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ONCE MORE ZETACISM AND SIGMATISM

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In a paper read at the 27th International Congress of Orientalists in Ann Arbor, Michigan, in 1967, and published in the *Acta Orientalia Hungarica*, in 1969, I presented inner-Turkic evidence for "Zetacism" (the sound change from *r² to z) and "Sigmatism" (the sound change from *l² to s), and maintained that Chuvash r, l are older than Turkic z, s respectively and the sound changes from *r² to z, from *l² to s took place in Proto-Turkic in final position only.¹ In another paper read at the 14th PIAC Meeting in Szeged, Hungary, in 1971, and published four years later, I brought further evidence for the sound changes *r² > z and *l² > s, and maintained the same point of view.² After the publication of my first article on the subject, Meyer,³ Róna-Tas,⁴ Tenišev,⁵ Serebrennikov,⁶ Nauta⁷ and Sanžeev⁸ touched or dealt with the subject and made their views known. In 1975, in a paper which appeared together with my second article in the same volume, Miller tried to find Japanese reflexes of Proto-Turkic r² and l²,⁹ and Poppe maintained his position, drawing

¹ "Zetacism and Sigmatism in Proto-Turkic," *AOH*, XXII, 1, 1969, pp. 51-80.

² "Further Evidence for Zetacism and Sigmatism," *Researches in Altaic Languages*, Budapest 1975, pp. 275-284.

³ Iben Raphael Meyer, "Klassifikation und Rhotazismus," *AO* XXXII, 1970, pp. 159-165.

⁴ A. Róna-Tas, "Some Problems of Ancient Turkic," *AO*, XXXII, 1970, pp. 209-229.

⁵ E. R. Tenišev, "K ponjatiju 'obščetjurkskoe sostojanie'," *SZ* 1971, 2, pp. 13-16.

⁶ B. A. Serebrennikov, "Čto bylo pervičnym *r² ili z?," *ST* 1971, 1, pp. 13-19.

⁷ A. Nauta, "Rotazismus, Zetazismus und Betonung im Türkischen," *CAJ*, XVI, 1972, pp. 1-13.

⁸ G. D. Sanžeev, "Zur Frage des sogenannten Rhotazismus und Lambdaismus in den altaischen Sprachen," *Sprache, Geschichte und Kultur der altai-schen Völker*, ed. G. Hazai, P. Zieme, Berlin 1974, pp. 505-509.

⁹ R. A. Miller, "Japanese-Altaic Lexical Evidence and Proto-Turkic Zetacism-Sigmatism", *Researches in Altaic Languages*, Budapest 1975, pp. 167-172.

attention to Hungarian data.¹⁰ Most recently, Doerfer dealt with the problem of "Rhotacism" and "Lambdacism", among other reconstruction problems of Proto-Turkic¹¹, and Kara published an article on a new Turko-Mongolian pair of cognates, i. e. Mo. *deresün* = Tu. *yez* "feather grass," proving once more the soundness of the Altaic correspondence r : z as well as that of Mo. d- : Tu. y-.¹²

In this paper, I would like to present the new material I have collected recently and to discuss once more the problem of "Zetacism" and "Sigmatism." But before presenting my new material and going into a new discussion of this most debated and most controversial problem of Turkic and Altaic linguistics, I would like to summarize briefly the different views put forward recently by the scholars I mentioned above.

(1) Meyer 1970 thinks that an opposition r : z existed in Common Turkic, and Turkic /z/ corresponding to Chuvash /r/ is the original sound; in other words, she states that Chuvash /r/ has developed from /z/, disregarding the inner-Turkic and Altaic evidence brought by the supporters of the opposite theory, i. e. the theory of zetacism.¹³ An important shortcoming of her article is that in it there is no linguistic evidence to support the theory of rhotacism she still adheres to.

(2) Róna-Tas 1970 maintains that Ancient Turkic was far from being a "homogenous language," i. e., prior to the 6th century A. D., there were many Turkic dialects, and forms with /r/ and /z/, as well as those with /l/ and /š/, existed as doublets in these dialects. It goes without saying that such a view brings us nowhere. No linguist could deny that the Turkic languages, including Chuvash, form a language family just as, say, the Germanic languages do. Again, no linguist could deny that the members of a given family of languages descend from or go back to a single proto-language in the past. Since all the Turkic languages except for Chuvash are z/š

¹⁰ N. Poppe, "Altaic Linguistics - An Overview," *Sciences of Language*, No. 6, Tokyo 1975, pp. 130-186.

¹¹ G. Doerfer, "Proto-Turkic: Reconstruction Problems," *TDAY* 1975-1976, pp. 1-59.

¹² D. Kara, "Mongol'skij *deresün* - tjurkskij *yez*," *ST* 1976, No. 3, pp. 41-43.
¹³ *op. cit.*, p. 104. In her article, Meyer also states that Chuv. *kuš* "ojo" is a loanword borrowed from Tatar (p. 161). This does not seem to be the case, however. Because, the phoneme /z/ in loanwords is generally represented by /s/, not by /š/, in Chuvash, e.g. *pša* - "to destroy" < *buz*-, *pišäk* "big" < *bäzik*, *kšäädäk* "interesting" < *qizäk*, etc.

languages and Chuvash alone is a *r/l* language, one of these phoneme pairs must be older than the other, or they both must have developed from a third phoneme pair. In other words, either Chuvash /r/ must have developed from /z/ or a kind of /z/, or Turkic /z/ must have developed from /r/ or a kind of /r/. The same is true for Chuvash /l/ and Turkic /š/. The priority of /r/ (or a kind of *r*) to /z/ or *vice versa*, and the priority of /l/ (or a kind of *l*) to /š/ or *vice versa* is the essence of the whole problem. Róna-Tas does not bring a solution to this most puzzling and most controversial question. Furthermore, his comparison of zetaicism in Turkic with the tendency toward zetaicism in the 16th century Paris dialect or with the rhotacism in the Germanic languages is not appropriate, because, while zetaicism in the 16th century Paris dialect and rhotacism in the Germanic languages are only sporadic sound changes, zetaicism in Turkic (or rhotacism in Chuvash) is a systematic development.

To support his theory, Róna-Tas cites many pairs of words (doublets) displaying zetaicism (or rhotacism) and sigmatism (or lambdacism), e. g. *täl* ~ *täs* "to pierce, make a hole," *irdä* ~ *szdä* "to seek, search," etc. Some of his pairs, however, are not real doublets: *yaz* "to cut, score, notch the runic script" ~ *yar* "to split up" (the former has a short /a/, whereas the latter has a long one: cf. Trkm. *yaz*-, but *yär*-), *qoγuz* "insect" ~ *qomuroqa* "ant" (the latter has /u/ in the first syllable: cf. Trkm. *qumuroqa*, Kirg. *kumurska*, Kzk. Kklp. Nog. *kumirska*, etc.), *omuz* "shoulder, shoulder-blade" ~ *omurya* "collarbone, vertebra" (the former has an original /m/, whereas the latter occurs as *oyurqa* in Uig., *oyurqa* in Chag., *oyurqa* in Osm. and Trkm., and *uorya* in Yak.; /ɣ/ in Uig. *oyurqa* and /m/ in Kirg. *omurka*, Kzk. Kklp. *omirka* must be secondary sounds, having developed from /ŋ/), *tez* ~ *terk* "quick" (the former is a loanword borrowed from Persian; the word which is cognate to *türk* "quick, fast" is *täz* "to run away, flee"), etc.

(3) Tenišev 1971 believes that there were two stages of Common Turkic: the early and the late. In the early CT period, there were only /r/ and /l/, but in the late CT period, with the appearance of the phonemes /z/ and /š/, there came into existence the oppositions *r* : *z* and *l* : *š*. He does not say, however, anything on how these new phonemes came into being.

(4) Serebrennikov 1971 holds the view that Chuvash /r/ is secondary and goes back to /z/. As for Chuvash /l/ and Turkic /š/, he is rather inclined to drive these sounds from a particular kind of *l*. In

Serebrennikov's opinion, it could have been a voiceless *l* in which case Turkic /z/, too, could have developed from a voiceless *r*. In his book published in 1974, however, Serebrennikov returns to his old explanation of Turkic /z/ being primary and older sound. Since zetaicism and sigmatism (or rhotacism and lambdacism) are two sound changes parallel to each other (we find /z/, /š/ in Turkic, but /r/, /l/ in Chuvash and in the other Altaic languages), it would be methodically wrong to assume that Turkic /z/ and Chuvash /l/ are primary and older sounds.

(5) Nauta 1972 maintains that in Proto-Turkic there was an opposition *r* : *X* (*X* being *z*, *ʃ* or *ʀ*) in monosyllabic words, but in polysyllabic words there was no such a phonological opposition between *r* and *X*, because, in his opinion, *-r* occurs after stressed vowels and *-z* after unstressed ones. This view which seems to have been inspired mainly from the Chuvash material collected by Fisher in the 18th century is not very convincing, because we have a considerable number of minimal pairs like *yayır* "saddle sore" : *yayız* "brown," *qoγur* "chestnut" : *qoγuz* "bug, beetle," *qopur* "to raise" : *qopuz* "musical instrument," *qayur-* "to roast, fry" : *qayuz* "husk, chaff," etc. Consequently, it can hardly be maintained that the stress fell, in Proto-Turkic, on the first syllable of, say, *yayız*, but on the last syllable of *yayır*.

(6) Sanžeev 1974 does not try to solve the problem of rhotacism and lambdacism (or zetaicism and sigmatism). He only states that both changes, i. e. *r* > *z*, *l* > *š*, and *z* > *r*, *š* > *l*, are possible, thus offering no solution to the problem.

(7) Miller 1975 tries to find Japanese reflexes of Proto-Altaic /r/ and /l/, following the examples given in my first article on the subject. I am not in a position to evaluate his Turkic-Japanese comparisons, but some of the etymologies he offers seem convincing both phonologically and semantically, e. g. CT *siz* "to leak, ooze, drip" < **sir*² : OJ (Old Japanese) *siru* "juice, liquid leaking or pressed out of something," CT *toz* "dust" < **tör*² : OJ *tiri* "dust, dirt," OT *yabüz* "bad" < **yabir*², *yabri-t-* "to rout, ruin, defeat" < **yabir*² : OJ *yabur-u* "to destroy, harm," *yabur-(e)-* "to be damaged, broken," etc.¹⁴

¹⁴ In his article, Miller also raises objections to my theory according to which zetaicism and sigmatism took place in Proto-Turkic in final position only. I will answer his objections, together with similar objections raised by Doerfer, at the end of this paper.

(8) Poppe 1975 maintains that Turkic *r* and *z*, *l* and *š* were originally allophones of only two phonemes: /r/ - [r¹] in one environment and [r²] in another environment, /l/ - [l¹] in one environment and [l²] in another environment. Later, he thinks, [r²] and [l²] developed into *z* and *š* respectively in Turkic, but they converged with [r¹] and [l¹] in that dialect which became the ancestor of Chuvash. As for the true nature of [r²] and [l²], they were *r* and *l* respectively but with some "additional quality." According to Poppe, this "additional quality" was either palatalization as Ramstedt believed, or voicelessness as Serebrennikov believes, or a phoneme which has disappeared (or merged with *r* and *l*). In this connection, Poppe, draws attention to Hungarian data, i. e. the Volga-Bulgarian loanwords in Hungarian, where we sometimes find a *y* or *j* after the sonants in question, or *cs* (= *š*) after *l*, e.g. Hung. *borjú* "calf" = Tu. *buzayu* = Mo. *birayu*, Khal. *biarū*, Klím. *bürü*, Hung. *kölyök* "young dog, young animal in general" = Tu. *köšäk* "young camel, young animal in general" = Mo. *göške* "young dog," Hung. *gyümölcs* "fruit" = Tu. *yemiš* < **yemilš*, etc. These examples demonstrate that Tu. *z* sometimes goes back to *ry*, and Tu. *š* goes back **ly* and **lš*. Poppe concludes by saying that it is unnecessary to reconstruct **rš* > *z* and **lš* > *š* as Pritsak does, because Ramstedt's **rš* is very close to **ry*, and his **lš* is close to **ly*.

(9) Doerfer 1975-76 thinks that *r*, *l* (or similar forms) may be somewhat more likely than *z* and *š* for Proto-Turkic. As it is generally known, Doerfer is against the Altaic theory and he regards all the Mongolian forms with /r/ and /l/ (corresponding to those Turkic forms with /z/ and /š/, of course) as loanwords borrowed from Proto-Turkic. It is for this reason that he postulated such Proto-Turkic forms as **dayiz* "brown" for Tu. *yayiz* and Mo. *dayir*, **bozä* "gray" for Tu. *boz* and Mo. *bora*, **arš* "shaft of a cart" for Tu. *ariš* and Mo. *aral*, etc.¹⁵ It seems that he has abandoned this rather weak assumption of his. Doerfer now thinks that the phoneme /r/ followed by a *i* diphthong resulted in *z* in Common Turkic, e.g. **börja* > CT *böz* "gray," **burjāyū* > CT *buzayu* "calf," **atarju* > CT *atiz* "fallow land," etc. When such words passed from Proto-Turkic to Mongolian, he assumes, diphthongs became simple vowels and the phoneme /r/ preceding these diphthongs has preserved

itself, e.g. **börja* > Mo. *bora*, **burjāyū* > Mo. *birayu*, SH *burā'u*, **atarju* > **atarj* or **ataf* > Mo. *atar*, etc.¹⁶

As is seen, this view is not much different from Ramstedt's and Poppe's views. It sure makes the supporters of the Altaic theory happy to see that Doerfer has finally changed his opinion as to the priority of Common Turkic /z/ and /š/ to Chuvash, Mongolian /r/ and /l/ respectively, and has returned to Ramstedt's and Poppe's classical solution. It is also remarkable that the forms Doerfer reconstructs, e.g. **börja*, **atarju* etc., look like Proto-Altaic rather than Proto-Turkic.

In his article, Doerfer also raises some objections to my theory. As is known, I believe that *r*² and *l*² became *z* and *š* respectively in Proto-Turkic in final position, but in other positions they converged with *r*¹ and *l*¹, e.g. *köküz* < **kökür*² "chest," but *kökräk* id. < *kökür*² + *äk*. Doerfer objects to this view of mine. He says: "These are two different suffixes (more precisely: root derivatives) of **kökä* (cf. Mo. *kökön*); -z is a well-known derivative of body parts (*omuz* "shoulder," *ayiz* "mouth," etc. Why, e.g. do we have *bögür*: *bögräk* "rein" (Mo. *bögere*), why not **bögüz*: *bögräk*; why do we have *äkiz* "twin": *äkizäk*, why not *äkiz*: **äkiräk* (Mo. *ikire*), etc.?" My answer to this objection: -z in *köküz* and -r in *kökräk* are one and the same morpheme historically; *köküz* goes back to **kökür*² and -äk in *kökräk* is the well-known diminutive suffix (+AK). The reason why we have *äkiz*: *äkizäk* and not *äkiz*: **äkiräk* is that while *kökräk* is an old derivative formed in Pre-Turkic times, *äkizäk* is a comparatively new formation coined after the sound change from *r*² to *z* had taken place. As for the question why we do not have **bögüz*: *bögräk*, this has already been answered: -r in *bögür* is not the same Pre-Turkic phoneme as -r in **kökür*, i. e., *r*², but the ordinary *r*. Doerfer's objection to the relation between the suffixes (+sIz) "without" and (+sIrA-) "to be without" on the ground that they contain different vowels is not valid either. As is known, the phoneme /s/ in the suffix (+sIz) is generally written, in the Orkhon

¹⁵ Doerfer also assumes that *kör*- "to see" developed from *kör-s*, that is, *kör*- plus a suffix -s-, and *köz* "eye" from *kör-iz*, i. e., *kör*- plus a suffix -iz (p. 36). This assumption does not seem to be sound. Firstly, there is a morphological opposition between *kör*- and *köz*: one is a verb, the other is a noun. In other words, they are not real doublets. Secondly, the existence of a suffix like -iz is very doubtful and its addition to a form ending in a consonant would be against the phonological system of Turkic.

inscriptions, with the sign s^2 , e.g. $b^1U\eta s^2z$, $q^1I s^2z$, etc. This means that the suffix in question has an unrounded narrow vowel which is exposed to palatalization: *bupsiz*, *galisiz*, etc. Consequently, I still believe that the suffix (+sIz) is related to (+sIR-), i.e., the latter is a compound suffix consisting of (+sIR²) and (+A-). Finally, rejecting my view that the sound change from r^2 to z took place in final position, Doerfer says as follows: "We find several examples of roots with -z-, such as *yazı* 'plain', *qozı* 'lamb', *qazı* 'sausage', *azu* 'or'." My answer: Two of these examples are not roots, but deverbal formations, i.e., *yazı* < *yaz-* "to spread out" + (-I), *azu* "or" < *āz-* "to go astray" + (-U). Other examples having a /z/ in intervocalic position, i.e., *qazı*, *qozı* (and *azıy* "molar tooth," *buzayru* "calf," *küzän* "polecat," *üzängü* "stirrup," *yuzaq* "lock," *yüzük* "ring," etc.) could be explained as derivatives formed after the sound change from r^2 to z had taken place. Thus, *qazı* "abdominal fat" could be analyzed as *qaz-ı* (cf. Tu. *qarın* "abdomen" and Mo. *qarbing* "the fat on the abdomen of an animal; big belly"), *azıy* "molar tooth" as *az-ı-γ* (cf. Mo. *araya* "molar," *ariya* id. < **ariya*, *arjayı-* "to show one's teeth, grin," *arjağar*, *arjağai* "showing teeth, grinning"), *buzayru* "calf" as *buz+ayru* < **bır²+ayru* (for the suffix +*ayru* cf. *oyul* "child," *oylayru* "tender, delicate," *qıl* "hair," *kılayu* "wire-edge, razor," etc.), *küzän* "polecat" as *küz+än* < **kür²+än* (cf. Tu. *kölz* "fall, autumn," Chuv. *kër* id. < **kür²*, Mö. *küren*, *kürin*, *küreng* "brown, dark brown," *kürene* "skunk, polecat; weasel"), etc.

After this rather long introduction, I now would like to present my new material for the sound changes from * r^2 to z , from * l^2 to $ž$, and from * $l̥$, * $n̥$ to $ž$.

I. Zetacism

1. MK *ayız* "a field of wheat or other (cereals) after it has been reaped," Chag. *ayız* "arable land from which the crop has recently been reaped and the stubble left on the ground," Osm. Kzk. Kirg. *ayız* "a stubble field, stubble," Kirg. *ayaza* id. < **ayız+a*, Uzb. *ayız* id., Kklp. *ayız* "field, cultivated land," Nuig. *eyiz* "field of wheat, cultivated land," *eyizliq* "a stubble field," Trkm. *ayyiza* "a kind of wild plant resembling reed" < *ayyız+a* < **ayyır²* "yellow, reddish yellow"

~ Mo. *anggir* "yellow, reddish yellow; a kind of yellow duck,"

anggir nuyusu "a kind of yellow duck," *anggir sıra* "yellow, reddish yellow," Kh. *angır sar* "yellowish, reddish yellow," *angır* "turpan, the black diver (*anas nigra*)," Bur. *angır* "id.; reddish yellow, yellow, yellowish red," Klm. *āγγr* "reddish yellow, yellow; a bird," *āγγr aʔg* "variegated yellow."

As far as I know, no etymology has been suggested for the Turkic word *ayız*. Räsänen does not give an etymology for it; nor does Sir Gerard Clauson. In Sevortyan's etymological dictionary this word is not listed at all. As for the Mongolian word *anggir*, Doerfer regards it as a loanword borrowed from Turkic (*TMEN* II, p. 130), a view which is not shared by Räsänen (*VEWT*, p. 21) who thinks that Tu. *angır* "turpan, *anas nigra*," Alt. *ayar* "ein Wasservogel, kleiner als eine Gans, mit rotgelber Brust," Kzk. Kirg. *aygar* "eine Entart," Chag. *aygir*, *aygur* id. are all borrowed from Buryat Mongolian.

The original meaning of Mo. *anggir* is, in all likelihood, "yellow, reddish yellow," a meaning which is not found in the Turkic forms cited above. For this reason, I am rather inclined to agree with Ramstedt and Räsänen. As for MK *ayıt* "a kind of red bird resembling a duck," Osm. (TS) *ayıt*, *anyıt*, *anğıt* id., Chag. *angıt* "flamingo," Yel. Uig. *ayıt* "a kind of wild duck with bright yellow feathers," Uzb. *anyırt* "a kind of red duck," Nuig. (dial.) *hayırt*, *hayıut* id., etc., these may be Turkic forms going back to an older **ayırt*, as Doerfer assumes (*TMEN* II, p. 129). The original meaning of the word, however, must have been "reddish yellow" or "yellowish red" (cf. Turkic adjectives with diminutive suffixes (+GIL), (+GILT): Uig. *qızııl* "reddish" (*DTS* 450: *qızıl* "krasniy"), Tu. *xürgül* "brown, brownish," *sarııl* "yellowish," Trkm. *ğıbyıl* "reddish," *sarıyıl* "yellowish," etc.).

2. MK *bozla* "to bellow (of camels)," Chag. Osm., etc. *bozla* id., Osm. *bozula* id. (< **bözla-*), IM *bozla* (Mel. *bužla-*) id., Trkm. *bözla* "to bellow (of camels); to cry piercingly," Kzk. Kklp. Nog. *bozla* id., Bash. *bužla* id. (< *bozla-*), Alt. Tu. *busta* id. Khak. *musta* id. < **bözla-*, **büzla-* < **bör²+la-*, **bür²+la-*

~ Mo. *buyila* "to shout, cry, bellow (of camels)," Khal. Bur. *buyla* id., Klm. *bül* id. < *buyila* < **buřila* < **bür²+la-*

It may be claimed that the Mo. form has no /r/, but /y/. But this causes no problem. Examples displaying a sound change from r to y can be found easily: cf. Trkm. *ğādan* "large kettle, cauldron" < **qāzān* < **qār²+ān* = Mo. *qayiba* id. < **qariba* < *qari+ba* (cf.

also Mo. *qarum* "kettle"), etc.¹⁷ Such examples could also be taken as evidence supporting Ramstedt's theory according to which Turkic /z/ has developed from a palatalized *r*.

3. MK *kāz* "the notch of an arrow," *oq kāzi* id., *kāzlā* "to cut a notch in an arrow," *kāzgār* id., Id. *kāz* "the (place) where the notch for the bowstring is," AH *kāzlik* "knife," Osm. *gāz* "the notch in an arrow," *gāzlā* "to put the arrow notch on the bowstring," Trkm. *gezlik* "knife," Az. *gāz* "notch, incision" < *kāz* < **kār*¹⁸

~ MK, etc. *kārt* "to cut a notch, make incisions," Yak. *kārt* id., Chuv. *kart* id. < **kārt* < **kārti* < *kār*²+*i* < **kerti* < Mo. *kerči* "to cut, carve; to make incisions, to notch" < **kerti* < **kār*²

4. MK *kāz* "sediment, the remains of milk, flour, etc. which sticks to the bottom of a cooking pot and scraped from it," *āšik kāzi* id., *kāzlā* "to scrape the sediment from a pot," *kāzlān* "to have sediment at the bottom (of a cooking pot)," Yak. *kāhiāz* "soot which sticks to the bottom of a cooking pot" < **kāsiāz* < **kāzgāk* < *kāz*+*gāk* < **kār*²

~ Mo. *kerčire* "mud, silt, sediment in a river; uneven bottom of a water-filled depression," Khal. *xerčir* id. < *ker-či-re*.

5. Uig. *küz* "fall, autumn," MK *küz*, *küz* (II 172, III 160) id., Kzk. Kirg., etc. *küz* id., Trkm. *güyö* id. < **küz*, Yak. *kühün* "fall, in fall" < **küsün* < **küz-ün* < **kür*²

~ Chuv. *kēr* id. < **kür* < **kür*²

~ Tuv. *xürgül* "brown" < **kürgül* „brownish" < **kür*²+*gül*

~ Mo. *kürin*, *küren*, *küreng* "brown, dark brown, maroon (esp. of fir); deep violet," Khal. *xüren* id. (> Alt. Khak. *kürän* "brown" Tuv. *xürän* "dark brown, chestnut," Yak. *kürän* "brown," etc.), Mo. *kürene* "akunk, polecat; weasel," Khal. *xürne* id. (= Tu. *küzän* id. < **kür*²+*än* "brown, brownish").¹⁸

This etymology is not new. It goes back to Ramstedt. What is new here is the Tuv. *xürgül* "brown" formed with the diminutive suffix {+GII} (cf. Uig. *qizyil* "reddish," Kzk. Kklp., etc. *qizyil* id., Trkm. *ğidyil* id.). The root from which Tuv. *xürgül* is derived cannot be anything but **kür* (< **kür*² "brown" > **küz*), i. e., the root of Mo. *küreng* "brown," *kürene* "polecat; weasel" and Tu. *küzän* "polecat." The existence of /r/ in Tuv. *xürgül* suggests that it is an old derivative formed before zetacism.

¹⁷ Yak. *xārbax* "cauldron, kettle" is also a cognate. See Tokin 1967, p. 61.

¹⁸ The semantic relation between "brown" and "fall" is obvious.

6. MK *küzük* "a weaver's instrument with thread wrapped over and over around it with which the upper and lower warp threads are separated." Kirg. *küzük* "threads on a loom, warps and wefts," Alt. *küzüg* id., MK *küzük*, *küzük* "curls of hair, tassels," IM *küzük* "plaits of hair hanging down from the temples" < *küz-ük*, *küz-äk* < **kür*² "to braid, twine, weave"

~ Chuv. *kērē*, *kēr* "threads on a loom, warps and wefts" < **kürü* < **kür*²-*üg* (Tat. *köre* id. < Chuv.).

~ Alt. *kürmāk* "knot," Kmd. *kürmāk* "bond, tie," Tob. *kürmō* "to tie a knot," Kirg. *kürmō* "to tie with a Kalmuk knot" < **kür*-*mā* < **kür*²-*mā*

~ Mo. *gürü* "to braid, twine, weave," *gefige gürü* "to braid a plait," *uāsu gürü* "to braid a cord," *gürüge* "wickerwork," *gürümel* "braided, woven, plaited," *gürümel üsü* "braided hair," Khal. *görü*-, *güre*- "to braid, twine, weave."

7. Uig. (Tezcan, *Hsüan Tsang Biyografisi*, X. Bölüm, p. 144) *qapiz* "coffin" < **qapir*², Chag. *qapuzay* "bark of a tree" < **qapuzaq*, Nuig. *qovzaq* id. < **qavuz*+*aq* < **qapir*²

~ MK *qapirčaq* "coffin," IM *qabirčaq* "chest, box," AH *qaburčaq* "an inkpot or box made of bark," *qaburčaqlı baya* "tortoise," Tuhs. *qabarčaq*, *qabirčaq* "chest, box," Osm. (TS) *qapurčaq*, *qapurčaq*, *qaburčaq* "perfume box, chest, case," Trkm. *qapirčak* "chest, box," Tuv. *xārjak* "box, case; coffin" < **qapirčaq*, Yak. *kuorčax* "an engraved coffin" < **qörčaq* < *qapirčaq* < **qapir*²+*čaq*

~ Hung. *koporsó* [koporšö] "coffin" < Old Bulg. **qapurčaq*

~ Mo. *qayurčaq* "small box, chest" < **qapurčaq*, *qayirčaq* id. < **qapirčaq*, Khal. *xayrčaq* id., Bur. *xayrsaq* id. < *qayirčaq*, Klm. *xürisg* "a large chest; coffin" < **qayurčaq* < **qapurčaq*.

Clouston cannot give an etymology for Turkic *qapirčaq*. Now the Uigur word *qapiz* "coffin" which occurs several times in *Hsüan Tsang Biyografisi*, X. Bölüm (Dr. Tezcan's unpublished habilitation thesis) enables us to offer an etymology: *qapir*+*čaq* < **qapir*² > *qapiz*. This example also supports my theory according to which zetacism occurred in Proto-Turkic in final position only.

8. CT (Common Turkic) *qaz*- "to dig," Yak. *xas*- "to dig, scrape" < **qaz*- < **qar*².

~ Chuv. *xār*- "to dig, scrape" < **qir*- < **qar*².

~ Uig. *qarim*, *qaram* "ditch," QB *qarim* "ditch, hole, hollow, grave," Tafs. *qarim* "ditch," Kklp. *karim* id., Trkm. *garim* id. < *qarim* < **qar*²-*im*.

~ Mo. *qaru* "to scrape, plane" < *qar-u*, Khal. *xar*-id. (Yak. *xarıy*, *xoruy* "to dig, scrape" < Mo.).

This etymology is not new either. Tu. *qaz*- had been equated to Mo. *qaru*- already by Ramstedt. What is new here is the inclusion of Turkish *qarım* in this Altaic equation. Clauson derives Uig. *qarım* from MK *qār*- "to overflow." This etymology is erroneous both phonetically and semantically: Trkm. *qarım* shows that the vowel /a/ is a short one; there is no semantic relation between "overflowing" and "a ditch" or "a grave." On the other hand, the semantic relation between "digging" and "ditch, grave" is obvious (cf. Ger. *graben* "to dig, trench," *Grab* "grave, tomb," Eng. *grave* id.).

9. Kzk. *koz*- "to flare up again, to return, to become active again (about a disease); to be excited, to get irritated," Nuig. *qoz*- "to be irritated (of skin)," *qozuś* "irritation (of skin)," Nog. *koz*- "to incite, instigate, provoke," Chag. *qozyun* "excited, irritated" < *qoz-yun*, Chag. *qozya*- "to stir, incite, agitate, excite," Kzk. Kklp. Nog., etc. *kozya*- "to move, stir, excite, arouse, disturb, touch," Trkm. *ğödyä*-id., Chag. *qozyal*- "to move, stir; to get excited, agitated," Kzk. Kklp. Nog. *kozyal*-id., Nuig. *qozyal*-id. < *qoz-ya-l*- < **qör*².

~ Trkm. *ğörjä*- "to touch, excite; to stir, irritate; to stir up" < **qör*²-*či*-, *ğörfal*-pass., *ğörfat*-caus., *ğörfadör*-freq., Osm. *qurcala*- "to touch, excite, stir up" < **qör*²-*čila*-freq., Az. *ğurdala*-id., *ğurjuz*- "to be moved, stirred up, get excited, irritated" < **qör*²-*či*-g.¹⁹

10. MK *saqiz* "sticky, sticky substance such as fruit juice or syrup," *sayiz* "sticky, mastic," Osm., etc. *saqiz* "mastic, chewing gum," Az. *sağgiz* id., Kzk., etc. *sayiz* "tar, pitch; chewing gum, mastic; rubber plant," Kirg. *sayiz* "chewing gum, mastic," Tob. *sayis* id., Alt. *sayis* id., Khak. *säs* id., Yak. *ias* "pitch, tar, resin; gum, wax, ear-wax" < *sayiz*, *saqiz* < **sayir*², **saqir*²

~ Chuv. *suxär* "ear-wax; tar, pitch, resin, tree resin" < **saqir*²

~ MK *saqirqu* "tick," AH *saqırqa* id., Chag. *sayirtqa* id., Osm. *saqırya* id., Trkm. *sakirtqa* id., Khak. *sayartxi* id., Tuv. *särği* id. < **sayir*+*qu*, **saqir*+*t+qu* < **sayir*², **saqir*² "sticky."

The semantic relation between "being sticky" and "a tick" is obvious. Cf., e.g., Tuhf. *yapsi*, *yavsi* "tick" (< "sticky, something which sticks"), Trkm. *yapışak* "sticky; a louse," etc.

¹⁹ For the Trkm. suffix {-JA} < {-čI-} of MK, etc. *tamč*- "to drip" (< *tam-č*-), Mo. *burč*- "to destroy" (< **bur-č*- = Tu. *buz*-id.), etc.

11. Osm. *saz* "white, yellowish white, pale," *saz benizli* "pale," Kirg. *saz öpdöl* id., *öğü saz* id., Trkm. *säd* in *day säd ber*- "to become light (dawn)," *sädmič* "grayish" (e.g. *sädmič bulutlar* "grayish clouds") < *söz-mug*, Uig. (*Heüian Tsang*, X. Bölüm, p. 169) *sazyän* "pale" < *saz+yan* (dim. suff.) < *söz* < **sär*²

~ Chuv. *šur*- "to become white" < **säri*- < *sär*²+*i*-, Hung. *sár* [šár] "white" < Old Bulg. **šar* id. < **šjar* < **sär*², Chuv. *šurdz*- "to become white or pale" < **šjar*iq- < **säri*iq- < *sär*²+*i*-g-

~ Cf. *säriy* "yellow," Trkm. *säri* id., Tob. *säri* id., Yak. *ari* "butter" < **säriy* < *sär*²+*i*-g, Chuv. *šur*, *šurä* "white" < **šjar*iy < **sär*²+*i*-g

~ Mo. *sira* "yellow" < **šjara* < **sära*, *siraqan* „yellowish" < *sira-qan* (cf. Uig. *sazyän* "pale"), *siralä*- "to become yellow" < **sira+ya*- (dissimilation), *ür siraläqu* "the day dawns" (cf. Trkm. *day säd ber*-id.).

It is clear from the above-given examples that Mo. *sira* is cognate to Tu. **söz*, not to **säriy*. Chuv. *šur*, *šurä* "white," on the other hand, goes back to Common Turkic **säriy*. Tu. *säriy* is a deverbal adjective derived from **säri*- "to become white or yellow" (> Chuv. *šur*- "to become white"). Thus, Tu. **söz* and **säriy* is another pair of related words supporting my theory according to which zetacism occurred in Pre-Turkic in final position only. Pre-Turkic **sär*² became **söz* in Proto-Turkic, but it remained as such in Proto-Bulgarian. On the other hand, Pre-Turkic **sär*² survived in pre-zetacism derivative **säri*- "to become white or yellow" (< *sär*²+*i*-) from which Common Turkic **säriy* is derived.

II. Sigmatism

1. Orkh. *bišük* "relatives, family members," Uig. *büšük* "relative by marriage, relation by marriage" (*DTS*, etc. *böšük*), *tügyür büšük* "relatives by inter-clan marriages," *adaš büšük* "blood relations, relations by marriage," *bayır büšük* id. < *bišük* < *biš*+*ük*, Yak. *biš* "tribe, clan, family" < **biš* < **biš*²

~ Yak. *bilä* in *aymaz bilä* "neighbors, relatives, kinsfolk, lineage, ancestors" < Mo., Kirg. *bülö* "any member of the family members, family," *üy-bülö* "family, kinsfolk," Tuv. *ög-bülä* id., Alt. *bilä* id., Kzk. *böle* "cousins on the maternal side (children of sisters)" < Mo.

~ Mo. *büle, büli* "family, members of the same family or household," *ger büle* "family," Khal. *bül* id., Kim. *bül** id.

2. Uig. *tumšiq, tumšuq* "bill, beak; elephant's trunk," MK *tumšuq* "a bird's beak," IM *tumšiq* id., Chag. *tumšuq, tumšuy* "beak bill; nose; spout of a mountain," Kirg., etc. *tumšuk* "beak, bill; snout; promontory, cape," Kzk. Kklp. *tumšik* "beak, bill," Nog. *tumšik* "mouth and nose of an animal," Tuv. *đumčuk* "beak," etc. Khak. *tumzuq* id. < *tumšuq* < **tumus*+*uq* (dim.), Yak. *tumus* "bill, beak; snout, muzzle; toe of a boat; promontory, cape" < **tumus*, Hou. *đumšaq* "beak, bill" < **tumus*+*aq* (dim.), Yak. *tumuhax* "a small wooded cape, promontory" < **tumus*+*aq*

~ Yak. *tumul* "cape, headland," *tas tumul* "a rocky headland," Kzk. *tumılduruk* "a muzzle (for calves)" < **tumul*+*duruq*, Yak. *tomtoruk* id. < **tum*+*turuq*, Tel. *tomok* id. < **tum*+*aq*.

Clauson derives *tumšuq* from a hypothetical **tumš-* and compares this with the verb *tomur-* "to bleed" (p. 509); but Uig. *tomur-* is only a secondary form going back to an older *tamur-* (cf. MK *tamur-* "to bleed," e.g. *ar burni tamurdi* "The man's nose bled"). Secondly, there is no semantic relation between "a nose" and "bleeding." (A nose does not necessarily bleed!)

Thus, *tumus* and *tumul* are real doublets in Yakut, the latter being a residual form left from the Pre-Turkic times (cf. MK *ükil* "much, many" ~ CT *üküs* id., Yak. *tül* "dream" ~ CT *tülš* id., etc.)

III. Sound Change **l̥* > *š*

As is known, Pre-Turkic **ʎ*¹ is not the only source of Proto-Turkic **š*. In some cases, Common Turkic *š* goes back to **l̥* and **ʎ*, as it is evident from Mongolian, Hungarian and Chuvash data, e.g. CT *ašuq* "knuckle, knuckle-bone" < **alšuq* (cf. Mo. *albu* "one side of an anklebone, depression on the side of an anklebone"), CT *qaši-* "to scratch" < **qalši-* (cf. Mo. *qalši-* "to remove unevenness, to remove hair from skin or fur; to scrape off"), CT *běšik* "cradle" < **běšik* (cf. Hu. *bölcs* id. < Old Bulg. **běšiq*) CT *yěmiş* "fruit" < **yěmil̥* (cf. Hu. *gyümölcs* id. < Old Bulg. **yimäl̥* < **yemäl̥*), etc.

It is very remarkable that, in such cases, the corresponding phoneme in Chuvash is not /l/, but /š/, e.g. CT *qaši-* "to scratch" = Chuv. *xiš-* < **qaš-* < **qalš-*, CT *yěmiş* "fruit" = Chuv. *šiměš* < **šemiş* < **yemil̥*, etc. This means that the sound group **l̥* resulted, with the

loss of /l/, in /š/ in Proto-Chuvash or Proto-Bulgarian, but in Proto-Turkic this /š/ developed into /š/. Thus, Chuv. *puš* "head, beginning" < Vol. Bulg. *baš* "beginning" < **balš* (cf. Mo. *-balši* in *tarbalši* "sparrow hawk; tawny eagle" < "bald, bald-headed") = CT *baš* < **balš* < **balš*, etc.²⁰

In my article entitled "Zetaicism and Sigmatism in Proto-Turkic," I had given the following examples for the sound change **l̥*, **ʎ* > *š*: CT *ašuq* = Mo. *albu*, CT *baš* = Chuv. *puš*, MK *ašgäk, ašyäk, ašäk* "donkey" = Mo. *elšige(n)*, CT *qašya* "blaze on the forehead of an animal" = Mo. *qalša(n)*, CT *qaši-* = Mo. *qalši-* = Chuv. *xiš-*, CC, Tuht., etc. *qoryašin* "lead" = Mo. *qoryolši(n)*, CT *kišyā-* "to neigh" = Chuv. *kěšen-* < **kilčyā-*, CT *siš-* "to swell" = Chuv. *šiš-* < **sišl̥-*, CT *yaši-* "to shine" = Chuv. *šiš-* < **yil̥š-*, CT suff. of co-operative and reciprocal stems *-š* = Chuv. *-š-* = Mo. *-l̥a-/l̥e-*.²¹ In my second article on the subject I gave the following additional examples: CT *qāš* "eyebrow; edge, brink, front" = Mo. *qalša* "directly in front or ahead," CT *šš-* "to crowd, throng, come together" = Mo. *üyilše-* id. < **üšilše-*.²² In this article, I would like to give two more examples displaying this sound change or development.

1. MK *ašaq* "foot of a mountain," IM *ašay* "low," *ašaya* "down, below," Osm. (TS) *ašaq, ašax* "low; humble, modest," Trkm. *ašāk* "the lower part, bottom; down, below, low," *ašāki* "the lower" < **ašayqī*, Osm. (TS) *ašaya* "down, downward, below" < *ašaq+a*, Az. *ašaya* id., Tu. *ašayi* id. < *ašaya* < *ašaq+a* < **ašaq*

~ Uig. *alčaq* "humble, modest," MK *alčaq* "mild, gentle," Chag. *alčaq* "vile, base, abject," Osm. (TS) *alčaq* "humble, modest; mild, gentle," *alčax* id., Trkm. *alčak* "gentle, mild, courteous, polite," Tu. *alčak* "low; short; vile, base, abject," Hung. *olcsó* [olčó] "cheap" < Vol. Bulg. **alčay* < *alčaq* < Uig. *al* "the lower part, bottom," Tu. Az., etc. *alt* id. < *al+a*

2. Uig. *yašu-* in *yaru- yašu-* "to gleam, glitter, shine" and in *yallri- yašu-* id., *yašuq* in *yaruq yašuq* "bright, light, shiny, brilliant," MK *yašu-* "to gleam, glisten, shine," QB *yašiq* "sun," Chag. *yašiq* id., Khwar. (SUS) *yāši-* "to shine, gleam, glitter," Id. *yāši-* id., Osm. Tu. *ışi-* id. < **yaši-*, Tu. Trkm. *ışik* "light," Az. *ışiq* id. < *yašiq*, Uig. MK, etc. *yašin* "lightning" < *yaši-n* < **yalši-*

²⁰ For Volga Bulgarian *baš* "beginning" see T. Tekin, "On Volga Bulgarian *bašna*," *PIAO Newsletter*, No. 10, p. 8.

²¹ See *AOH XXXI*, Fasc. I, pp. 79-80.

²² See *Researches in Altaic Languages*, pp. 281, 283.

~ Chuv. *śiš-* "to shine, flash, lighten" < **šiv-* < **yil-* < **yalš-*,
śišēm "lightning" < **šivēm* < **yilēm* < **yalš-ēm*

~ QB *yalšiq* "moon" < *yalš-q*

Clauson claims that QB *yalšiq* "moon" is *hapax legomena* and therefore must be a word invented or coined by the author of *Qutadıy Bilig* (p. 921). This view cannot be accepted on the grounds that there are many words which are *hap. leg.* and on which we reconstruct hypothetical forms, e.g. Yak. *bürğäs* "awl" (CT *büz*), Yak. *ülüy-* "to feel chilly, to freeze" (CT *üši-*), Vol. Bulg. *baš* "beginning" (CT *baš*), etc. Even if it were true, the form itself shows that the verbal root or stem **yalš-* "to shine" was still remembered by the author of QB in the 11th century and was probably used as an alternative form of *yalš-*.

IV. Sound Change **nʃ* > *š*

Finally, I believe that I have found at least one example displaying the correspondence Mo. -*nʃ*- = Tu. -*š*-. Observe the following data:

MK *kišä-* "to hobble (a horse), to bind, to shackle," *kišäl-* pass., *kišän* "a horse's hobble, fetters, leg-irons," Kirg. *kišän* id., Kzk. Kklp. Nog. *kišän* id., Tat. Bash. *kešän* id., Tuv. *kišän* id., Trkm. (arch.) *kišen* id. < *kišä-n* < **kišä-ä-* < **kišä* < **kinš* < **kinš*.

~ Mo. *ginʃi* "chains, fetters, shackles, irons, bond, tie," *ginʃi(n)* id., Bur. *genʃe* id., Mo. *ginʃile-* "to provide with a chain; to put chains or fetters," Khal. *ginʃle-* id., Bur. *genʃel-* id. (Khak. *kinʃi* "fetters, shackles, leg-irons" < Mo.).

This Turko-Mongolian etymology demonstrates that the Altaic consonant cluster **nʃ*, too, sometimes resulted in **š* in Proto-Turkic. The length of /i/ in Trkm. *kišen* must be secondary, i.e., due to the loss of /n/ before /š/.

As I have shown elsewhere, /š/ in CT *qurša-* "to gird; to surround, encircle," too, goes back to an earlier /š/, e.g. Uig. MK, etc. *qurša-*, Kzk. Kklp. Nog. *kursa-*, Tuv. *kurša-* < **qurša-* < **qurša-* (cf. Alt. Kirg. *kurša-*, Khak. *xurša-* < *qur*+*ša-*). Furthermore, after the sound change from *č* to *š* had taken place, the sonant *r* preceding it was also lost in the Oghuz group of Turkic languages, e.g. Tu. *kušak* "sash, girdle," Az. *ğuşaq*, Trkm. *ğuşak* id. < **quršaq* < **quršaq*, Tu. *kušan-* "to gird oneself," Az. Trkm. *ğuşan-* id. < **quršan-* < **quršan-*. It should be added that the older forms with *r*

survive in Turkmen with slightly different meanings, e.g. *ğuşa-* "to gird" ~ *ğurša-* "to encircle, surround," *ğuşak* "belt, girdle" ~ *ğuršak* "ring, hoop, circle" (< **quršaq*), *ğuşat-* "to let gird" *ğuršat-* "to surround, encircle, besiege," etc.²³

To sum up: Common Turkic /š/ does not always go back to *ʃ*. In some cases, it goes back to the Altaic consonant clusters **š*, **ʃ* and **nʃ*. It may also go back to Proto-Turkic clusters **š* and **rč*.

I would like to conclude this paper with a final (on my part, of course) discussion of the theory of zetacism and sigmatism. It should be once more emphasized that the theory about the primary character of the phonemes /r/ and /l/ is the correct one. Numerous Altaic etymologies established by Ramstedt and Poppe, and additional inner-Turkic (and Altaic) evidence brought by the author of these lines in recent years (Tekin 1967, Tekin 1975 and this article) prove the theory of zetacism and sigmatism to be true. The adherents of the opposite theory, i.e., the theory of rhotacism and lambdacism, must, therefore, prove that all these etymologies are false or incorrect. This would indeed be a task too difficult to carry out. It is probably for this reason that Doerfer, the most outspoken opponent of the Altaic theory, has finally returned to Ramstedt's classical solution, that is, he now thinks that /r/, /l/ (or similar forms) may be somewhat more likely than *z* and *š* for Proto-Turkic."

But what were the qualities of Altaic (and Pre-Turkic) *r*² and *ʃ*², and in what position or positions did the sound changes from *r*² to *z*, and from *ʃ*² to *š* take place? In my opinion, these questions have not yet been answered satisfactorily. Ramstedt believed that CT /z/ and /š/ developed from *r* and *ʃ*, that is, from palatalized *r* and *ʃ*, occurring before an *i*. Indeed, we often, but not always, find an *i* after Mo. *r* and *ʃ* corresponding to Tu. *z* and *š* respectively, e.g. Tu. *yüz* = Mo. *düri*, Tu. *aziy* = Mo. *araya*, *ariya* (< **ariya*), Tu. *qoš-* = Mo. *qoli-*, Tu. *biš-* = Mo. *büli-*, etc. Examples like Tu. *böza-* = Mo. *buyıla-* (< **büfıla-*), Tu. *qazyan* = Mo. *qayiba* (< **qäyiba*), Hung. *borjú* (< Old Bulg. *buraju*) also speak for Ramstedt's assumption. However, we also have a number of Mo. examples in which there is no an *i* after the sonants in question, e.g. *bora* (= Tu. *boz*), *qaru-* (= Tu. *qaz-*), *atar* (= Tu. *atiz*), *dayir* (= Tu. *yayiz*), *üker* (= Tu.

²³ Oam. hend. *qur quşaq* is a typical example of the preservation of *r* in final position and its loss before *š*.

öküz), *deresün* (= Tu. *yez*), *ölayu(n)* (= Tu. *išš*), *alus* (= Tu. *šš*-), etc. It is indeed difficult, with Ramstedt's theory, to explain the sound changes from *r*² to *z*, and from *l*² to *š* in such examples. Doerfer's theory, i.e., CT *böz* < **börja* (> Mo. *bora*), CT *atiz* < **atarj* or *ataf* (> Mo. *atar*) < **atarju*, etc. seems to be convincing, but it is based on a rather weak assumption according to which Mo. has never preserved *j* diphthongs but it has preserved *-r-* and *-a/-e* (in loanwords borrowed from Proto-Turkic, of course!). In the same article, Doerfer seems to have adopted the classical view about the development of Mo. *sira* "yellow," i.e., *sira* < **sjär* (better **sjära*) (p. 23). Why, then, has Mo. preserved the *j* diphthong in *sira*? In other words, why do we have *sira* in Mongolian and not **sara*? Examples like Mo. *sira*, *ölayu(n)*, *kiramaj/kirmağ* "fine snow," *nilbusu(n)*, *nilqa*, etc. show that **jš* diphthongs resulted in *i* in Mongolian, but not in *a*. Thus, the only example which seems to be supporting Doerfer's theory is Hu. *borjú* where we have *rj* (ry) to correspond to Tu. *z* in *buzayu*.²⁴

In this connection, I again would like to draw attention to such Middle Turkic forms as MK *ayuz* "biestings," *köwiž* "rotten, decayed (of inner part of a tree)," *küzük/küzäk* "curls of hair, tassels," IM *bužla* "to bellow (of camels)," etc. These forms in *ž* can be best explained as archaic forms which survived sporadically in certain Middle Turkic dialects. Thus, we may suppose that *ž* or a *ž*-like sound played the role of an intermediary in the transition from *r*² to *z*, i.e., **ayur*² > *ayuz* > *ayuz*, **käbir*² > **käwiž*/*köwiž* (cf. MK *käwä-rä*/*köwä-rä* "to become weak, loose or crumbly" < **käwä-r*²+*ä*-), **kür*² "to braid, twine, weave" > **küz*- (hence MK *küzük*, *küzäk*) > **küz*- (hence MK, etc. *küzük*), **bör*²+*la*- > **bözla*- > *bözla*-. We also have Mongolian data, that is, Turkic loanwords in Mongolian, supporting this theory, e.g. Mo. *sefig* doubt, suspicion" < Tu. **säzig* < **sär*²-*ig* (CT *säzig*), Mo. *semfi(n)* Khal. *semfi(n)* "fat around the intestines, fatty skin around the intestines of animals" < Tu. **sämiz* < **sämir*² (CT *sämiz* "fat, fatty," Chuv. *samär* id.). These examples demonstrate that Pre-Turkic *r*² first developed, in some cases, into *ž* before it finally resulted in *z*. In this connection, I would like to draw attention to a similar development which took place in the Slavic languages. As Serebrennikov states, the pala-

²⁴ *y* in Hungarian *borjú* may be secondary, i.e., it may be the first element of a diphthong resulting from the contraction of the sound group *ayu*: *boryü* < **borjü* < **borü* < **borayu*.

talized *r* occurring before front vowels resulted in *ž* or *r* in Polish and Czechish, e.g. Rus. *reka* "river," Pol. *rzeka*, Rus. *more* "sea," Pol. *morze*, Czech. *moře*, etc.²⁵

As for the place of occurrence of the sound changes from *r*² to *z* and from *l*² to *š*, I have so far maintained that they took place in final position in Proto-Turkic. The reason for such an assumption is that we have a large number of Turkic pairs of the type *sämiz* "fat" ~ *sämri*- "to become fat" (< **sämir*²+*i*-). Observe the following examples: *baz* "peace; peaceful" ~ *bariš*-, *blz* "awl" ~ Yak. *bürgäs* id. (< **bürgäc*), *az*- "to crush, trample on" ~ *ärklä*- id. (freq.), *käz* "notch" ~ *kärt*- "to cut a notch," *köküz* "breast" ~ *kökräk* id. (< **kökür*²+*äk*), *kälz* "fall, autumn" ~ Tuv. *xürgül* "brown" (< **kälz*²+*göl*), *omuz* "shoulder" ~ **omray* "collar-bone, clavicle," *qapiz* "coffin" ~ *qapircağ* id., *qaz*- "to dig" ~ *qarım* "ditch; grave," *goduz* "girl, woman" ~ *godurčuq* "doll, puppet," *qoz*- "to be excited, stirred up" ~ Trkm. *ğörja*- "to stir, irritate" *qoğuz* "bug, beetle" ~ Yak. *xoğurduos*, *xomurduos* id. < **qoğur*+*t*+*yač* **qütuz* "having hydrophobia, mad" ~ Trkm. *ğädura*- "to become unruly" (< **qätür*- > **qätür*-, etc.), *qız* "girl, daughter" ~ *qirgin* "girls, female slaves," **säz* "white, yellowish white" ~ **säriy* "yellow," *sağız* "sticky" ~ *sağırqu* "tick," *sämiz* "fat" ~ *sämri*- "to become fat" *šiz*- "to leak, drip" ~ *sarg* id. (cf. Chuv. *sur*- id. < **sar*-), +*slz* "without" ~ +*slrA*- "to become without," *taz* "multicolored" ~ *taryıl* id., *taz* "bald" ~ Kzk. *tarbaka* "frog, toad," *täz*- "to run away, flee" ~ *tärk* "fast, quick," *tiz*- "to arrange in row" ~ *tirkış* "caravan," *tlz* "knee" ~ *tirägäk* "elbow," *töz* "origin" ~ *töri*- "to originate," *yawiz* "bad" ~ *yawri*- "to become bad," *yamiz* "groins" **yamra*- "to be admitted to ewes or cows for sucking (of lambs and calves)," etc.; *bäs* "boil, wound" ~ *bälty* id., *buš*- "to be bored, annoyed" ~ *bulya*- "to bore, annoy," *äš*- "to dig with hands" ~ *älig* "hand," *qäs* "eyebrow; edge, brink, front" ~ Shor *kalka* "forehead, spot on the forehead of a horse," *üküş* "many" ~ *ükli*- "to increase, grow in number," etc. In the above-given examples, doublets in *r* can be best explained as pre-zetacism derivatives, and those in *l* as pre-sigmatism formations. Róna-Tas, Miller and Doerfer raised objections to this theory of mine, claiming that *z* and *š* occur in Turkic also in medial position, e.g. *azu* "or," *qazı* "plain," *qazı* "abdominal fat," *qozı* "lamb,"

²⁵ Serebrennikov, "Čto bylo pervičnyĭm *r*² ili *z*?", *ST* 1971, 1, p. 16.

buzayu "calf," *yuzaq* "lock," *yüzük* "ring," *üzəngü* "stirrups," *qaşuq* "spoon," *köşäk* "young camel," *şik* "door," etc. In this paper, I have tried to answer these objections in connection with Doerfer's views. All these examples can indeed be explained as post-zetacism and post-sigmatism derivatives. It should be stressed that the one and the same suffix could be added to the same root or stem before and after the occurrence of a certain sound change, e.g. MK *irtä-* "to look for, search" (< **ir*²+*tä-*) ~ CC, etc. *izdä-* id. (< **iz*+*tä-*), MK *sämri-* "to become fat" (< **sämri*²+*i-*) ~ Osm. (TS) *sämizi-* id. (< **sämiz*+*i-*), Kzk. Kirg. etc. *särgäk* "aware, awake, sensitive" (< **sär*²+*gäk*) ~ Chag. *sezgäk* "clever, intelligent" (< **saz*+*gäk*), Mo. *uyurağ* "colostrum, beeings" (< **ayur*²+*aq*) ~ Yak. *uohax* id. (< **ayuz*+*aq*), MK *balıq-* "to be wounded" (< **bäl*²+*i-q-*) ~ At. Hak. *başıq-tur-* "to wound" (< **bäs*²+*i-q-*), etc. Of such doublets, those in *r* and *l* are pre-zetacism and pre-sigmatism derivatives, and the ones in *z*, *š* are post-zetacism and post-sigmatism formations. Thus, Tu. *buzayu* can be explained as a post-zetacism derivative, i.e., *buz*+*ayu* < **bur*² or **bir*² (= Chuv. *päru* < **bur*²+*ayu* = Mo. *bırayu* < **bir*²+*ayu*), and Tu. *köşäk* as a post-sigmatism formation, i.e., *köš*+*äk* < **köl*² (= Hung. *kölyök* < Tu. **köl*²+*äk* = Mo. *göliqe* < *göli*+*qe*).

If this theory is correct, we must then admit that *r*² and *l*² were originally allophones of only two phonemes. But this does not seem to be the case. Because, as I have already mentioned in connection with Nauta's theory, we have a number of minimal pairs in which /z/ and /r/ occur in the same, i.e., final, position, e.g. *yayız* "brown" < **dayır*² (= Mo. *dayır* id.): *yayır* "saddle sore" < **dayır* (= Mo. *dayarı*, *dayır*), *qoşuz* "bug, beetle" < **qoşur*² (= Mo. *şur*): *qoşur* "chestnut" (= Mo. *qoşğur*), **qayuz* "chaff" < **qayur*² (= Mo. *qayurasun*): *qayur-* "to fry, roast" (= Mo. *qayur-*, *qayur-*) etc. On the other hand, /z/ occurs in Turkic in various morphemes which are clearly distinguishable: 1. The dual (later also plural) suffix: *bi*+*z* "we," *si*+*z* "you," *kökü*+*z* "breast," *yamı*+*z* "groins" (cf. MK, IM, AH *yamdu* id. < *yam*+*du*),²⁶ etc.; 2. deverbal nominal suffix: *boşu-z* "throat," *ü-z* "skillful, artisan," *söz-z* "word, speech" etc.; 3. causative suffix: *äm-ü-z-* "to suckle," *tam-i-z-* "to let fall in drops," *tüt-ü-z-* "to let something smoke," *ud-u-z-* "to lead," *ut-u-z-*

"to let somebody else win," etc. Therefore it would be logical to assume that *r*² and *l*² (apart from the cases in which Tu. *š* goes back to **š*, **š* and **ny*) were originally phonemes different from *r*¹ and *l*¹ respectively, and they converged with *r*¹ and *l*¹ in that dialect which became the ancestor of Chuvash. Furthermore, we must assume that *r*² and *l*² converged with *r*¹ and *l*¹ also in Proto-Turkic in medial position, i.e., before or after a consonant and between vowels; for it is only in this way that we can explain the existence of numerous doublets in Turkic of the type *sämiz* ~ *sämri-* and *üküş* ~ *ükli-*.

²⁶ For the dual suffix {-dU(n)} cf. Mo. *ömüdü(n)* "trousers" = Tu. *äm* id., Mo. *sidü(n)* "teeth" < **sil*+*dü(n)* = Chuv. *šäl* "tooth" < **sil* = Tu. *šš*, etc. (See Tekin 1975, pp. 279, 281 and 282).