be quiet, to be calm, to be relaxed, to be at peace’ (Bawden 1997: 229), Bur. *nalayxa*⁴³ ‘1. otkidyvat’ sja (*nazad*); 2. spokojno raspolagat’ sja; 3. byt’ spokojnym; byt’ udovletvorënnym (*ili* dovol’nym) čem-
l; 4. naklonjat’ sja’ (BurRSI I 588).⁴⁴

CT **našikā*⁴⁵ (CT *yašik*) → Mo. **nasigai* ‘slow, lazy’ (N 452).

41 The only remnants of this root might be Tt. dial. *yaš* ‘çürük, güvenilmez’ (DS 4196) and Yak. dial. *sis* (*kihi*) ‘nastoljaščij, real’nyj čelovek’ (DSLJaS 171). CT *yašik*-, as reflected in Bashk. dial. *yašik*- ‘poxudet’, ‘obessilet’ and Khak. *čazix*- ‘oslabet’, ‘rasslabnut’ (ÈSTJa IV 21), must be seen as a separate derivation from **yaš* with *+Xk-* (OTWF 492–499).

42 For the denominal verbal suffix *+yi-*, see Ramstedt (1912: 56) and Khabtagaeva (2001: 127). WM *doboi-* ~ *toboi-* ‘to be convex, protuberant, prominent, or protruding; to swell up, puff up’ (L 255), derived from *dobo* ‘hill, mound, knoll’ (L 255), is another good example for this suffix.

43 In Buryat, the verb is semantically contaminated with *nalaxa*, which goes back to WM *nalu-* ‘to lean against something with one’s back; to lean over, bend over, incline’ (L 562).

44 In Mongolic, two further Bulgar Turkic loanwords with onset **n-* are found. The former is newly established by the author of these lines whereas the latter is an older comparison. BT **niri* (OU [BTT 7: 32] *yüz* ‘spine’, Yak. *sis* ‘back, spine, backbone’, Dolg. *his* ‘id.’) → Mo. **niri.yun* > **niruun* ‘back’ (N 457–458); BT **niälā* (CT *yāš* ‘young’) → Mo. **nilka* ‘the youngest (child of a family), baby, young and tender, delicate’ (N 457) and perhaps also Mo. **nirai* ‘newly-born’ (N 457) if it goes back to **nilarai*. For *+ka* in **nilka*, cf. Mo. *sir+ka* ‘wound’ (N 493), which is borrowed from the Bulgaric cognate of CT *siz* ‘ache, pain’ (ED 863; ÈSTJa VII 393–394). Ev. *nılba* ‘newborn’ (Sotavalta 1978: 164) and the word *nià* ‘幼嫩的’ [tender, delicate] in the language of the Kitan descendants of Yúnnán 云南 (Mèng 1995: 213) are interesting parallels to Mo. **nilka*.

45 The only other reconstructible Common Turkic word where **n-* and **-š-* co-occur is **nāšū*, which entered Mongolic as **nasun* ‘(year of) age’ (N 452). The form **nāšū* has yielded *yāš* ‘a year of one’s life’ (ED 975–976). In the Altaistic tradition, it has been falsely accepted that the Mongolic form goes back to **nal-sun* or **nal’-sun* and this form is in turn cognate with the Turkic *yaš* < **na-l’* (Ramstedt 1957: 75, 110).

Based on this doublet, we can deduce that Common Turkic and Bulgar Turkic both had the ancient onset consonant **n̥*- which is otherwise totally absent in historical and modern Turkic languages.⁴⁶

The same also applies to the onset **d*₂-. For Proto-Turkic as well as Proto-Bulgar Turkic, two voiced dental onsets must be differentiated. The reconstructed near-minimal pair **d̥,ōrǎ* ‘birchbark’ > CT *tōz* ‘id.’ (ED 571), cf. Mo. *durusun* ‘shell, bark, specif. bark of the birch tree’ (L 276; Sün 1990: 239) and **d̥,orǎ* ‘weak, impotent; barren’ > CT *yož* ‘barren; weak, frail; having poor quality’⁴⁷ (ED 985), cf. WM *doro* (< **dora*)⁴⁸ ‘weak, impotent, incapable, incompetent; having no good qualities’ (L 263) point to the phonemic contrast of two dentals.⁴⁹ **d̥,agür* ‘dark brown,’ **d̥,ārǎ* ‘a plant,’ **d̥,alutǎ* ‘hidden’ and **d̥,ūrǎ* ‘complexion, face’ are further rhotacistic forms with onset **d*₂- that can be reconstructed by means of the Mongolic data (see Appendix 1 for details).⁵⁰

46 Hung. *nyár* ‘summer’ is probably the only evidence suggesting that **n̥*- may still have been present in the language of the Bulgar Turks who arrived at Caucasus in the fifth century CE (cf. CT *yāz* ‘spring, summer’) (Berta 2016: 128). Moór’s (1960: 393–394) theory that the Hungarian *ny*- must be a substitution for the Bulgar Turkic **d*’ is also quite plausible. See TLH (1206–1210) for other possible etymologies of the Hungarian word.

47 The basic meaning of the word is ‘barren,’ cf. DLT *yožā-* ‘to be barren (ewe)’ (CTD II 192), IH *yožladi* ‘kısır kaldı’ (İzbudak 1936: 32) and Turkmen *yož* (ē3) ‘jalovj’ (TkmRSL 313). The Turkish dialects, on the other hand, exhibit various further meanings: Tt. *yož* (I) ‘1. kısır; 2. kısır ve erkek davardan oluşan sürü; 3. yazın kırda kalıp otlatılan davar; 4. civcivlerini büyütüp bırakan tavuk; 5. kart keklik; 6. zayıf (hayvan için); 7. başıboş (hayvan için); 8. besili; 9. bir, iki yaşında tay; 10. bir, iki yaşlarında manda, inek, öküz, eşek, at sürüsü; 11. değeri düşük, niteliksiz, cinsi bozuk,’ *yož* (II) ‘meyvesiz ağaç,’ *yož* (III) ‘işlenmemiş verimsiz toprak,’ *yož* (IV) ‘1. yabanıl; 2. kaba (kimse); 3. rahat, başıboş, özgür; 4. tembel (kimse)’ (DS 4301–4302).

48 Also cf. WM *doroi* ‘weak, feeble, emaciated; weak-minded; suppressed, worth nothing; backward, uncultured’ (L 263), Mo. *doroi* ‘weak, slow, feeble; backward’ (Sün 1990: 226), Ord. *dorǎt’o-* ‘tomber en décadence, devenir pire, dégénérer, empirer; tomber dans le malheur, dans la misère; devenir pauvre, être ruiné’ (Mostaert 1968: 153), Mgr. *dure-* (< **doro+yi-*) ‘1. 没有精神, 2. 没有力气, 3. 变懒’ [to lack vigor; to lack strength; to become lazy] (Khasbaatar 1985: 201).

49 For a similar reason, Poppe (1927: 102) posited two dental phonemes for Proto-Altaic.

50 The Xiongnu word *tihú* 醍醐, *tihú* 餹餠 *de-ya* ‘clarified butter’ (Pulleyblank 1962: 255; Schuessler 2014: 277) may serve as independent evidence for the Turkic **d*₂- in the first century CE if it renders Tu. **d̥,iāgǎ* > CT *yāg* ‘fat, oil, grease,’ Chuv. *śu* ‘butter, fat.’ The Proto-Circassian **dağa* ‘lard, fat’ (Kuipers 1975: 69), without cognates in other West Caucasian languages, is likely to be a borrowing from Early Bulgar Turkic. The common base **yu* (~ **yo*) of CT *yuk* ~ *yok* ‘residues of food in a pot’ and *yuk-* ~ *yok-* ‘to stick to’ (ED 895, 897–898; ÈSTJa IV 211) may be a loanword from Ch. *zāo* 糟 OC *[ts]ʰu, LHC *tsou* ‘sediment; dregs; distillers grains’ (Baxter & Sagart 2014; Schuessler 2009: 181) (cf. Sino-Korean 𪚩 *jo* [tso] ‘id.’) given that it goes back to

Apart from the Turkic loanwords in Mongolic, a similar initial is attested only in Turkic inscriptions, texts, and glosses in Greek and Cyrillic alphabets, such as the Nagyszentmiklós inscription in Greek letters, early Turkic glosses in Byzantine sources and the so-called *Bulgarische Fürstenliste* (*Nominalia of the Bulgarian Khans*) as well as Turkic loanwords in Slavic.⁵¹ In all these cases, it is not certain whether the Greek δ or Cyrillic д rendered a voiced dental obstruent or a voiced postalveolar affricate. Even if some of the instances indeed stood for a dental obstruent, this sound was rare and rather archaizing than archaic.

The doublet relevant to **d₂-* is distributed between Proto-Samoyedic and Proto-Yeniseian. It involves the earlier forms of CT *yūz* ‘100’ and Chuv. *šēr* ‘100.’ Whereas Proto-Samoyedic has borrowed the Bulgar Turkic form, Proto-Yeniseian has borrowed the Common Turkic one.

**d₂u* [dzu ~ dzu]. The identical derivational pattern is also found in Tu. **čī* (= OU *šī*?) ‘moisture’ (ED 393) > **čīk* ‘1. rosa; 2. inej; 3. syrost’, vlaga, vlažnost’; syroj, vlažnyj, mokryj; 4. lug, lugovoj’ (Leksika 38–39), *čīk-* ‘to get moist’ (OTWF 494). The base may have originated from Ch. *shī* 濕 ‘wet, damp, moist’ (Zieme & Kara 1979: 64n.). See further the Proto-Turkic reconstructions **d₂akā-* and **d₂irā-/ *d₂irā-* as possible loanwords from Tocharian (or Chinese) in Appendix 1 as well as the Xiongnu *chúqí*, túqí 屠耆 **dā-gri* / **dia-gri* ‘title given to the crown prince of the Xiongnu; (lit.) virtuous, worthy (賢)’ (Schuessler 2014: 276) possibly corresponding to the Avar title *iugurru* **yugur* ‘co-ruler of the khagan’ in Appendix 2. The phoneme **/d₂/* may also be used to explain the Mongolic **kada* ‘rock; overhanging rock; ravine’ (N 398) and **edie* (> **ejen*) ‘master, owner, boss’ (N 326; MT §5; EEW §3748), which are the sources of PTg. *kadār* ‘Fels’ (B 49) and PTg. **ädä* (> **ädä.i* > **ädī*) ‘Mann, Herr’ (B 66) respectively. Their Turkic donor forms can be reconstructed as **kad₂a* and **äd₂iä*. These correspond to CT *kaya* ‘rock’ (ED 674–675) and CT *äyä* ‘master, owner’ (Leksika 325–326).

⁵¹ All of these words originate from areas under Bulgaric influence: Δάιξ, Δάιχ ‘Ural river’ (CT *Yayik*) by Ptolemy and Menander Protector, δόγια ~ δόχια ‘wake, funeral’ (CT *yōg*) by Menander Protector, диломь ‘(year of) snake’ (CT *yilan*), a name for the year in the *Bulgarische Fürstenliste*, дохъторъ ‘pillow’ (CT *yogdu* ~ *yogto*), a Bulgaric loanword in Slavic languages, δυγε- (**düer-*) ‘to carry’ (CT *yūd-*), a Bulgaric verb in the Nagyszentmiklós inscription in Greek letters.

BT $*d_2\bar{u}R$ ‘100’ → PS $*j\ddot{u}r$ ⁵² ‘100’ (SW 50).⁵³

CT $*d_{(2)}\bar{u}z$ ⁵⁴ ‘100’ → PY $*\lambda_2us$ / $*\lambda_2ut$ ‘100’ (Werner 2005a: 201), $*\zeta us$ ‘100’ (Werner 2005b: 219) > Kott (Str.) *dus* (= *d’us*), Pump. *útamsa*, *útamssa* (< $*ut$ + $*tamsa$).⁵⁵

The Common Turkic $*d_{(2)}$ - and Bulgar Turkic $*d_2$ - must have been pronounced as a voiced dental fricative, perhaps alternating with a voiced palatalized alveolar stop in some vernaculars. Since Proto-

52 Based on a lexicostatistical model which dates the disintegration of Samoyedic to the third century BCE, Blažek (2016: 83) regarded PS $*j\ddot{u}r$ as a loanword from the Proto-Turkic $*y\ddot{u}r$. The second Proto-Samoyedic word of Turkic origin with onset $*j$ - is $*juntâ$ (~ $juntâ$) ‘Pferd’ (SW 49). It was borrowed from Tu. $*d_2und,ä$ > CT *yunt* ~ *yund* (WYug. *yut* ~ *yot*) ‘horse’ (ED 946; ÈSTJa I 253–254). This form, in turn, may be related to the Xiongnu táotá 騊駼 *dou-da* < $*lû-lâ$ ‘a kind of horse’ (Yán Shīgǔ: 桃塗 *dau-da*) (Schuessler 2014: 265) if the latter renders a foreign $*duda$ or $*duḍa$ (see Sagart 1999: 31 for the chronology of OC $*l$ > MC d). The absence of /n/ in the Chinese transcription, however, weakens this equation. The insertion of the parasitical /n/ may have taken place in Turkic. Can the enigmatic first part of OU *yuy kuš* ‘Pfau’ (Wilkens 2021a: 922) be traced back to $*d_2ud,ä$, the older form of $*d_2und,ä$ without /n/? Osm. *yund kuš* ‘kuyruk sallayan kuşu, peygamber kuşu’ [wagtail] (TS 4730) is worth comparing here. Note that both birds have conspicuous tails, which have given them their names in some languages.

53 The borrowing of the Bulgar Turkic forms $*bōrō$ (cf. CT *bōz* ‘grey’), $*kīl$ (cf. CT *kīš* ‘winter’), $*kīl$ (cf. CT *kīš* ‘sable’) and $*ūR$ (cf. CT *ūz* ‘fat’) into Proto-Samoyedic as $*puro$ ‘grey, wolf-grey, wolf-grey dog’ (Róna-Tas 1988: 744), $*kēl’$ > $*kē$ ‘winter’ (Helimski 1997 §522), $*kil’$ > $*kij$ > $*ki$ ‘sable’ (SW 69) and $*jūr$ ‘fat’ (SW 50) is an additional evidence in favor of the argument that Proto-Samoyedic had primarily contact with Proto-Bulgar Turkic. On PS $*ki$, see also Helimski (1991: 263; 1995: 75–76) for an argumentation of the opposite direction of borrowing.

54 The Common Turkic $d_{(2)}$ - is further reflected in PM $*dabusay$ ‘(urinary) bladder, abdomen’ (N 310) and $*dusu$ - ‘to drip, drop’ (N 320), which were borrowed from CT $*d_{(2)}amīzā$ (> *yamīz*) ‘groin, flank’ (ED 940) and $*d_{(2)}ušā$ - (> *ywš*- ~ *ywš*-) ‘to pour out’ (ED 976), cf. Bashk. *yūšār* (< $*yōš$ - ?) ‘1. inej; 2. morosjaščij dožd’ (DSBJa 128). Despite Clauson, DLT *ywš*- ~ *ywš*- can hardly be a reciprocal derivative of *yū(v)*- ‘to wash.’ As we have no evidence that the opposition of $*d_-$: $*d_2$ - was preserved in Common Turkic, the subscript number is put in brackets. It is likely that $*d_-$ had already merged with $*t_-$ in Proto-Common Turkic.

55 The Arin form *jus* ‘100’ is borrowed from Late Common Turkic (Khabtagaeva 2019: 195). The other Arin form $*č’us$ in куччюс *kusč’us* ‘100’ and кинчюс *kinč’us* ‘200’ (Helimski 1986: 205; Werner 2005b: 304) is of Turkic origin as well. For Pump. $*tamsa$, cf. Assan *alčín-támšu* ‘100’, Kott *alčín-támši*, *álčín támši*, *alt[e] támši*, *aštamše* ‘100’ (Werner 2005b: 304).

Samoyedic lacked a voiced dental segment, and Proto-Yeniseian lacked a dental fricative segment, *[ð-] must have been substituted with the closest sounds in both protolanguages.⁵⁶

Unlike **λ₂us*, the ancient Turkic loanwords in Yeniseian discussed above are all borrowed from Bulgar Turkic.⁵⁷ Despite Vajda (2009: 481–482) and Werner (2010a: 143), PY **tʰiʰs* ‘stone’ (Werner 2002: II/312) must be added here as an old borrowing from **tʰiʰs* < **tiāš*⁵⁸ > CT **tāš* ‘stone,’ cf. BT **tiāl(ǎ)* > Chuv. *čul* ‘1. kamen’, kamennyj; 2. žěrnov (mel’ničnyj)’ (ChuvRSI 595) and BT **tiāl(ǎ)* → **tila+gu* > Mo. **čilaun*

56 Assuming that the Proto-Yeniseian word for ‘leaf’ reconstructed as **λ₂aʔapʰa* (Werner 2005a: 200) and **ʒaʔapʰa* (Werner 2005b: 218) is a loanword from the Old Chinese 葉 *[a]p ‘leaf’ (Baxter & Sagart 2014), the lateral character of the Yeniseian initial is secured. The Chinese 葉 **lap* is also mentioned by Starostin (1995: 233) in connection with the Yeniseian word reconstructed by him as **jāpe*. PS **jāpā* ‘Blatt’ (SW 41) is obviously a loanword from Yeniseian. Furthermore, PM **nabčīn* (~ **labčīn*) ‘leaf, foliage’ (N 450) and PM **nabaa* ~ **namaa* ‘foliage’ (N 450) also seem to be related to the Chinese word. Yet, the question remains why the Chinese **l-* is substituted by the Yeniseian **λ₂-* if Proto-Yeniseian already had an initial **l-*. If Baxter’s (1992: 411) reconstruction **jap* is correct, this would better account for PY **λ₂-* as well as PM **n-* (< **l-*).

57 A further Bulgar Turkic loanword in Yeniseian is likely to be **dʰalə* / **λalə* (alternatively **λ₂al* and **ʒal*) ‘child’ (Werner 2004: 148; Werner 2005a: 200–201; Werner 2005b: 219), whose donor form may be cognate with CT **yāš* ‘young; child’ and perhaps identical with BT₁ **niālǎ* (> BT₂ **ǰālǎ*). Mo. **nīlka* ‘the youngest (child of a family), baby, young and tender, delicate’ (N 457) and Mo. **ǰalau* ‘young (person)’ (N 381) are borrowings from BT₁ **niālǎ* and BT₂ **ǰālǎ*, respectively. Osm. *ǰalasun* ~ *ǰilasun* shows that Mongolic must also have had an unattested variant in **ǰala+sun*, whose base is identical with that of **ǰala+u* (Schönig 2000: 105–106). Since the sonorants **n*, **nʰ* and **ŋ* do not occur in onset position in Yeniseian (Werner 2005b: 204), the initial **nʰ-* of the Bulgar Turkic form must have been substituted by **dʰ-* or a lateral consonant of uncertain sound value as Werner’s reconstruction suggests. This comparison, albeit in a more concise manner, has already been made by Róna-Tas (1982: 136). For the sake of completeness, I would like to remark here that the same Proto-Yeniseian word is reconstructed as **ʒal* by Anderson (2003: 13) based on the reconstruction of Starostin (1995: 308) as **ʒVL*. Another reconstruction is found as **gʷiwtʰ-Vŋ* ~ **gʷatʰ-Vŋ* ‘growing, small (said only of living things)’ in Fortescue-Vajda (2022: 368).

58 In Turkological literature, it has been long falsely assumed that the diphthong */iā/ in Bulgar Turkic arose from an older long /ā/ that remained unchanged in Common Turkic. Yet, a short scrutiny reveals that the opposite is true: the diphthong */iā/ is primary, and it got monophthongised in Common Turkic. The strongest evidence for this statement comes from the near-minimal pair **kiār* ‘snow’ (CT **kār*) and **kār* ‘goose’ (CT **kāz*), which resulted in Chuv. *yur* and *xur* respectively. This fact demonstrates that not every long */ā/ was diphthongised in Early Bulgar Turkic. As a further example, Chuv. *sum* ‘count’ < BT **sām* (cf. CT **sān* ‘number’) → Hung. *szám* ‘number’ (TLH 762–766) may be given, which would be expected to surface as *ʃsum* in Chuvash and as *ʃsám* in Hungarian if the rule mentioned above were true. This fact was already acknowledged by Doerfer (KhM 278–279).

‘stone’ (N 302), Kit. 𐰇𐰏 [183.189] <čal.a> *čala*, 𐰇𐰏 [431.189] <čal^o.a>⁵⁹ *čala* ‘male personal name,’⁶⁰ (Liaoshi 遼史) 查刺 **čala* ‘male personal name’ (Kane 2009: 57; Wu & Janhunen 2010: 171, 178–179, 209–210, 220; Ōtake 2017: 204n.). A similar unexpectedly early narrowing of **a*, as is later observed in Tuvan and Yakut, is already found in the Dingling 丁零 word *künzi* 昆子 **kirsak*⁶¹ attested in Weilüe 魏略 from the third century CE (Pulleyblank 1962: 226; Schuessler 2014: 273). This word is clearly cognate with the historical Common Turkic word *karsak* ‘steppe fox’ (ED 663; ÈSTJa V 313–314) and the Mongolic **kirsa* ‘steppe fox, corsac.’ Again, despite Werner (2010b: 181–182), PY **qu*’s ‘tent, house’ (Werner 2002: II/140), **quws* ‘birch bark tent’ (Fortescue-Vajda 2022: 270) is another possible loanword from CT **koš* ‘tent’ (VEWT 283b; Stachowski 1997b: 230–231), cf. SH *qoš* ‘Haus (Jurte, Zelt ?) (房子)’ (Haenisch 1939: 68).

The couple of doublets given above demonstrate that Proto-Common Turkic and Proto-Bulgar Turkic retained the onset consonants **h*- and **d*₂-. Exactly this assumption makes it more likely that **p*- must be ascribed to the same stages as well.

In addition to that, some Bulgar Turkic loanwords in Mongolic point to a second and younger loanword layer and originate from a period in which **d*₍₂₎- and **p*- of the older layer had already changed to **ɣ*- and **h*-.

59 The conventional readings of the graphs 𐰇 and 𐰏 are <čar^o> and <a>, respectively. Although the character 刺 usually renders the Kitan syllable /ra/, there is at least a certain case of /la/: Kit. 失刺孙 **šilasun* (or **šilāsun*) ‘leopard (豹)’ (Sün & Niè 2008: 102), cf. PM **sileü(l)sün* ‘lynx’ (N 495) and, in particular, EYug. *fəle:sən* ‘舍猯’ [lynx] (Bolčuluu et al. 1984: 106). Despite Ōtake’s (2017: 204n.) contention, the coda vowel of the word may not necessarily be long. However, it certainly points towards an older sequence °ayV because the coda vowel °a would have been elided in Middle Kitan. This also challenges Shimunek’s (2017: 459) assumption that the suffix +*yu* is a Proto-Mongolic innovation. So, Kit. 𐰇𐰏𐰏 [028.161.189] <š.au.a> *šawa* ‘bird of prey’ (Shimunek 2017: 370) and Mo. **sibaun* ‘bird’ (N 488) both go back to **sibayu*. The same contraction of °ayV is also observed in Kit. 𐰇𐰏𐰏 [247.168.189] <taq.a> *taqa* ‘chicken, hen’ (Shimunek 2017: 372) and 𐰇𐰏 [270.189] <ēm.a> *ema* ‘goat’ (Shimunek 2017: 339), which are, like PM **takia* (N 510) and PM **ümaan* ‘goat’ (N 372), obvious loanwords from earlier forms of OT *takigu* ~ *takagu* ‘a domestic fowl’ (ED 468) and OT *ünga* ‘wild mountain goat’ (ED 158).

60 The use of Mo. *čilayun* as a personal name is well documented (Rybatzki 2006: 301–302).

61 The sound value of **kir* for the character 昆 is secured by the circumstance that in Weilüe it also occurs in the transcription Gékūn 隔昆 (Chavannes 1905: 561), which renders the well-known ethnonym **Kirkir* that surfaces as *Kirkiz* in the Orkhon inscriptions. The same transcription is attested as early as 200 BCE (Pulleyblank 1962: 123, Pulleyblank 1983: 455, Pulleyblank 1990: 99–101, Schuessler 2014: 272).

BT₁ **hālī-* > BT₂ **jalī-* → Mo. **jali-* > SH *jalira*-⁶² ‘vom Zorn ablassen’ (Haenisch 1939: 85), WM *jalira*- ‘to shirk, be lazy or nonchalant; to rest from work; to stop for a time; to calm down; to abate, to get better (as illness)’ (L 1032), PM **jalikai*-⁶³ ‘lazy’ (N 381–382), PM **jalkau* ‘lazy’ (N 381–382).

BT₁ **pārā* > BT₂ **hārā* ‘little, few’ → Mo. **ara* > SH *aran* ‘kaum’ (Haenisch 1939: 8), WM *arai* ‘just a little too...; not quite...; hardly, scarcely, barely; with difficulty’ (L 48).⁶⁴

This is another strong argument in favor of attributing the loanwords with **p-* to Proto-Common Turkic and Proto-Bulgar Turkic as in the second scenario above. We can state, by extending it, that the first and more archaic Bulgar Turkic loanword layer in Mongolic stands out with **p-*, **h-* and **d₂-* whereas the second and younger layer features **h-* and **j-*, which developed from the former ones.

To sum up, Proto-Common Turkic and Proto-Bulgar Turkic both had the onset consonants **p-*, **h-* and **d₂-*, which yielded **h-*, **j-* and **j-* in prehistoric Bulgar Turkic and **h-*, **y-* and **y-* in historical Common Turkic.⁶⁵ Even though it cannot be verified by means of the available data that these onset

62 From a semantic viewpoint, Kempf’s (2013: 169–170) derivation of this verb from *jali* ‘ruse, craft, cunning, trick, deceit’ is unacceptable. It is a much better fit for the deverbal formative *-rA-*, also dealt with by Kempf (2013: 124–131). Poppe (1927: 114) has already compared *jali-ra-* with CT *yaši-*.

63 Nugteren reconstructed the Proto-Mongolic form as **jalkai* mainly based on the modern languages. However, precl. WM *jaliqai kümün* ‘indolent person’ (Tib. *le lo can*) (Kara 2009: 130) and HY *jaliqai* ‘paresse (懶)’ (Mostaert 1977: 65) point to a trisyllabic form in **jalikai*. Despite Godziński (1985: 30), *jaliqai* cannot be derived from the noun *jali*, which is attested in *Muqaddimat al-Adab* (Poppe 1938: 200b) with the alleged meaning ‘spokój’. Firstly, *jali* is a misinterpreted cognate of Mo. *jali* ‘splendor, majesty’ (Kara 2009: 130). Secondly, *jaliqai* hardly belongs to this denominal formation. It is rather a deverbal derivative with the suffix *-kei* / *-qai*.

64 This also shows that the change of **p-* > **h-* in Bulgar Turkic must have occurred before the fourth century because the Bulgar Turks had already left their home in South Siberia and lost their connection with the Mongols in the middle of the same century.

65 Doerfer reconstructed only **p-* and **d-* for Proto-Turkic (see TMEN I 97; Doerfer 1971b: 332–342; Doerfer 1975–1976: 25, 28). As regards **h-*, Doerfer deemed only the comparison of Mo. *nudurga* ‘fist’ and Tu. *yudruk* ‘id.’ acceptable and claimed that the Mongolic form might have been dissimilated from **dudurga* (see TMEN I 62; TMEN §1787). In a later study in which he

consonants had not undergone any changes during the formation of Proto-Common Turkic and Proto-Bulgar Turkic, it is possible and quite likely that Proto-Turkic had the same initials **p-*, **h-* and **d₂-* as well.

In the current scenario, it unfortunately remains unclear whether Proto-Turkic was a *r₂/l₂* or *z/š* language. Taking into consideration the successful argumentation of Doerfer (1975–1976: 33–35), I am tentatively willing to consider Proto-Turkic as a language with two rhotic and two lateral phonemes. The assumption that */š/* and */z/* come from **/l₂/* and **/r₂/* succeeds in explaining why the former sounds do not occur in initial position in Common Turkic.⁶⁶ The non-occurrence of the sibilants */š/* and */z/* as phonemes in the proto-systems of Mongolic, Tungusic, Samoyedic and Yeniseian is another point that strongly speaks against the existence of these phonemes in Proto-Turkic.⁶⁷ Since it is improbable that

reviewed the ‘Altaic’ cognate sets beginning with non-labial nasals, Doerfer tended to explain the rare plausible cognates as Mongolic loanwords in Turkic where the Mongolic **h-* has been substituted by the Turkic *y-* (Dorfer 2001 §R 19, §R 29).

66 Concerning the zetacism, another hint pointing to the rhotic origin of CT *z* is given us by the Old Turkic postposition *üzä* ‘above,’ the antonym of *as+ra* ‘below.’ If we suppose that it is also derived with *+rA* in parallel with *asra*, it becomes immediately clear that the assimilation of the rhotic consonant of the suffix entails the reconstruction of the stem-final consonant as another rhotic: **ür₂+r₁ä > *ür₂r₁ä > *ür₂ä > *üzä* (DLT *üzä ~ üzä*, Yak. *üöhä ~ ühä*). This also shows that **/r₂/* was more dominant than **/r₁/*. On the etymology of *üzä*, see also Tekin (1996: 328–329) and Erdal (2004: 179) for other possible but less likely explanations. The oldest attested form of the ethnonym *Kirkiz*, i.e., *Kirkir* in the Chinese transcriptions Gékūn 隔昆 **krék-kūn* and Jiānkūn 堅昆 **kūn-kūn* (Schuessler 2014: 272) possibly rendering **/K₁r₁k₂r₂/*, proves that CT */z/* goes back to a rhotic consonant. If taken to be a loanword from Ir. **bōrā < *baurā* ‘brown, bay, grey’ (ĒSĪJa II 152), CT *bōz* ‘grey, brown’ (ED 388–389) (without any cognate in Chuvash) is a further solid piece of evidence for the prehistoric sound change **/r₂/ > /z/*. Likewise, OU *bäkiz ~ päkiz* ‘clearly manifest’ (ED 330; Wilkens 2021b: 125–127) can be taken as another good example for the Turkic zetacism provided that it is an ancient loanword from a Tocharian form such as **pākri* ‘clear, obvious, evident’ (Adams 2013: 389–390). However, it is quite doubtful when and how this word entered Turkic and why its distribution is so restricted despite its supposed antiquity. See Helimski (1991: 262–265) for further zetacistic points of argumentation. Against Helimski and, before him, Róna-Tas, I tend to interpret the so-called ‘graphic evidence’ as an indication of the Bulgaric origin of the Turkic runiform script.

67 Another possible solution was put forward by Ščerbak (1970: 83–88; and elsewhere), and it has been strongly endorsed by Janhunen (1989, 2016). According to Ščerbak, the coda **/s/* has been voiced to */z/* after long vowels in monosyllabic words and in disyllabic words regardless of vowel length, whereas it has been retained after short vowels. Doerfer (1975–1976: 31–32) already raised justified objections to Ščerbak’s theory. It can be easily refuted by minimal pairs such as CT *kāz* ‘goose’ : *kār* ‘snow’ : *kās* ‘bark,’ CT *hāz-* ‘to lose one’s way’ : *hār-* ‘to be tired’ : *has-* ~ *hās-* ‘to hang,’ CT *yāz* ‘spring’ : *yār* ‘cliff’ : *yās* ‘loss,

they have emerged *ex nihilo* in Common Turkic, we should assume a substrate language that had these sibilants. It may be an extinct language that was spoken in the Xiongnu Empire, perhaps an early Middle Iranian dialect.⁶⁸ Considering the Old Turkic *šatu* ‘ladder, staircase’ (ED 867), it may be presumed that this idiom was closely related to Khotanese Saka, cf. Khot. *būššāta* ‘stairway’ (Bailey 1979: 300), which is cognate with the Khwarezmian *šc* ‘leiter,’ Gazi *sārt*, Sivandi *sid* ‘staircase, ladder’ (< Old Persian **č(a)itā-*), Pashto *šəl*, Waziri Pashto *šəl* ‘stairway of stones and earth,’ Yazghulami *šad* ‘ladder,’ Ossetian (Digor) *asīn(æ)* ‘ladder,’ Yidgha *afsinyo* ‘ladder’ < Ir. **srita-* / **sritā-* / **sriti-* (Morgenstierne 2003: 98; Cheung 2007: 354–355).⁶⁹ CT *tōn* ‘garment, clothing’ (ED 512–513) has also been deemed to be a loanword from Khot. *thauna-* ‘cloth; silk’ (Bailey 1979: 149), which is the source of Tch. B *tono* ‘silk’ (Adams 2013: 329). Historically speaking, we can identify these Iranian-speaking people with Qūshè 屈射 EMC *kʰut-ziajk* **Skujaka* mentioned in Chinese sources as early as 200 BCE (Pulleyblank 1983: 455; Pulleyblank 2000: 72).

Based on the Mongolic, Tungusic, Yeniseian and Samoyedic data given and discussed under (13) and (14), we might posit that the Proto-Turkic **/l₂/* changed to the Common Turkic **/š/* over a dental consonant. The following phonetic values can tentatively be assigned to these phonemes: */l₂/* **[ɬ]* > */t₂/* **[θ]* > */š/* *[ʃ]*.⁷⁰ The dental consonant can, of course, also be interpreted as a dialectal innovation and not as an intermediary stage. Nonetheless, the interpretation that I am most inclined to is to regard **/t₂/* with the possible phonetic value of *[ts]* or *[θ]* as the origin of the Common Turkic */š/* *[ʃ]* and Bulgar

damage, death’ (also Chuv. **šūs* → Cher. *sös* ‘Gedächtnisfeier für die Verstorbenen’) and CT **hāvis-* (> *ävüs-*) ‘to winnow’: CT *hāvīr-* ‘to turn.’ On the other hand, it cannot be denied that there is a dislike of the coda */s/* and the tendency for voicing it in Turkic: DLT *ās* ~ *āz* ‘ermine’ (CTD I 118), DLT *kās* ~ *kāz* ‘bark’ (CTD II 225–226). See Helimski (1991: 265, 267n.) for possible explanations of the latter phenomenon.

68 Proto-Iranian is reconstructed as having *š* and *z* (N. Sims-Williams 2017: 271). More importantly, East Middle Iranian languages all had these consonantal phonemes.

69 Based on the Middle and New Persian forms, Tafazzoli (1970: 87–89) reconstructed **sarta-* ‘ladder’ for Old Persian and linked it to the Avestan *sar* and Sanskrit *śr* (sic) ‘joindre.’ On the other hand, Skjærvø, in a note to Morgenstierne (2003: 98), remarked that **srita-* / **sritā-* must be distinguished from **sarta-*.

70 Semitic languages are a perfect example of how these sounds can be interchangeable.

Turkic /L/ [ɭ].⁷¹ */t₂/ would perfectly fit in with the consonantism of Proto-Turkic as the voiceless counterpart of */d₂/. While *d₂- has yielded y- in Common Turkic, *t₂- must have changed to č-. This could also explain the salient fluctuation of CT č- ~ y- attested in *čig* ~ *yig* 'raw, uncooked,' *čirü-* ~ *yirü-* 'to rot, to decay,' *čayka-* ~ *yayka-* 'to stir, to shake,' *čörgä-* ~ *yörgä-* 'to wrap up,' *čöpik* ~ *yöpük* 'impurity, rubbish, garbage,' and perhaps even *čöz-* ~ *yör-*⁷² 'to untie' simply as a result of an underlying alternation of *t₂- ~ *d₂-. Furthermore, PM **tüükei* ~ **tüükü* (< **tigüki* ~ **tigükei*?) 'raw' (N 528) and **sidün* (< **sitün*) 'tooth' (N 494) may also be regarded as ancient loanwords from PT **t₂igüki* ~ **t₂igükäy* > CT *čigki* ~ *čigkäy* 'raw, uncooked'⁷³ and PT **sit₂ü* ~ **sit₂ü* > CT *tis̄* ~ *tis̄*⁷⁴ (due to regressive dissimilation), Chuv. *šäl* 'tooth.' In this reconstruction, the rare but solidly attested alternations of CT t- ~ y- as in *tint-* ~ *yind-* 'to search for, to seek' and CT t- ~ č- as in *tägzin-* ~ *čägzin-* 'to revolve, to rotate' easily find an explanation: they go back to the earlier sporadic alternations of *t₂- (> *t₁-) ~ *d₂- and *t₁- ~ *t₂-.⁷⁵

As support for this assumption, I would like to mention a possible Chinese loanword in Proto-Turkic. I consider it quite likely that the Proto-Turkic **hiāt₂ä*, which is the origin of CT *yāš* 'molodoj (+ maloletnij); junyj; junoša (+ paren'); rebenok, ditja (+ maloletnij); mladenec; novoroždennoe ditja; grudnoj, novoroždennyj; mal'čik; syn'⁷⁶ (ÈSTJa IV 162 §7) and whose Mongolic (**jalau*, **nilka*) and Yeniseian (**d'alä* / **lalä*) cognates have been mentioned above, was borrowed from the Western Han

71 Proto-ObUgrian *ɣ > Proto-Khanty *ɭ (Honti 1998: 337) is an interesting parallel to the proposed change of Proto-Turkic -ɣ- > Proto-Bulgar Turkic -ɭ-.

72 MA *yözü-* 'çözülmek, dağılıp çürümek' (Yüce 1993: 212) is either a contamination of both forms or simply a miscopy.

73 Cf. particularly Kaz. *šyki* 'raw, uncooked, unripe,' Kirg. *čyki* 'raw, uncooked, unripened,' Yak. *sikäy* 'raw, unfrozen, unripe,' Dolg. *hikäy* 'fresh, raw, unripe.' Stachowski's (1997a: 7) analysis of Dolg. *hikäy* as derived from *hik* 'humidity, dew' is redundant.

74 CT *sišäk* > *šišäk* 'two-year-old sheep' (TMEN §1332; TLH 745; Li 2013: 566–567), cf. SH *šilegü* 'qonin, zweijähriges Schaf, ~ irge, zweijähriger Hammel (二歲)' (Haenisch 1939: 140), preserves the expected Common Turkic reflex **siš*.

75 Ignorant of the external data I depend on, Anderson (1997/1998: 171, n. 3) has already proposed that "*ɣ and *ɟ are as good a representation for the correspondence set as the standard *l₂ and *r₂."

76 As far as I can determine, the earliest attestations of this word in Turkic are IM (thirteenth c.) *yāš oglān* 'small, young' (ED 976), CC (thirteenth c.) *yāš yašından* 'ab infantile etate' (Grønbech 1942: 117) and QA (1310) *yāš* 'young, at an early age' (Ata 1997: 714). In any case, CT *yāš* 'young' must be kept apart from the homonymous words signifying 'tears,' 'year of age' and 'fresh, moist, green' as is also pointed out by Street (1980: 298n.).

Chinese form of *rúizǐ* 孺子 ‘a child; my lad’ (Mathews 1972 §3147). Its Eastern Han Chinese pronunciation is given as **njuah-tsjəh*: by Coblin (1983: 183, 191).⁷⁷ Schuessler (2007: 445) emphasized that in Old Chinese the phrase *rúizǐ* 孺子 meant literally ‘weak child,’ and *rú* 孺 is a derivation from or perhaps identical with *rú* 懦 ‘weak, timid.’ This word also occurs in the names of two Chinese emperors, *Rúizǐ* Xi 孺子熹 (fifth c. BCE) of Wèi 魏 (Riegel 1977) and *Rúizǐ* Yīng 孺子嬰 (5–25 CE) of Hàn 漢. The speakers of Turkic must have heard the Chinese word as **níwa:tsə*: and adopted it as **níāt₂ǎ* [níātsə] to their speech.⁷⁸ Since this borrowing can at the earliest be dated to the second century BCE in which Han–Xiongnu relations were diplomatically intensified through the *heqin* (和親) policy, the existence of **/t₂/* is secured for that period. This loanword thereby establishes the time-depth of Late Proto-Turkic.

A Xiongnu word in Chinese transcription not only backs up the reconstruction of **/t₂/* but also sheds light as to when it has changed to */š/* in Common Turkic. I relate *jūcì* 居次 *kia-tsh^hi* ‘lady, married daughter’⁷⁹ (Schuessler 2014: 272) to the Common Turkic *kisi* ~ *kissi* ~ *kiši* (OU *kiši*, DLT *kis(i)* ~ *kiši*, Kh. *kiši* ~ *kišü* ~ *kissi*) ‘woman, wife’ (ED 748, 749; Maue & Röhrborn 1985: 69; Zieme 1992: 306–307; Li 1999: 248–249; Doerfer 1993: 63) that is unavoidably contaminated with CT *kiši* ‘person.’⁸⁰ The fluctuation of */s/* and */š/* in Turkic may be explained through the circumstance that **/t₂/* had already begun to change to */š/* in some Early Common Turkic dialects at the time the word was borrowed. The Xiongnu word, which I reconstruct as **kitsi*,⁸¹ entered the conservative dialects that had not completed this sound change as **kit₂i*. This form regularly yielded *kiši* in Common Turkic. The innovative dialects that no longer possessed the phoneme **/t₂/*, on the other hand, substituted the Xiongnu **/ts/* through */s/* and

77 The same phrase is reconstructed as **ńo-tsiə* for Later Han Chinese (Schuessler 2007: 445, 633), as **ńjuh-tsjə?* (Schuessler 1987: 516, 862) for Early Zhou Chinese and as **nos-tse?* for Old Chinese (Baxter & Sagart 2014).

78 A similar delabialization has apparently also occurred in the adoption of Chinese words in the Huán-Mò rhyme group into Old Uyghur (BTT 34: 183–184).

79 The Eastern Han Chinese pronunciation of 居 is given as **kjah* and **kjā* (Coblin 1983: 162, 201, 213, 226). Its Old Japanese (*Wei zhi* stratum) pronunciation, on the other hand, is *ka* (Bentley 2016: 91).

80 De Groot (1921: 197n.) compared the Xiongnu word with the Turkic ‘kiš.’ It remains unclear to me whether de Groot had an attested Turkic word in mind, or he simply reconstructed a hypothetical Turkic form.

81 Zheng Xuan’s 鄭玄 (127–200 CE) hint that “居 is read like 姬” (Bentley 2016: 91) must be noted here. Coblin (1983: 201) gives the Eastern Han Chinese pronunciation of the latter as **kjəh*. Also cf. Hakka *ki-tshü* (MacIver 1904: 31, 60).

so emerged the variant *kisi*. This Xiongnu word from the first half of the first century BCE sets the date for the emergence of the Turkic sound change $*/t_2/ > /š/$ and the Early Common Turkic dialects.⁸²

A third possible loanword in Turkic may help us to date the change of $*/t_2/$ to a lateral consonant in Bulgar Turkic. If a form related to Tch. B *ñyātse* ~ *ñātse* 'danger; plague, distress' (also 'need') (Adams 2013: 291) and Tch. A *ñātse* 'molestia, periculum' (Poucha 1955: 109) is the source of CT *yās* ~ *yāš*⁸³ '1. vred, ušcerb; 2. smert', gibel'; 3. traur, plač po umeršemu, pričitanie, plač, oplakivanie, otčajanie, predmet otčajanija, pečal', pominki' (ÈSTJa IV 150) and BT **jās* 'mourning' (cf. Hung. *gyász* 'mourning, bereavement,' Cher. *sös* 'Gedächtnisfeier für die Verstorbenen') (TLH 376–377; Paasonen 1948: 112), we can assume that it was borrowed into Common Turkic as the change of $*/t_2/ > /š/$ was still in progress because CT *yās*, like CT *kisi* ~ *kiši* treated above, shows an alternation of $/s/ \sim /š/$. This dates the borrowing to the first half of the first century BCE. Unlike Common Turkic, Bulgar Turkic must have already undergone the change of $*/t_2/ > */L/$ at that time. Otherwise, we would find either $†jāl$ or an alternation of $†jāl$ and **jās*. In conclusion, the change $*/t_2/ > /L/$ in Bulgar Turkic seems to have come to pass prior to the change of $*/t_2/ > /š/$ in Common Turkic, presumably in the second half of the second century BCE.⁸⁴ Even though it does not help us in corroborating this dating, PTch. **iētse* '(outer) skin' > Tch. A *yats* (~ *yäts*), Tch. B *yetse* (Adams 2013: 549) is another possible loanword in Proto-Turkic. It

82 Róna-Tas (1982: 120–122 and elsewhere) maintained that the word for 'stirrup' must have existed in Turkic prior to the split of Bulgar Turkic and Common Turkic and so dated their divergence to the first centuries BCE. This dating is in accordance with our dating of the sound change $*/t_2/ > /š/$ which marks the emergence of Common Turkic.

83 Three instances from three different periods of Turkic speak for a variant in *yāš*: OU <yāš> *yaš* 'Schaden' (TT VIII O 7), QA *yaš* 'mourning' (Boeschoten & O'Kane 2015: 698), Yak. *ös-sās* 'bran', *vražda*; *zlost*'; *spory-perekory*' (Pek. II 1973, s.v. *ös*).

84 Tch. AB *tsit* 'to touch' (Malzahn 2010: 992–993; Adams 2013: 807), without any Indo-European etymology, may serve as evidence for the opposite direction of borrowing if it can be related to the Late Proto-Turkic form **d₂etä-* that yielded CT *yet-* 'to catch up, to reach; to be sufficient' (ED 884–885) and Chuv. *šit-* '1. doxodit', *doezžat*, *dobirat'sja* i t. d.; 2. približat'sja, *nastupat*'; 3. *dogonjat*, *nagonjat*, *približat'sja* k komu-čemu-l.; 4. *dostavat*'; 5. *dostigat*'; *doxodit* do čego-l.; 6. *posetit* kogo-čto-l., *pobyvat* gde-l.; 7. *uspevat*'; 8. *sbyvat'sja*, *ispolnjat'sja*, *osuščestvľjat'sja*; 9. *xvatat*, *byt* dostatočnym; 10. *postigat*, *obrušivat'sja*; 11. *ravnjat'sja*, *byt* ravnym' (ChuvRSI 419). PT **d₂-* [dz ~ dʒ] was substituted by $/ts/$ in Tocharian because it lacked its voiced counterpart. The semantic gap between 'to touch' and 'to reach' is easily bridgeable. Note that OT *täq-* 'to reach (a place)' also gained the meaning 'to touch' from Middle Turkic on (ED 476). According to Carling (2005: 65–66), Common Tocharian is to be dated around the beginning of our era. This sets the *terminus ante quem* for this borrowing.

probably entered Turkic as **(i)ät₂ă ~ *(i)äsă* and gave *ăš ~ *äs* (OU *eeš*, Tt. dial. *eš*, Tkm. *ešen*, Uzb. *eš*, Tuv. *esteŋi*) ‘placenta’ (Ölmez 2008: 233–234) in Common Turkic.⁸⁵ Intriguing word forms with the same meaning and not identifiable as of foreign origin are found in Ottoman Turkish (thirteenth or fourteenth c.) as *ätän* ‘döl eşi, meşime, son, döl yatağı’ (Doğuer 2013: 157), in Turkish dialects as *etene*, *etine* and *etek* ‘insan ya da hayvan eşi, sonu’ (DS 1797) and in Azerbaijani as *ätänä* ‘posled, placenta’ (AzRSI II 129).⁸⁶ All of these forms ultimately go back to **ätän*, which is either a younger loanword from Tocharian, or the result of a sporadic change of **/t₂/* to */t₁/*. At this point, I would also like to remind the reader that Naert (1964: 257–258) considered the Tocharian word, which is quite likely of Indo-European origin, a loanword from the Khanty *et* ‘body, surface of the body; skin of human beings.’ Van Windekens (1964: 594–595), however, rejected this etymology and established a connection with the Mordvinic *jožo*, *jož(a)* ‘surface’ and Zyryan *ež* ‘the inner side of the skin; skin; flesh.’

As I have suggested the presence of ancient Tocharian loanwords in Turkic, it may be appropriate to back up this suggestion indicating a firm witness of the linguistic contact between Xiongnu and Yuezhi who spoke Tocharian. Pulleyblank (1966: 19–20) made an important point when he considered the Xiongnu title *ruòdī* 若鞮 *ńak-te* (glossed as *xiào* 孝 ‘filial piety’) (Schuessler 2014: 280) as a borrowing from the Lesser Yuezhi title *Ruòjū* 若苴 *ńak-tsia* (Schuessler 2014: 280), which is an equivalent to Tch. A *ńakci*, B *ńakciye* ‘divine, celestial, heavenly’ (Adams 2013: 284–285; Barnes 2013: 41n.). However, the Xiongnu title is more likely to be a loanword from Tch. B *ńakte* ‘god’ (Adams 2013: 281–282). Blažek & Schwarz (2017: 65–66) already referred to this connection and concluded that “during the 1st cent. BCE the chieftains of the tribal confederation, in Chinese sources called Xiongnu (匈奴 *Xiōngnú*), introduced among their titles and epithets a Tocharian word with typical features of Tocharian B.” I suspect that the enigmatic Middle Turkic word *yagdu ~ yagtu ~ yakdu ~ yaktu* ‘light, brightness, splendor’ (see TMEN §1902 and Tezcan 2020: 86–87 for documentation and etymology) may go back to **ńaktu* and be somehow related to the Xiongnu **ńakte*. If my suspicion is correct, the Xiongnu and Lesser Yuezhi words must have originally meant ‘light, splendor’ and therefore also ‘majesty,’ although none of

⁸⁵ The identification of CT *ăš* ‘placenta’ with CT *eš* ‘companion, comrade; spouse; one’s equal’ (ED 253–254) is phonetically not possible.

⁸⁶ Tkm. *etene* ‘operivšijsja (o ptence)’ (TkmRSI 795) may also belong here.

the attempted PIE etymologies of the Tocharian word supports this assumption (see Barnes 2013: 41–51 for an overview of the etymological suggestions). The only evidence for the existence of a root similar in meaning in the languages concerned may be the Koguryōan *nàixi* 奈兮 **nayeĩ* ‘white (白),’ for which Beckwith (2007: 57, 252) offers no comparison. This word can be taken to point to a root in **háK-* ‘bright, shining’ that entered Koguryōan from one of the languages beyond its western border.

Last, but not the least, *Čāč*, the old name of Tashkent, may also serve as a confirmation for the Proto-Turkic **/t₂/*. This name appears as *ššs[tn]* and *Τσατσηνης* in the Great Inscription of Shapur I (Huyse 1999: II/37), as *cʼcnʼy* ‘of Chach (Tashkent)’ in Manichaean Sogdian (Henning 1940: 8–9), as *cʼcynk* ‘čáčskij’ in the Sogdian Mugh document A-14 (Livšic 1962: 81–83) and as 柘支 *tśja-tśje*, 柘折 *tśja-tśjät* and 赭時 *tśja-ži* in Middle Chinese (Pulleyblank 1962: 248).⁸⁷ To the extent of my knowledge, the only etymology for this toponym has been offered by Gershevitch (1974: 55, 72) and, following him, by Livshits (2007: 179). According to these scholars, *Čāč* comes from the Old Iranian **čāiča-* ‘area of water, lake,’ which is in turn related to *Čāēčista-*, the Avestan name of the Aral Sea. *Čāč* allegedly represents the vridhhi form of **Čāēčā*, assimilated from an older **šaičā*. Having served as a name for the Aral Sea, it subsequently came to be used for the Tashkent oasis. This etymology is based on too many assumptions. The city and its surrounding regions were in control of the Kangju until the third century CE who had direct contact with the Northern Xiongnu and the Dingling in the first century BCE (Golden 1992: 62; Kim 2013: 33, 182). The name of the city is highly likely a relic of one of these contacts and stems from the Late Proto-Turkic **t,iāt₂(ä)* ‘stone.’⁸⁸ This and the Chinese *Shíguó* 石國 ‘Stone Country’ used later by Tang times (Pulleyblank 1962: 246–248; Pulleyblank 1995: 426) both seem to be translations of *Kāngjū* 康居 EHC *kʰaŋ-kia* (Schuessler 2007: 322, 332), possibly meaning ‘stone.’ Against the assumption of Pulleyblank and Bailey, behind **kaŋk-* ‘stone’ is not a Tocharian, but an Iranian word hidden, cf. Pashto *kāṇay* ‘stone’ (see Blažek & Schwarz 2017: 51 for further forms and references).⁸⁹ Aalto (1977: 198)

⁸⁷ The Middle Chinese pronunciations are given according to Schuessler (2007).

⁸⁸ In my view, Janhunen’s (2016: 192–193) ‘Pre-Proto-Macro-Turkic’ reconstruction **tixash* is completely ungrounded. Particularly, the medial **-x-* and the final **-š* are forcibly inserted into this reconstruction.

⁸⁹ Tch. A *†kānk-* ‘stone’ turns out to be non-existent. Carling (2009: 109) reinterpreted the attestations cited by Bailey as ‘river; the river Gaṅgā’ (with a question mark!) and ‘designation of an auspicious sign on the body of the Buddha.’

concludes his study focusing on the name of Tashkent as follows: “[...] it seems that since time immemorial the various names of Tashkent have been translations or transformations of older ones and have always had the sense ‘stone.’”

The reconstruction of $*/t_2/$ for Proto-Turkic leads us to the following conclusive reinterpretation of our data: the Turkic forms reconstructed with L (6–11) are from Proto-Bulgar Turkic whereas those with $*t_2$ turn out to be from Early and Late Proto-Turkic (13–14). The only Common Turkic instance with $*ʃ$ (12) is still dubious. Five items with R (1–5) are either of (Late) Proto-Turkic or of Proto-Bulgar Turkic origin. Although it is now clear when the Proto-Turkic $*/t_2/$ underwent the changes that formed Common Turkic and Bulgar Turkic, we are still left with the uncertainty whether in Bulgar Turkic $*/t_2/$ directly merged with $*/l/$ or first changed to $*/L/$ and then merged with it. It also remains open as to when the two rhotic phonemes have merged in Bulgar Turkic. Concerning these questions, none of the adjacent languages can provide us with deeper insight.

So, we attain a series of phonemes for Proto-Turkic $*/t_2d_2r_2/$ which probably had affricate and/or fricative realizations. To these series, one more phoneme may be added: a fourth velar consonant beside $*/k g ɲ/$, which I would like to denote as $*/k_2/$. This phoneme may explain the Turkic loanwords in Mongolic that appear with onset k - although their Turkic cognates have been attested with vocalic onsets. In historical Turkic, this consonant has apparently been elided in all positions and left no explicit traces. Three of these loanwords, belonging to the spheres of agriculture, leatherwork and woodcraft, are given beneath.

1. WM *kili* ~ *kile* ‘furrow between two fields, border, boundary; frontier; limitation’ (L 466), Khal. *xil* ‘1. (~ xyazgaar) frontier, boundary, border; 2. rift or ridge in ice on a lake’ (Bawden 1997: 440), Bur. *xile* ‘1. granica, rubež; 2. meža, linija, čerta; 3. gran’, rubež, granica, styk (*napr., stoletij*) (BurRSI II 424), Oir. *kile* ‘granica, rubež’ (Todaeva 2001: 198), EYug. *kil* ‘border, borderline, frontier’

(Sün 1990: 349) < **kili*⁹⁰ < **kiri*⁹¹ ← Tu. **k₂īr₂l̥* ~ **k₂īr₂l̥* > **īr₂* ~ *īr₂* > CT *īz* ~ *īz* '1. sled (sledy); 2. nažim; 3. čerta, borozda; koleja, linija; tropa, tropinka; doroga dlja pešexodov; doroga, put'; ruslo; rel'sy; 4. put', sposob, rod; 5. povedenie; 6. potomstvo' (ĖSTJa I 646–647; Károly 2001: 73–75), OU (Br.) *iz* 'Spur' (Maue 1996: 151–152), Kum. *hiž*⁹² (гыз) 'linija, čerta' (KumRSl 133), Chuv. *yēr* 'Spur; Streif, Rand' (Paasonen 1974: 25), Chuv. *yēr* '1. sled; otpečatok; 2. tropa, tropinka, dorožka; koleja; 3. linija, čerta; 4. morščina; 5. stroka' (ChuvRSl 128).⁹³

2. Mo. **kedergen* 'a wooden scraper used in tanning hides' (Khabtagaeva 2017: 103) ← Tu. **k₂äd,ir,ä-k,ä* > CT *ädräk* > Kum. *iyrek* 'prispodoblenie dlja vydelki koži' (KumRSl 167), Kklp. *iyrek* '1. zigzag, izvilina, lomanaja linija; / zigzagoobraznyj, izvilistyj; 2. prispodoblenie dlja očistki koži (železnaja ili derevjannaja plastinka s krupnymi zub'jami)' (KklpRSl 292), Kirg. *iyrek* '1. zigzag, izvilina, lomanaja linija; zigzagoobraznyj, izvilistyj; 2. prispodoblenie dlja očistki koži (železnaja ili derevjannaja plastinka s krupnymi zub'jami)' (KirgRSl I 297–298), Alt. *edrek* 'mjalka dlja vydelki kož i škur' (OjRSl 189), Alt. *ädräk* 'instrument dlja vydělki ovčín – ein Instrument zum

90 The change ^ori- > ^oli- is sporadic, but not isolated. It already occurred in Pre-Proto-Mongolic, cf. WM *qali*- 'to flow over the brim of, overflow (of a vessel or river); to appear over melting ice (of water)' (L 919) < **kari*- ← CT *kār*- 'to overflow' (ED 643), OU *kar*- 'überfluten' (Wilkens 2021a: 333). Note that Chag. (Baburnama) *kīrla*- 'to cut a furrow' (Thackston 1993: III/853) and Kh. *kīl* 'Furche, Rinne' (WCh 151) are almost certainly unidentified Mongolic loanwords.

91 Cf. Man. *irun* '1. Erdaufschüttung, Erhöhung; 2. konvexer Dachziegel; 3. Wulst; 4. erhöhter Erdstrich zwischen zwei Bewässerungsrinnen im Acker; 5. Leiste der Dachrinne; 6. Heizung im Kang; 7. Karrenspur, Wagengleise' (Hauer 2007: 265), Man. *iri* 'plot, bed (in a vegetable or flower garden)' (Norman 2013: 199). The former may have been borrowed from a Kitan form **ir*.

92 The initial *h*- of the Kumyk form is isolated and probably secondary, cf. Kum. *hav* '1. oxota; lovja // oxotničij; 2. dobyča, oxotnič'i trofei' (KumRSl 122) but Kh. *gwcī* 'Jäger' (LSpCh 304). It must be noted that, despite its formal and semantical similarity, Tt. dial. *hozan* (~ *hizan*) 'fallow field, unplowed field, stubble etc.' does not belong here because it is a loanword from Arm. *xozan* 'stubble; (dial.) field reaped but not yet plowed; land left fallow for two years' (Dankoff 1995: 65). Kh. *histäk* 'Wunsch' (WCh 133) cannot be taken as a proof for CT **hiz* either since the etymology of the verb *istä*- is still disputed (OTWF 455–456; Károly 2001: 79–80; UWNb I/2: 131–134).

93 The meaning 'border, boundary between two fields' is better manifested in the Common Turkic derivative **iz*+*an*: Nog. *izan*, Tat. *izan*, Bashk. *izan*, Kum. *hizan*, Chuv. *yāran* (ĖSTJa I 647–648; Károly 2001: 76). Chuv. *yāran* also means 'furrow.' If it is not a loanword, Karachay-Balkar *ījī* 'meža' (KrchBlkRSl 759) must also be connected with **ir*₂.

Weichmachen der Schaffelle' (R I 861), Ab. *ezrek* 'mjalka dlja vydělki kož' (Verbickij 1884: 41), Alt. *edrek* 'ploskaja palka s zubcami na oběix storonax, dlja vydělki ovčín' (Verbickij 1884: 465), Khak. *izřek* 'kožemjalka (*derevjannaja palka s zazubrinami dlja vydělki škur*)' (KhakRSl 120), Sag. *ezrāk* 'mjalka dlja vydělki koži – ein Instrument zum Weichmachen des Leders (beim Gerben)' (R I 900), Yak. *ätirik* 'dugoobraznyj želėznyj skobel', kotorym smjagčajut kožu' (Pek. I 317), cf. CT *ädirä-gü* > Tuv. *ediree* 'tool (wooden, saw-toothed) for scraping animal hides' (Anderson & Harrison 2003: 63), Tof. *edrää* (эдpəə) ~ *edřää* (эдpəə) 'skobel' dlja razmjagčeniija vydublennoj škury, kožemjalka' (Rassadin 2016: 573).

3. Mo. **kirüe*⁹⁴ 'saw' (N 416) < **kerüpeg* ← Tu. **kär,ipä-g* > CT *ärpäg* > OU *erpäg*⁹⁵ 'a saw' (OTWF 176), Dolg. *ärbi* 'Säge' (Stachowski 1993: 47), Yak. dial. *ärbilä-* 'pilit', raspilivat' drova' (DSLJaS 250), Yak. dial. *ärbī xardarar* 'instrument dlja razvodki zub'ev pily poočeredno v raznye storony' (DSLJaS 251).

We also find implicit traces of this consonant in morphology. As already implied by Károly (2009: 351), the dominant vowels of the Old Turkic formatives *-Xn* and *-Xš* hint at the earlier forms **-CXn* (= **-k₂Xn*) and **-CXš* (= **-k₂Xš*), respectively.⁹⁶ Taking this into account, the Proto-Turkic form of CT **(h)ariš* 'shaft'

94 PTg. **hirögā* 'file' and PTg. **hirögā-* 'to rasp, to file' (SS I 328–329; EEW §4989) do not belong here.

95 The Old Uyghur word is given as *erpäk* by Wilkens (2021: 262).

96 The merger of two distinct formatives in CT *-Xš* is best seen in its two distinct reflexes in Chuvash: *-Āś* (Levitskaja 1976: 163) and *-Āl*. The latter is unproductive and is attested in only a few nouns. Among them, the only transparent one is Chuv. *xāvāl* '1. duplo; duplistyj; 2. duplo (*zuba*); duplistyj, s duplom; bort'; bortevoj; 4. polost'; polyj; 5. pustota; pustoj, pustotelyj' (ChuvRSl 541): CT *kovuš* 'hollow, empty' (< **kov-* > *kovi* 'hollow', *kovok* 'hollow, empty', *kovga* 'pail, bucket') (ED 613, s.v. ²koğuş; OTWF 269). WM *yobil* 'cavity, hole, pit, hollow, groove, depression' (L 357) and *qobil* 'groove' (L 949) come from **gobial* (with **ia* > *i* in the second closed syllable), which is a loanword from BT **gobyāl₂* < PT **gobk₂āt₂ā*. Other examples of this formation are opaque: Chuv. *xirlü* '1. tetiva; 2. struna (*prisposoblenie dlja bit'ja šersti*); 3. stužen', vjazok (*derevjannaja detal', soedinjajuščaja konec poloza s grjadkami*); 4. dial. ognivo' (ChuvRSl 558): CT *kiriš* ~ *kiriš* 'bowstring; cord; the joist (of a roof)' (ED 747; ÈSTJa V 71–72), Chuv. *šāmāl* 'povod, predlog, pričina' (ChuvRSl 402): CT *yumuš* 'errand' (ED 938), Chuv. *xāmāl* '1. stebel' (*zlakov*); 2. sternja, stern'; 3. žniv'ė' (ChuvRSl 544): CT *kamiš* 'reed, cane, rush' (ED 628–629), Chuv. *kēmēl* '1. serebro; serebrjanyj; serebristyj, serebrjanyj' (ChuvRSl 168): CT *kümüš* 'silver' (ED 723–724). Perhaps OU *koguš* 'Fell, Leder, Trommelfell; Lederschlauch; ledern, Leder-' (Wilkens 2021a: 389), cf. Mo. **koala(i)* 'throat' (N 416), also belongs to this formation.

must be reconstructed as **pār,k₂āt₂ǎ*. Assuming that **/k₂/* changed over [ç] to [y] in Proto-Bulgar Turkic, this form may have given **pār,yǎl₂ǎ* there. Exactly **pār,yǎl₂ǎ* must have been the source of Tabg. **parialan* discussed under (10) above. Similarly, the Proto-Turkic form of CT *hidiš* ~ *hidiš* 'cup, vessel' may be reconstructed as **pid,k₂āt₂ǎ* if it derives from **pid,ǎ-* related to PS **pāt-* ~ **pāt₃-* 'in den Topf legen' (SW 118). Its regular Proto-Bulgar Turkic form **pid,yǎl₂ǎ* would better explain Kit. **pilia* (< **pili₁ala* < **pidiala*) discussed under (8) above. Even PS **petā* '(earthen) vessel' may be traced back to PPS **petjāl'(e)*. The vowel length in the second syllable of Kh. *hidiš* also underpins our reconstruction with **/k₂/*.

If **/k₂/* also gave *y-* in the onset, the Proto-Turkic form of CT *āt* 'name, reputation' and Chuv. *yat* (< **yāt*) 'name, title' may be reconstructed as **k₂alt,ǎ*. Its later Common Turkic form **altǎ* entered Kitan as *ālūdūn* 阿魯敦 **aldur* ~ *ālūduōlǐ* 阿廬朵里 **aldor* 'male personal name' (Sūn & Niè 2008: 47–48), Mongolic as **aldar* (< **aldo.r*) 'fame, popularity, glory' (Sūn 1990: 102) and Tungusic as **aldō* 'Neuigkeit' (EEW §367). The verbal base **k₂al-* 'to say' of **k₂alt,ǎ* is highly reminiscent of PS **kā-* (< **kāl'-*?) 'rufen, bitten' (SW 56) and Pump. *kalí, kalà* 'to say, to speak' (Werner 2005b: 182–183).⁹⁷ I have a strong feeling

⁹⁷ The elision of /l/ in front of /t/ and the resulting compensatory lengthening of the vowel are also observed in CT **āt-* (Tkm. *āt-*) 'šagat' (ÈSTJa I 88; VEWT 31), Chuv. *ut-* 'iditi, šagat' (ChuvRSL 519) < Tu. **alt,iǎ-* and CT **kāt-* (Tkm. *gāt-*, Kh. *kātük* ~ *kātük*) 'to notch, chip, gash (something)' (ED 700–701; WCh 149), Chuv. *kat-* '1. kolot'; 2. vydalblivat' (*dolotom*); 3. rassekat'; 4. ustupat', sbavljat', ubavljat' (*v cene*); 5. vyčitat', uderživat' (*napr. iz zarplaty*); 6. ubavljat', umen'sat', sokrašcat' (*količestvenno*)' (ChuvRSL 152) < Tu. **kältǎ-*. The ancient forms are preserved in PM **alča-i-* 'to spread the legs' (N 267) (with **ia > a* in the second open syllable) and PM **kelte-* 'to break off, to chip off'; cf. Evk. *kelte-* 'otlomit' (*kusok xleba*)' (SS I 446), respectively. The structural resemblance of PM **alčala-* 'to spread the legs' (N 267) and WM *alčam* 'big step' (L 28) with CT **ātla-* (Tkm. *ātle-*) '1. šagat'; 2. perešagivat', perestupat'; 3. prygat', pereprygivat'; izmerjat' šagami' (ÈSTJa I 322) and **ātīm* (Tkm. *ādim*) '1. šag; 2. sled, sled nogi (stupni)' (ÈSTJa I 88) speaks in favor of this relationship. The scarcity of the coda /lt/ in Old Turkic (e.g., *tölt* 'pillow') also shows that the primary **/lt/* must somehow have been altered. Another Turkic verb ending in **-t,iǎ* is **gat,iǎ-* > **katǎ-* > CT *kat-* (Osm. *katī-*, Yak. *xat-*, Kh. *qattu-*) 'to be hard, firm, tough' (also 'to dry up') (ED 595; ÈSTJa V 334–335; WCh 175), Chuv. *xīt-* '1. tverdet', zatverdevat', stanovit'sya tverdym; 2. zastyvat'; sxvatyvat'; 3. styť, stynut', zastyvat'; kočenet'; 4. grubet', stanovit'sja grubym; 5. stanovit'sja trudnym, tjaželym (*o žizni*); stanovit'sja nedostupnym (*dlja priobretenija*); 6. stanovit'sja bolee strogim, žestkim; 7. byť skupym, skržagoj, skupit'sja; skržažničat' *razg.*; 8. stareť, terjat' vkus (*o pive*)' (ChuvRSL 574). The Turkic verb was borrowed twice into Mongolic, surfacing as WM *yača-* 'to harden, dry; to freeze, freeze over; to be blocked, entangled, caught, or jammed; to become mulish, obstinate; to resist, thwart, oppose; to contradict; to interfere, stand in the way; to die (of animals)' (L 341) and PM **kata-* 'to be or become hard or dry' (N 405).

that the hapax legomenon *qala* ‘Kommando, Signal, Befehl (號令)’ (Haenisch 1939: 57) in SH is linked to **k₂al-* although its morphological structure remains obscure. The *KAL*-type verbs with the meaning ‘to call, to shout out’ are typologically common: PIE **gal-* ‘call out, speak,’ **kelh₁-* ‘call out to’ (Mallory & Adams 2006: 473, 489), OC hē 𐎧𐎡𐎴 **qhaal* ‘shout, scold’ (Zhèng Zhāng 2003: 391), Ar. قال *qāla* ‘sprechen, sagen’ (Wehr 1985: 1065–1066).

Furthermore, some *nomenverba* appear to be the result of the elision of **/k₂/*: CT *kari-* ‘to be or become old’ < **kar₁i-* vs. CT *kari* ‘old’ < **kar₁ik₂ǃ*. Finally, and most importantly, some zetacistic changes can be better explained with the involvement of this consonant, e.g., CT *kōz* ‘eye’ < **k₂ō(ä)r₂ǃ* < **k₂ō(ä)r₁k₂ǃ* derived from **k₂ō(ä)r₁-* ‘to see.’ In this case, */r₂/* apparently resulted from the fusion of */r₁/* and */k₂/*. The Proto-Bulgar Turkic had, instead, the derivative **k₂ō(ä)r₁ǃǃ* which yielded *kuś* (Str. *kōes* !) in Chuvash. In view of this argument, the etymology of CT *bōz* ‘grey, brown’ can also be reviewed. Despite what has been stated above, it is more likely to be a loanword from Ir. **bōrk^hə* / **bōrxə* < **bauraka-* / **bōraka-* (ÈSIIa II 153; Tavernier 2007: 148), cf. Khot. *baurkhä* ‘yellow leaf (?)’ (Bailey 1979: 306),⁹⁸ instead of **bōrə* < **baura-* ‘brown, bay, grey.’ So, one does not need to explain why the Iranian */r/* entered Proto-Turkic as **/r₂/* and not as */r₁/*. In short, CT **bōz* goes over **bōr₂ǃ* ultimately back to PT **bōr₁k₂ǃ*.⁹⁹

Seeing **ga-tiä-* ‘to dry and harden’ < **ga-* > CT *ka-k* (Osm. Tkm. *kak*) ‘something dried’ (ED 608; ÈSTJa V 218–220), **alt₁iä-* may be analyzed as a derivative of **al(ǃ)-*, which perhaps survived in PM **alku* ‘step’ and **alku-* ‘to step’ (N 268).

⁹⁸ Emmerick & Skjærvø (1982: 94–95) reinterpreted the Khotanese word as ‘root bark.’

⁹⁹ WM *borki* ‘old badger’ (L 121) and Kalm. *bork^o* ‘dachs; alter, grosser dachs’ (KWb 52), *bork* (борк) ‘staryj borsuk’ (KalmRSI 111) might be etymologized in connection with PT **bōr₁k₂ǃ* ‘grey.’ Note that Tekin (1986: 157–158) and Erdal (OTWF 101) also derived DLT *borsmuk* ‘badger’ from *boz* ‘grey, grey-brown.’ In this case, however, the color name may be referring to the old age of the animal.

Table 2 Proto-Turkic consonantism

	labial		dental	alveolar		postalveolar	palatal	velar
plosive	*p	*b		*t ₁	*d ₁			*k ₁ *g
nasal		*m			*n		*ń	*ŋ
trill / tap					*r ₁			
fricative			*t ₂ *d ₂	*s	*r ₂			*k ₂
lateral fricative								
approximant							*y	
lat. approximant					*l			
affricate						*č		

Table 3 Proto-Bulgar Turkic consonantism

	labial		dental	alveolar		postalveolar	palatal	velar
plosive	*p	*b		*t	*d ₁			*k *g
nasal		*m			*n		*ń	*ŋ
trill / tap					*r ₁			
fricative			*d ₂	*s	*r ₂			(*k ₂)
lateral				*l ₂				
fricative								
approximant							*y	
lat.					*l ₁			
approximant								
affricate						*č		

Table 4 Proto-Common Turkic consonantism

	labial		dental	alveolar		postalveolar	palatal	velar	
plosive	*p	*b		*t	*d ₁			*k	*g
nasal		*m			*n		*ɲ		*ŋ
trill / tap					*r				
fricative			(*d ₂)	*s	*z	*ʃ		(*k ₂)	
lateral									
fricative									
approximant							*y		
lat.					*l				
approximant									
affricate						*č			

As is inferable from Table 1 above, Proto-Bulgar Turkic had a greater impact on the adjacent languages in comparison to Proto-Common Turkic. This can be explained only through the higher cultural level and greater political power of the early Bulgar Turks. The argument that the Dingling who were present in the area from the third century BCE to the third century CE spoke Bulgar Turkic perfectly fits with our linguistic conclusions.

The question as to why the attested Turkic languages do not exhibit any onset consonant that is more archaic than *h-* also needs to be answered. My answer to this would be that the two main branches of Turkic remained in a similar linguistic environment after their split until the westward migration of the Bulgar Turks. In this environment, they must both have undergone the sound change of **p- > h-* simultaneously.¹⁰⁰ This change may have been triggered by the common ancestor of the modern Ket and Yugh languages that was spoken in the Xiongnu Empire and made the sound change

¹⁰⁰ I deem it highly likely that the Proto-Turkic **p-* directly changed to *h-* without an intermediary **f-*. Note that the Orok *p-* also fluctuates with *h-*.

of *p- > *f (> Ket *h-*, Yugh *f-*) probably in the first centuries CE. Parallel developments discussed under (7) and (9) also attest to the contact between Bulgar Turkic and Common Turkic after their split.

Doerfer (MT 154, n. 29) suggested that the sound change of *p- > *h-* took place prior to the emergence of Tuobá 拓拔, i.e., around the birth of Christ or shortly after. Unfortunately, this assumption was based on the misinterpretation of two Tuoba glosses as originating from Turkic donor forms with initial *h- (MT 163). Anyhow, Doerfer’s dating still appears to be accurate. The Turkic *p- seems to have been retained until the split of Proto-Samoyedic or even after it. The Turkic loanwords in Proto-Samoyedic, such as *pârâjâj¹⁰¹ ‘Bohrer’ (SW 114) < *pârâ- ‘kaira’ (Janhunen 1981 §36), *pâ¹⁰² ‘Holz, Baum, Wald’ (SW 117) and pâyma ‘Stiefel’ (SW 118), which correspond to the Common Turkic *hēr¹⁰³ ‘to drill, to breach’ (ED 194), *hī (~ *hā)¹⁰⁴ ‘vegetation, bush, tree’ (ED 1) and *(h)oyma¹⁰⁵ ‘felt boots’ (ED 273),

¹⁰¹ Janhunen (1981 §36), Sammallahti (1988: 539b), Rédei (UEW 405) and Katz (2003: 262–263) regarded the Proto-Samoyedic form as going back to the Proto-Uralic *purâ / ?*purâ-, *purâ, *pura and *pârâ, respectively. According to Janhunen, the sound correspondence is flawless. Nevertheless, the Proto-Samoyedic root is verbal whereas the Finno-Ugric form is nominal. If, despite this discrepancy, the proposed connection is true, *pârâjâj must be discarded from the list.

¹⁰² Helimski (1997 §267) reconstructed it as PS *pâ ‘Holz, Baum, Wald.’ Cf. also PY *p^haʔj / *p^haj ‘Zeder (Zirbelkiefer)’ (Werner 2002: I/310), *paʔj ‘cedar’ (Fortescue-Vajda 2022: 276). Janhunen (1981 §126), Sammallahti (1988: 539b) and Rédei (UEW 410) linked the word to the Proto-Uralic ?*p3xj, *pu/o/äxi/i and *puwe, respectively. In connection with PS *pâ, Koivulehto (1991: 56–57) writes: “Es liegt also hier offenbar eine samojedischerseits unregelmäßige Vokalvertretung vor, die als Indiz für fremde Herkunft des Wortes aufgefaßt werden könnte.”

¹⁰³ The front vocalism is secured by the Old Uyghur and Qarakhanid derivatives *irök* ~ *irük* (read: *erök* ~ *erük*) ‘lückenhaft, schadhaft, morsch, mangelhaft; Lücke, Riss, Auslassung’ (Wilkens 2021a: 310) and *erük* ‘a breach or crack (*tulma*) in a wall, or other’ (CTD I 110) as well as the Middle Kipchak noun *iršik* (with *kāf*) ‘al-mitqab’ (Toparlı et al. 2000: 32). Hung. *ír* ‘to write’ and *irdal* ‘to cut, to slit in’ might also originate from a cognate of CT *hēr- unless from CT *īr(i)- as suggested by Róna-Tas & Berta (TLH 459–464). Khanty *jeri-* ‘čertit’, zeichnen, e. Strich ziehen, mit e. Strich versehen (z. B. e. Baum)’ (DEWOS 404) rather speaks in favor of the former. The reconstruction of the initial *h- and the vowel *ē* is supported by PM *hōrüm (< *perüm) ‘drill, auger,awl’ (N 362; K 153) and Kh. *hēr-* = Per. *čīdan* (LSpCh 292). The Mongolic form may be traced back to a Turkic derivative *pērij (cf. WM *irim* ‘pus’: OT *irij* ‘id.’), which is also possibly the donor form of the Proto-Samoyedic word.

¹⁰⁴ Kh. *hayač* ‘Baum, Holz, Stock, Parasange’ (WCH 125) clearly attests to CT *h-. Cf. also PTg. *piā (< *pi-xa) ‘Birke’ (B 33), PTg. *piā.kta ‘Weide’ (B 33).

¹⁰⁵ Cf. PM *hoyūmasun ‘stocking’ (K 140–141), Man. *fomoči* ~ *fomči* ‘stockings, socks’ (Norman 2013: 118), Jur. *fumoči* ‘socks’ (Kane 1989: 331), Jur. *poimon ‘hemp (麻)’ (Sün 2004: 241).

indicate that the Turkic bilabial strong onset stop may have been preserved until the first century BCE, provided that Janhunen's (2009: 63) estimation of the Proto-Samoyedic time-depth is correct. On the other hand, the very same onset consonant must already have changed to **h-* when the Proto-ObUgrian **ırγ3 ~ *ä̃rγ3* 'song' (Korenychy 1972: 52–53, albeit with an unlikely Iranian etymology) was borrowed from an earlier derivative of CT **hür*¹⁰⁶ 'song' (ED 192), possibly similar to **hürikä*, cf. Salar *χürüχ* 'chant, chanson' (Kakuk 1962: 196).¹⁰⁷ The Turkic **h-* is not represented in Proto-ObUgrian as it lacked any voiceless velar or glottal segment (Honti 1998: 332). Since the disintegration of the ObUgrian unity began in the first centuries CE (Honti 1998: 327), the change of Turkic **p-* to *h-* must have occurred roughly around the birth of Christ, probably after it.

Our dating of the sound changes **p- > h-* and **-t₂- > -š-* in Turkic, according to which the latter precedes the former, is totally in agreement with the assumption that both Proto-Bulgar Turkic and Proto-Common Turkic preserved the onset **p-* of Proto-Turkic. In other words, the split of Proto-Turkic into these branches antedates the lenition of the onset **/p/*.

Two Turkic loanwords in Proto-ObUgrian, **saw3* and **ırγ3 ~ *ä̃rγ3*, also reveal that the word-final reduced vowels in Common Turkic survived into the first centuries CE and coexisted with **h-*. This conclusion is congruent with and confirmative of the reconstruction BT₂ **hārā* suggested by the Mongolic *aran ~ arai*.¹⁰⁸

¹⁰⁶ Cf. Tt. dial. (Urfa) *gür* 'türkür' (DS 2051).

¹⁰⁷ See Sinor (1979–1980), Ligeti (1986: 136–143) and Róna-Tas (1988: 749–750) for a discussion of possible Turkic loanwords in Proto-Ugric and ObUgrian. The most securely established Turkic loanword in Proto-ObUgrian is **saw3* 'word, voice, call, song, melody' (MSzFE 591). Despite Róna-Tas & Berta (TLH 810), the Proto-ObUgrian word must have been borrowed from CT **sāvā* and not from any Bulgar Turkic form. Seeing that the Chuvash cognate of the word lives on in *yat-šiv* 'dobroe imja, dobraja slava, čest' (ChuvRSI 651), cf. OU *at sav söz* 'Bezeichnung₃' (Wilkens 2021a: 79), the Early Bulgar Turkic form can be reconstructed as **siāvā*. Chuv. *sāvā* 'song, poem, melody,' despite Róna-Tas & Berta (TLH 810) and others, does not belong to this word family and probably has a different origin.

¹⁰⁸ Tu. **hägärä*-, **härä* and **hormäkä* are further similar forms that can be reconstructed on the comparison of CT **hägir* 'to spin, to twist, to surround' (ED 113; WCh 130), CT **här* 'man' (ED 192; WCh 129) and CT **hormäk* 'a plaited, knitted or woven garment' (ED 231) with the Proto-Mongolic **eere* 'to rotate, to spin, to surround' (Haenisch 1939: 42; Sün 1990: 248), **ere* 'man' (N 331–332) and **örmege* 'kind of coarse fabric' (N 476). Whether they entered Mongolic from Bulgar Turkic or Common Turkic remains unclear.

Table 5 Major sound changes in Turkic and their datings

Sound changes in Turkic		Approximate dating
Common Turkic	Bulgar Turkic	
	*- t_2 - > *- L -	150–100 BCE
*- t_2 - > -š-		100–50 BCE
* p - > h -	* p - > h -	> 1 CE
*- $\check{V}$ > -Ø	*- $\check{V}$ > -Ø	> 200 CE

4. CONCLUSION

The purpose of the present study is to answer whether Proto-Turkic had an onset **p-* or **h-* corresponding to the Common Turkic *h-/Ø-*. The comparative data from Turkic languages enable us to reconstruct only **h-*. In contrast, the external evidence from the Turkic loanwords in adjacent languages indirectly attests to the presence of a prehistoric **p-*. The material that comprises fourteen Turkic loanwords in different languages is presented above. Whether the onset **p-* should be assigned to Proto-Turkic or later stages is clarified in the discussion. Other important problems, such as the onset consonants of Proto-Turkic and the question of rhotacism and lambdacism, have also been dealt with. The conclusions drawn in the discussion above can be summarized as follows:

1. Proto-Turkic had the initial consonants **p-*, **h-* and **d₂-*. They yielded *h-*, *y-* and *y-* in Common Turkic. **d₂-* should be strictly distinguished from **d₁-* which merged with **t₁-* and yielded *t-* in Common Turkic. The Proto-Turkic **-d₂-* in intervocalic position also changed to *y-* in Common Turkic. The change of **p- > h-* must have taken place in Early Bulgar Turkic and Early Common Turkic around the birth of Christ, probably due to the influence of Northern Yeniseian. As clearly reflected in Mongolic, the initial **h-* was retained both in Proto-Bulgar Turkic and Proto-Common Turkic. It has been first denasalized in the later stages of both branches. The retention of the opposition of **d₁-* and **d₂-* is only secured for Proto-Bulgar Turkic.
2. Regarding the question of rhotacism and zetacism, it is assumed that Proto-Turkic had two rhotic phonemes **/r₁/* and **/r₂/*, which were probably realized within the range of [r] ~ [ɾ] and [ɹ] ~ [ʁ] respectively. As regards the question of lambdacism and sigmatism, the hypothesis has been put forward that the Bulgar Turkic /l/ and Common Turkic /ʃ/ go back to the Proto-Turkic **/t₂/* [ts] (later [θ]) which fits in with the consonantism as the voiceless counterpart of **/d₂/* [dz] (later [ð]). In onset position, the very same **t₂-* yielded č- in both branches. The emergence of /ʃ/ and /z/ in Common Turkic is linked with an unidentified Middle Iranian substrate, probably close to Khotanese Saka.
3. The change of the Proto-Turkic **/t₂/* to /ʃ/, which marks the emergence of Proto-Common Turkic, is dated to the first half of the first century BCE whereas its change to /l/ in Proto-Bulgar Turkic slightly preceded it. Thus, these changes are older than the lenition of **p- > h-* in Turkic

that took place around the birth of Christ. This chronology corroborates the suggestion that both Proto-Bulgar Turkic and Proto-Common Turkic preserved the Proto-Turkic *p-. The lenition of *p- > h- is followed by the loss of the word-final reduced vowels. So, it turns out that the onset *h- and the reduced coda vowels coexisted for a while in Early Common Turkic and Early Bulgar Turkic.

4. The parallel development of some Bulgar Turkic and Common Turkic forms is suggestive of an early contact between these branches. In other words, they first split and diverged, then converged and finally lost contact completely.
5. In view of the considerations above, a protolanguage cannot be defined as a hypothetical linguistic entity whence all the common features of its descendant languages have emerged or to which all these features can be traced back, because a feature of the protolanguage may not be retained in any of the daughter languages if it is interrupted in all main branches of the family for any reason. This indicates the possible existence of misleading 'breakings' in the development of a proto-phoneme into a correspondence set. In some rare cases, the projection of a correspondence set with the comparative method may turn out to reflect a 'pseudo-proto-level' if there has been a coincidental or convergent parallel change affecting it.

ABBREVIATIONS

Ab.	Abakan dialect of Khakas
AD	Koşay & Işıtman 1932
Alb.	Albanian
Alt.	Altai
Ar.	Arabic
Arm.	Armenian
Av.	Avestan
AYS	Altun Yaruk Sudur
AzRSI	Tağıyev 2006
B	Benzing 1956
Bactr.	Bactrian
Bao.	Baoan
Bashk.	Bashkir
Br.	Brāhmī script
BSogd.	Sogdian in Buddhist texts
BT	Bulgar Turkic
BT ₁	Bulgar Turkic (first layer of loanwords in Mongolic)
BT ₂	Bulgar Turkic (second layer of loanwords in Mongolic)
BTT 3	Tezcan 1974
BTT 7	Kara & Zieme 1976
BTT 34	Shōgaito et al. 2015
Bu	Bugut inscription
Bur.	Buryat
BurRSI	Šagdarov & Čeremisov 2006–2008
c.	century
C	M. A. Castrén
CC	Codex Cumanicus

Ch.	Chinese
Chag.	Chaghatay Turkic
Cher.	Cheremis
Chuv.	Chuvash
ChuvRSI	Skvorcov 1982
CM	Common Mongolic
CT	Common Turkic
CTD	Dankoff & Kelly 1982–1985
Dag.	Dagur
der.	derivative
DEWOS	Steinitz 1966–1993
Dgx.	Dongxiang
dial.	dialectal
DLT	Dīwān Luyāt at-Turk
Dolg.	Dolgan
DS	Türkiye’de Halk Ağzından Derleme Sözlüğü
DSBJa	Dilmöhämätov 2002
DSLJaS	Boronkin, Alekseev & Vasil’ev 1995
ED	Clauson 1972
EEW	Doerfer 2004
EHC	Eastern Han Chinese
EMC	Early Middle Chinese
ÈSIJa II	Rastorgueva & Èdel’man 2003
ÈSKJa	Cabolov 2001–2010
ÈSTJa I	Sevortjan 1974
ÈSTJa II	Sevortjan 1978
ÈSTJa IV	Levitskaja 1989
ÈSTJa V	Blagova 1997
ÈSTJa VII	Dybo 2003

Ev.	Even
Evk.	Evenki
EYug.	Eastern Yugur (Shira Yughur)
fol.	folio
FU	Finno-Ugric
FZG	Farhang-i Zafān-Gūyā
hap.	hapax legomenon
Hung.	Hungarian
HY	Hua Yi Yiyu (華夷譯語)
IH	El-İdrāk Haşiyesi
IM	Ibn al-Muḥannā, Kitāb Ḥilyat al-insān wa-ḥalbat al-lisān
intr.	intransitive
Ir.	Iranian
Jap.	Japanese
Jur.	Jurchen
Jurc.	Jurchenic
K	Krippes 1992
Kalm.	Kalmyk
KalmRSI	Muniev 1977
Kaz.	Kazakh
KB	Kutadgu Bilig
KD	Golden 2000
Kgj.	Kangjia
Kh.	Khaladj
Khak.	Khakas
KhakRSI	Subrakova 2006
Khal.	Khalkha
KhM	Doerfer 1971a
Khot.	Khotanese Saka

KhT	Khüis Tolgoi inscription
Kirg.	Kirghiz
KirgRSl	Judaxin 1985
Kit.	Kitan
Kklp.	Karakalpak
KklpRSl	Baskakov 1958
Kmg.	Khamnigan
KmgRSl	Damdinov & Sundueva 2015
KrchBlkRSl	Tenišev & Sujunčev 1989
Krmch.	Krymchak
Kum.	Kumyk
KumRSl	Bammatov 2013
Kurd.	Kurdish
KWb	Ramstedt 1935
L	Lessing 1995
Leksika	Tenišev 2001
lgs.	languages
LHC	Later Han Chinese
lit.	literally
LSpCh	Doerfer 1987
MA	Muqaddimat al-Adab
Man.	Manchu
MC	Middle Chinese
Mgr.	Monguor
MIr.	Middle Iranian
Mo.	Mongolic
Mog.	Moghol
MP	Middle Persian
MRSI	Serebrennikov, Feoktistov & Poljakov 1998

MSzFE	Lakó 1967–1981
MT	Doerfer 1985a
Müll.	G. F. Müller, <i>Vocabularium Harmonicum</i>
N	Nugteren 2011
Nan.	Nanai
Nen.	Nenets
NTg.	Northern Tungusic
OC	Old Chinese
Oir.	Oirat
OjRSl	Baskakov 1947
Ord.	Ordos
OrokRSl	Ozolinja 2001
Osm.	Ottoman Turkish
OT	Old Turkic
OTWF	Erdal 1991
OU	Old Uyghur
PBT	Proto-Bulgar Turkic
Pek.	Pekarskij 1958–1959
Per.	Persian
PEvk.	Proto-Evenki
PhM	Svantesson, Tsendina, Karlsson & Franzén 2005
PIE	Proto-Indo-European
PKit.	Proto-Kitan
PM	Proto-Mongolic
PPM	Pre-Proto-Mongolic
PPS	Pre-Proto-Samoyedic
precl.	preclassical
PS	Proto-Samoyedic
PTg.	Proto-Tungusic

PU	Proto-Uralic
Pump.	Pumpokol
PY	Proto-Yeniseian
QA	Qışaş al-Anbiyā'
R	Radloff 1893–1911
RH	Rasūlid Hexaglot
RQ	Rylands Manuscript of Interlinear Quran Translation into Turkic
Sag.	Sagay dialect of Khakas
SH	The Secret History of the Mongols (Mongqolun Niuča Tobča'an)
Sol.	Solon
SS	Cincius 1975–1976
STg.	Southern Tungusic
Str.	Ph. J. von Strahlenberg, Harmonia Linguarum
SW	Janhunen 1977
Tabg.	Tabgač
Tat.	Tatar
Tch. A/B	Tocharian A/B
TDW	Dawletschin et al. 1989
Tel.	Teleut
Tg.	Tungusic
Tib.	Tibetan
TİEM 73	Türk ve İslam Eserleri Müzesi 73
Tkm.	Turkmen
TkmRSI	Baskakov, Garryev & Xamzaev 1968
TLH	Róna-Tas & Berta 2011
TMEN	Doerfer 1963–1975
Tof.	Tofan
TS	Tarama Sözlüğü
TT VIII	Gabain 1954

Tt.	Turkish
Tu.	Turkic
Tuh.	Kitāb al-Tuḥfat al-Zakiyya fi Luyat al-Turkiyya
Tuñ.	Tuñuquq inscription
Tuv.	Tuvan
TuvRSI	Tenišev 1968
Udh.	Udihe
UEW	Rédei 1988
Ulch.	Ulcha
UW	Röhrborn 1977–1998
UW Nb I/1	Röhrborn 2010
UW Nb I/2	Özertural 2020
UW Nb II/1	Röhrborn 2015
UW Nb II/2	Röhrborn 2017
Uzb.	Uzbek
VB	Volga Bulgar Turkic
VEWT	Räsänen 1969
WCh	Doerfer & Tezcan 1980
WM	Written Mongol
WYug.	Western Yugur (Sarigh Uyghur)
Yak.	Yakut
ZY	Zhiyuan yiyu (至元譯語)

APPENDIX 1: RECONSTRUCTED PROTO-TURKIC FORMS OF THE WORDS CITED IN THIS STUDY AND RELATED LOANWORDS IN ADJACENT LANGUAGES

1. **alt₁iä-* ‘to step’ > CT *āt-*, BT **āt-* (Chuv. *ut-*) || Mo. **alča-i-* ‘to spread the legs.’
2. **äd₂iä* ‘lord, master’ > CT *äyä* ~ *ägä*¹⁰⁹ || Mo. **ejen* ‘master, owner,’ Tg. **ädä* ‘husband, master.’
3. *(*i*)*äsä* ~ *(*i*)*ät₂ä* ‘placenta’ (← PTch. **ietse* ‘(outer) skin’) > CT **äs* ~ *äš*.
4. **bōr₁k₂ä* ‘grey’ (← Ir. **bōrxə*) > **bōr₂ä* > CT *bōz* || Mo. *borki* ‘old badger,’ Mo. **bora* ‘grey,’ PS **puro* ‘grey.’
5. **d₁ōr₂ä* (< **d₁o* + **gār₂ä*?) ‘birchbark’ > CT *tōz* || Mo. **durusun* ‘birchbark,’ Mo. *toos* ‘birchbark.’
 ◇ PT **d₁ōr₂ä* may be a crasis of an unattested **d₁o* ‘birch (bark),’ cf. PU **tuji* / **toji* ‘id.’ (Janhunen 1981 §119), and **gār₂ä* ‘bark’ > CT *kāz* > *kās* ‘id.’ (ÉSTJa V 328), cf. Yuk. **qa:r* / **qa:jr* ‘skin,’ FU **kore* / **ko:re* ‘skin, bark’ (Nikolaeva 2006 §2018).
6. **d₂agīr₂* ‘dark brown’ > CT *yagīz*, BT **jağīr* > **jağrī* (Chuv. *šīrā*) || Mo. **dayīr* > **dayir* ‘brown (earth), chestnut-colored (horse).’
7. **d₂akā-* ‘to burn, to ignite’ (← Ch. zhuó 灼 LHC tsák ‘to burn, to scorch’ or PTch. **tsāk-* ‘to glow’ < PIE **d^hōg^{wh}-*) > CT *yak-* (Tkm. *yak-*, Kh. *ya:q-*) ‘id.’
 ◇ CT *yak-* is not an emphatic derivative of **ya-*, which is the common (unattested) base of *yal-* ‘to burn, to blaze’ and *yan-* ‘to burn, to blaze up,’ as is generally assumed because the formative -(X)*k*- exclusively forms intransitive verbs (OTWF 649). The relationship between the Chinese and Tocharian words is not clear (see Blažek & Schwarz 2017: 34). From the semantic point of view, the Chinese word is a better match. However, one has to assume that Ch. /t́s/ was substituted by */d₂/ [dz] in Turkic. From the phonetic aspect, Tch. A/B *tsāk-* fits much better although it differs semantically. It is possible that the word had some further unattested meanings.
8. **d₂at₂ut₂ō* (< **d₂at₂ä-*) ‘hidden’ > CT *yašut* || Mo. **dalda* ‘hidden, concealed, secret.’
9. **d₂amīr₂ä* ‘groin, flank’ > CT *yamīz* || Mo. **dabusaj* ‘bladder, abdomen.’

¹⁰⁹ CT *äyä* has to be strictly distinguished from CT *idi*. Kh. *eydi* ‘Besitzer’ (WCh 112), the only alleged proof in favor of CT †*ēdi*, is a crasis of **äyä idi* that surfaces as *iyä idi* ‘Herr₂’ in Old Uyghur (Wilkens 2021a: 315).

10. **d₂ār₂ǎ* ‘a plant’ > CT *yēz* || Mo. **deresiin* ‘feather-grass.’
11. **d₂et₂ǎ* ‘to reach’ > CT *yet-*, BT **jet-* (Chuv. *śit-*) || Tch. AB *tsit* ‘to touch.’
12. **d₂irǎ-/ *d₂irǎ-* ‘to separate, to tear, to split’ (← PTch. *tsār-* [tsir] ‘to separate (entirely)’ < PIE **der-* ‘to split, to flay, to tear’) > CT *yir-* ‘to tear (off), to dig,’ CT *yir-* ‘to separate, to split,’ BT **jir-* ‘to make furrows’ (Chuv. *śir-*) || Mo. **jir-* ‘to cut.’
 ◇ I assume that CT *yir-* and CT *yir-* are simply historical variants of the same etymon. They are both attested since Old Uyghur as independent verbs (see ED 955; ÈSTJa IV 203–204; Wilkens 2021: 890, 900, s.v. *yeril-* and *yir-*).
13. **d₂or₂ǎ* ‘weak, impotent; barren’ > CT *yož* || Mo. **dora* ‘feeble, weak.’
14. **d₂u* ‘residue’ (← Ch. *zāo* 糟 **[ts]ʰu* ‘sediment; dregs’) > CT *yuk* ‘id.,’ CT *yuk-* ‘to stick to.’
15. **d₂ut₂ǎ* ‘to pour out’ > CT *yuš- ~ yüš-* || Mo. **dusu-* ‘to drip, to drop.’
16. **d₂ūr₂* ‘100’ > CT *yūz*, BT **jūr* (Chuv. *śér*) || PS **jūr* ‘100,’ PY **λ₂us* / **λ₂ut* ‘100.’
17. **d₂ūr₂ǎ* ‘complexion, face’ > CT *yūz*, BT **jūr* (Chuv. *śāvar*) || Mo. **diiri* ‘appearance, form, complexion.’
18. **gat₂iǎ* ‘to be or become dry or hard’ > CT *kat-*, BT **kat-* (Chuv. *xit-*) || Mo. **gača-* ‘to harden, to dry; to freeze, to freeze over,’ Mo. **kata-* ‘to be or become hard or dry.’
19. **gobk₂āt₂ǎ* ‘hollow, empty’ (PBT **gobyāl₂*) > CT *kovuš*, BT **kovul* (Chuv. *xāvāl*) || Mo. **gobil* ‘cavity, hole, hollow, groove.’
20. **kad₂a* ‘rock’ > CT *kaya* || Mo. **kada* ‘rock.’
21. **k₂alt₂ǎ* ‘name’ > CT *āt*, BT **yāt* (Chuv. *yat*) || Kit. **aldor ~ *aldur* ‘male personal name,’ Mo. **aldar* ‘fame, reputation,’ PTg. **aldō* ‘news.’
22. **k₂it₂(ǎ)* ‘sable’ > CT *kīš* || PPS **kil’* > **ki* ‘sable,’ PY **kədə* ‘Siberian weasel.’¹¹⁰
23. **k₂it₂ǎ* ‘winter’ > CT *kīš*, BT **kīl* > **xīl* (Chuv. *xěl*) || PY **kətə* ‘winter,’ PPS **kēl’* > **kē* ‘winter.’
24. **k₂it₂i* ‘lady, wife’ (← Xiongnu 居次 **kītsi* / **kītsi* ‘lady, married daughter’) > CT *kisi ~ kīši*.
25. **k₂äd₂ir₂äk₂ǎ* ‘wooden tool for scraping animal hides’ > CT *ädräk* || Mo. **kedergen* ‘a wooden scraper used in tanning hides.’

¹¹⁰ PY **kədə* (Werner 2002: I/475) is only related to **k₂it₂(ǎ)* if the voicedness of the dental in Yeniseian can be accounted for.

26. **k₂ält₂ä*- 'to notch, to chip' > CT **kāt*-, BT **kāt*- (Chuv. *kat*-) || Mo. **kelte*- 'to break off, to chip off.'
27. **k₂är₂ipäg* 'saw' > CT *ärpäg* ~ *erpäg* || Mo. **kirüe* 'saw.'
28. **k₂ir₂ä* ~ **k₂ir₂ä* 'trace; line; border' > CT *iz* ~ *iz*, BT **yī/ir* (Chuv. *yēr*) || Mo. **kili* 'border, borderline, boundary.'
29. **k₂ö(ä)r₂k₂ä* 'eye' > **k₂ö(ä)r₂ä* > CT *köz*.
30. **nāsä* ~ **nāt₂ä* 'loss, damage, death; mourning' (← Tch. B *ñyātse* ~ *ñātse* 'danger; plague, distress') > CT *yās* ~ *yāš*, BT **jās* || Hung. *gyász* 'mourning, bereavement,' Cher. *sös* 'memorial service for the deceased.'
31. **nāt₂ä* 'weak, emaciated, lazy, calm' > CT **yaš, yaši-, yašik-* || Mo. **nala* > **nalai*- 'to be quiet, to be calm,' Mo. **nasi-gai* 'slow, lazy,' Mo. **jali*- 'to calm down; to be lazy.'
 ◇ PT **nāt₂ä* may be related to Mlr. **naštə* 'destroyed, spoiled,' cf. Bactr. *ναπτο* (< **našta*-) (Sims-Williams 2000: 208), BSogd. *n'štk nāštē* 'spoiled, destroyed' (Gharib 2004 §5816) if we assume that Mlr. */št/ was substituted by */t₂/ in Proto-Turkic. A semantic change such as 'destroyed' > 'weak, emaciated' > 'lazy, slow' > 'calm' is conceivable.
32. **nāt₂ü* '(year of) age' > CT *yāš*, BT **jāl* (VB *jāl*, Chuv. *śul*) || Mo. **nasun* '(year of) age.'
33. **nir₂ä* 'backbone' > CT *yiz* ~ *yiz* || Mo. **nirūn* > **niruun* 'back,' PTg. **nirī*+ 'backbone.'
34. **niāt₂ä* 'new-born, baby, child' (← Ch. *rúzi* 孺子 **njuah-tsjəh* 'weak child') > CT *yāš* || Mo. **nilka* 'youngest child, baby, young and tender, delicate' (Mo. **niłjarai* 'young, tender, new-born' and Mo. **nirai* 'newly-born' may also belong here), Mo. **jalau* 'young,' PY **λ₂al(ə)* 'child.'
 ◇ PS **nuu* (? **nuu*) 'Kind, Junges' (SW 111) may be an indirect loanword from Ch. *rú* 孺 **njuah* 'suckling, child.' See Fortescue-Vajda (2022: 96) for a Uralo-Siberian etymology of PS **nuu*.
35. **pār₂k₂āt₂ä* 'shaft' (PBT **pār₂yäl₂ä*) > CT **hariš* || Tabg. **parialan* 'beam, joists,' Mo. **aral* 'shaft of a cart.'
36. **pār₂ä* 'few, little' > CT **hāz*, BT **hāR* || Mo. *aran* ~ *arai* 'hardly, barely, scarcely,' Cher. *or, ar* 'small, young.'
37. **pāt₂(V)* 'heat' > CT **hāš*, BT **hāl* || PY **p^hal* 'hot, warm,' Mo. *asa*- 'to burn, to catch fire.'
38. **pägär₂ä*- 'to spin, to twist, to surround' > CT *hägir*-, BT *(*h*)*ägir*- (Chuv. *arla*-) || Mo. **eere*- 'to rotate, to spin, to surround.'

39. **pär*₂ǎ ‘man’ > CT *här*, BT *(*h*)är (Chuv. *ar*) || Mo. **ere* ‘man.’
40. **pät*₂ǎ ‘to dig’ > CT **hš*(*ü*)-, BT **äl*- (Chuv. *al*-) || Mo. **hete*- ‘to pick, to pluck out,’ Tg. **pätä*- ‘to dig, to dig out, to dig up.’
41. **pī* (~ **pā*) ‘vegetation, bush, tree’ > CT **hī* || PS **pä* (**pā*?) ‘wood, tree, forest.’
42. **pid*₂*kät*₂ǎ (< **pid*₂ǎ-) ‘cup, vessel, dish’ (PBT **pid*₂*yäl*₂ǎ) > CT **hidīš* ~ **hidīš* || Kit. *pilia* ‘drinking cup,’ PTg. **pila* ~ **pilia* ~ **pilai* ‘wooden vessel, formed like a cask,’ PS **petā* ‘(earthen) vessel.’
- ◇ The verbal root **pid*₂ǎ- may be related to PS **pät*- ~ **pät*₃- ‘in den Topf legen’ (SW 118). See No. 41 for the correspondence of Tu. **i* and PS **ä*.
43. **pūr*₁(*i*) ~ **piār*₁(*i*) ‘song’ > CT **hūr*, BT **hiārī* (Chuv. *yurā*) || POBUg. **ūr*₃ ~ **ār*₃ ‘song.’
44. **püt*₂ǎ- ~ **pit*₂ǎ- ~ **püt*₂ǎ- ‘to smooth (out)’ > CT **hiš*(*i*)- ~ **hiš*- ~ **hüş*- || PS **picā*- (~ **pücā*-) ‘to shave beard, to cut hair,’ Mo. **hile*- ~ **hili*- ‘to caress, to rub, to iron, to smooth,’ Mo. **hüli*- ‘to rub, to knead, to scrape.’
45. **por*₂ǎ- (der. **por*₂ǎ*kū*-) ‘to outstrip, to escape’ > CT *hoz*- || Mo. **horgu*- ‘to flee.’
46. **pot*₂ǎ ‘inside; internal organs, intestines’ > CT *(*h*)oš || PY **p^holə* ‘fat.’
47. **pök*₂ür₂ (< **pög* *kür*₂?) ‘ox’ > CT **höküž*, BT **hökür* (Chuv. *vākār*) || Mo. **hüker* ‘bovine, ox.’
48. **pör*₂*māk*₂ǎ ‘woven garment’ > CT **hōrmāk* || Mo. **örmege* ‘kind of coarse fabric.’
49. **pür*₂üt₂ǎ (< **pür*₂ǎ-) ‘torn off’ > CT **hüz*- || Mo. **hürtesün* ‘scrap, rag, shred; piece, morsel’
50. **püt*₂ǎ ‘to search’ > CT **hüş*- || PS **pe*- (? **pej*-) ~ **pö*- ~ **pü*- (? **püj*-) ‘to search.’
51. **püt*₂ü- ‘to grow, to increase’ > CT **hüşü*-, **hüküş* || Mo. **hüle*- ‘to remain, to be left,’ PTg. **pülä*- ‘to remain, to be in excess,’ PS **pü*- ‘to spawn.’
52. **sīt*₂ǎ ~ **sīt*₂ǎ ‘tooth’ > CT *tīš* ~ *tīš*, BT **sīl* (Chuv. *šāl*) || Mo. **sitiün* > **sidiün* ‘tooth.’
53. **siābā* ‘word’ > CT **sāvā* > *sāv*, BT **siāvā* (Chuv. *šiv* in *yat-šiv*) || POBUg. **saw*₃ ‘word, voice, song.’
54. **tīāt*₂(ǎ) ‘stone’ > CT **tiāš* ~ **tīš* > **tāš*, BT **tiāl*(ǎ) > **čāl* (Chuv. *čul*) || PY **t’i*?s ‘stone,’ Mo. **čilaun* ‘stone.’
55. **tīgü*(-*ki*/-*käy*) ‘raw, uncooked’ > CT *čīg*(-*ki*/-*käy*) ~ *yīg* || Mo. **tüükei* ~ **tüükü* ‘raw.’
56. **ūr*₂ ‘above, upper part’ > CT *üzä*, BT **ūr* > **ver* (Chuv. *vir*).

APPENDIX 2: XIONGNU WORDS SURVIVING IN ALTAIC LANGUAGES

(Xiongnu data cited from Pulleyblank 1962 and Schuessler 2014)

1. chénglí 撐梨 *ḍaŋ-li* < **drāŋ-ri* ‘sky’ || Tu. *täŋri* ~ *taŋri* ‘heaven, God,’ Mo. *teŋgeri* ‘sky, heaven, god.’
2. jìnglù 徑路 *keŋ^H-la^H*, qīnglǚ 輕呂 *k^hieŋ-lia^B* ‘Hunnish knife’ || Tu. *kiŋrak* ~ *kiŋirak* ~ *kiŋarak* (~ *kiŋyak*) ‘broad knife (often with two blades),’ Mo. **kiŋgara* ‘large knife (often with two blades).’
 ◇ Otherwise related to the Sogdian *γnyrh* **xangarā-*, Christian Sogdian *xgr*, Wakhi *xiŋgār*, Yidgha *xugor* by Bailey (1985).
3. tuóxī 驪騮, 單騮 *dai/tan-ge, ten-ge* (Yán Shīgǔ: 顛奚 *ten-ge*) ‘a wild horse’ || Tu. *tagi* (~ *taki*) ‘female wild ass,’ Mo. *taki* ‘wild horse’ (→ Man. *tahi* ‘a wild horse’).
4. ōuduó 甌脫 *?o-duat* < **?ô-lôt* ‘wasteland, border area’ || Tu. *oro* ‘a storage pit dug in the ground’
 ◇ Despite the superficial similarity, the Xiongnu word is not related to Tu. *ordo* ‘royal residence; burrow, underground habitation of an animal’ or Mo. *ordon* ‘residence of a ruler, palace, camp.’
5. jūcì 居次 *kia-tsh^hi^H* ‘lady, married daughter’ || Tu. *kisi* ~ *kiši* ‘woman, wife.’
6. lào 酪 *lak* < **g-lâk* ‘a milk product’ || BT **īrag* ‘buttermilk’ (→ Cher. *yâra* ‘buttermilk,’ Hung. *író* ‘buttermilk’).
 ◇ Mo. *ayirag* ‘kumiss’ is probably a contamination of Tu. *ayran* and **īrag*.
7. zī 質 *tsie* ‘slave girl’ || Kit. [十里鼻] **širbi* ‘slave and maid-servants (奴婢)’ (= Mo. *čerbi*?) (Shimunek 2007: 94; Sūn & Niè 2008: 102).
8. táotá 騊駼 *dou-da* < **lû-lâ* ‘a kind of horse’ (Yán Shīgǔ: 桃塗 *dau-da*) || Tu. *yunt* ~ *yund* ‘horse’ < PT **d₂und₂ă* (~ **d₂ud₂ă*?) (→ PS **juntă* (~ *juntâ*) ‘horse’).
9. tíhú 醍醐, tíhú 餹醐 *de-ya* ‘purified kumiss, clarified butter’ (Jap. *daigo* ‘ghee’) || CT *yāg* ‘fat, oil, grease,’ Chuv. *śu* ‘butter, fat’ < PT **d₂iāgă*, cf. Proto-Circassian **dağa* ‘lard, fat’ (Kuipers 1975: 69), without cognates in other West Caucasian languages, possibly a borrowing from Early Bulgar Turkic.
 ◇ The Chinese transcription renders a phonetic realization of */*d₂iāgă*/, approximately [ḍiāga]. Otherwise related to the Mongol *čige(n)* ‘kumiss’ < **tigă(n)* / **tiga(n)* by Pulleyblank (1962), to the

Proto-Yeniseian **tāk-* or **tik-* ‘white’ by Vovin (2003b) and to the Iranian **dauga-* ‘buttermilk, sour milk etc.’ by Dybo (2007).

10. chùqí, túqí 屠耆 *dā-gī* < **dâ-gri* (Yán Shīgǔ: **ḍia-gri*) ‘title given to the Crown Prince of the Xiongnu; (lit.) virtuous, worthy (賢)’ || Avar *iugurruš* **yugur* (< **d₂oguRă* ?) ‘co-ruler of the khagan,’ cf. the Danube Bulgarian tribe name δουαρης **juar* (Beševliev 1963: 289–290).

◇ Since Mikkola (1927: 160), the Avar title has mistakenly been identified with the Qarakhanid title *yugruš* ‘a commoner of vizier rank one degree below Khagan’ (ED 905–906). The Qarakhanid title might be related to the Avar **yugur* only with its base. Perhaps it was formed from **yugur* on the analogy to *čavuš* ‘army commander’ (ED 399). The Xiongnu title is otherwise related to the Turkic title *tegin* ‘prince’ by Pulleyblank (1962) and to CT **dogro* ‘direct, fair, honest, legal’ by Dybo (2007).

11. dòuluò 逗落 *dō-lak* ‘burial mound’ || OU *tolangu* (< **d₂olag* ?) ‘mound of earth, tumulus’ (Kudara & Zieme 1983: 302, 306).

◇ Otherwise related to PT **durak* < **dur-* ‘to stand’ by Dybo (2007) and to WM *dobuilya* ‘elevation’ by Di Cosmo (2013).

12. púlèi 蒲類 *bā-luis* < **bâ-rus* ‘name of a country; name of a general’ || Tu. *bars* ‘tiger,’ Mo. *bars* ‘tiger,’ possibly borrowed from Tch. A *pärs* ‘variegated, magnificent, splendid’ or MP *parš* ‘spotted, speckled.’

13. jiādōu 夾兜 *kép-to* ‘bag’ || Tu. *kāp* (< **kiāp*) ‘leather bag, waterskin, sack; vessel, container,’ cf. Tu. **kapturga* ‘a big, deep sack,’ Tu. (Rubruck) *captargac* /*kaptīrgak*/ ‘a square bag,’ Mo. **kabtarga* ‘bag, pouch, purse, pocket.’

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