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## Vedic 'ox' and 'sacrificial cake'

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*Essays in honour of  
Frederik Kortlandt*

Volume 1:  
Balto-Slavic and Indo-European Linguistics

*edited by*  
Alexander Lubotsky  
Jos Schaeken  
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*with the assistance of Rick Derksen and Sjoerd Siebinga*

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## VEDIC 'OX' AND 'SACRIFICIAL CAKE'

ALEXANDER LUBOTSKY

1. In Vedic, *s* was sometimes retracted when followed by a vowel and a retroflex stop:

$s > \text{ṣ} / \_ (C)VT$  ( $T$  = retroflex stop)

The clearest examples of this sound change are furnished by derivatives of the root *sah-* 'to conquer' (Wackernagel 1896: 224f.), cf. *á-ṣālha-* 'unconquerable' (12x RV) < \**saṣḍ<sup>h</sup>a-*, nom.sg. *ṣát* of the root noun 'conqueror' and of compounds in *-sah-* (*janāṣāt*, *turāṣāt*, *purāṣāt*, *pṛtanāṣāt*, *virāṣāt*, *vṛthāṣāt*, *satrāṣāt*) < \**sāṣ*. From the nom.sg. *pṛtanāṣāt* (5x RV), *ṣ* spread to the other cases of this word, viz. *ṣāham* (RV 5.23.2, 8.98.10), *ṣāham* (RV 6.72.5), *ṣāhaḥ* (RV 6.45.8) and to a derivative *pṛtanāṣāhya-* (RV 3.37.1).

On the other hand, the assimilation has not taken place in *sālhar-* m. (RV 7.56.23) 'conqueror', *sādhá-* (AVŚ 5.30.9) 'overpowered', *sādhāmitra-* (AVP 10.4.13) 'overpowering the enemies', inf. *sādhyai*, ger. *sādhvā* (MS). This leads to the conclusion that the rule only applied to a non-initial *s*. The nom.sg. *ṣát* (a hapax RV 1.63.3b) may be analogical after *vṛthāṣāt* in the following verse (RV 1.63.4d) and after other compounds in *ṣāt*.

It follows from this distribution that the initial *ṣ-* of *ṣás-* (nom.sg. *ṣát*) 'six' can hardly be due to this Vedic rule. And indeed, the assimilated *ṣ-* is attested in Avestan *xšuuas* and in Balto-Slavic (OCS *šestъ*, Lith. *šeši*), so that the assimilation in the word for 'six' must have taken place at a much older stage, possibly even in "proto-satəm" times.<sup>1</sup>

The conditions of our rule can be further specified. Both in *á-ṣālha-* and in *ṣāt*, original *s* was followed by a consonant cluster containing a retroflex spirant (\**ṣḍ<sup>h</sup>* and \**ṣṣ*, respectively), which was later lost. It seems therefore likely that there was phonetic assimilation of intervocalic *-s-* to *ṣ/z* in the following syllable, which became phonological when the conditioning factor disappeared (thus already Wackernagel 1896: 224 with references).<sup>2</sup>

<sup>1</sup> I wonder, incidentally, whether the problematic onset of Armenian *vec* may have something to do with the assimilated \**ṣ-*.

<sup>2</sup> The assimilation of *s* to the following sibilant is well attested in Sanskrit, cf. *śvāśura-* 'father-in-law' < \**svaśura-*, *śúṣka-* 'dry' < \**suṣka-*, etc. Note, however, that in these instances the conditioning factor has not disappeared.

2. As far as I know, it has not been noticed before that this rule has some important implications. First, it helps to explain the compound *puroḍāś-* m. 'sacrificial cake' = *purás* 'before' + *dāś-* 'homage'. In the RV, this word is inflected as follows: nom.sg. *puroḍāḥ*, acc.sg. *puroḍāśam*, but in the later texts, it only appears in the thematicized form *puroḍāśa-*. The previous explanations of the retroflex are unconvincing<sup>3</sup>, so that a fresh look at the problem is necessary. Let us consider the expected nominative of this compound, which must be reconstructed as Proto-Indo-Iranian *\*prHazdāćš* > *\*purazdāćš*. Applying our assimilation rule, we get *\*purazḍāćš*. Next, -z- was lost with compensatory lengthening of the preceding short vowel. In case of *a*, the result of this lengthening is normally *ā*, but *o* after *v*, as follows from the following examples (cf. Lubotsky 2000: 257):

- *á-ṣālha-* adj. 'unconquerable' < *\*saṣḍha-* < PIE *\*seǵh-to-*; *sālhar-* m. 'conqueror' (RV 7.56.23) < *\*saṣḍhar-* < PIE *\*seǵh-ter-*;
- *ní-bālha-* (RV 1.106.6), *bālhé* adv. 'strongly' (RV 1.181.7), *bālha-*(*sṛtvān-*) (RV 1.122.10) < *\*baṣḍha-* < PIE *\*b<sup>h</sup>ǵh-to-*;
- *vólhar-* m. 'driving (horse)' < *\*vaṣḍhar-* < PIE *\*ueǵh-tor-*, infinitives *vólhave*, *ánu prá volhum* < *\*vaṣḍhu-* < PIE *\*ueǵh-tu-*; 2,3 du. impv. root aor. *volham*, *volhām* (cf. Narten 1964: 240, fn. 727);
- *ṣolhá* adv. 'six times' (RV 3.55.18), *ṣodaśa-* (AV+) 'the sixteenth', *ṣodaśín-* (AVŚ 11.7.11 = AVP 16.83.1, AVP 17.29.16, etc.) adj. 'the one of sixteen', *ṣodaśa* (TS+) 'sixteen' < *\*ṣvaṣ-ḍ<sup>(h)</sup>o*.

In order to account for the -o-vocalism of *puroḍāś-*, we can either conjecture that the preceding -u- had the same impact on *a* as -v- did, or assume that the phonetically regular reflex of *\*purazḍāćš* was *\*purāḍāćš*, but *puro*<sup>o</sup> was restored, since *purā*<sup>o</sup> in compounds means 'long time ago, of old, of yore' and not 'in front, in advance'. At any rate, the nominative had become *\*puroḍāćš*, and the only step we need to arrive at the attested *puroḍāḥ* is the dissimilatory loss of -t-.<sup>4</sup> From the nom.sg., the *ḍ* was generalized

<sup>3</sup> Bloomfield 1890: 356 ascribes the retroflex to a following palatal, while Wackernagel (1896: 172: "Vielleicht") thinks that -ḍ- has been taken over from *dūḍāś-* (AV) adj. 'bringing bad homage'. Debrunner and Wackernagel (1930: 246) follow Bartholomae 1888: 579 in that the origin of the nom.sg. must be sought in the *bh*-cases, i.e. *\*puraz-dāz-bh-* > *\*puraz-dāz-bh-* > *\*puro-dāḍ-bh-* > *\*puroḍāḍbh-*, but these cases are unattested.

<sup>4</sup> A similar dissimilation is probably responsible for the nom.sg. *sadhamāḥ* (RV 7.18.7c) < *\*sadhamāts* of *sadhamād-* 'drinking companion' (Wackernagel 1896: 305). As pointed out

throughout the paradigm, just like -ṣ- in *pr̥tanāṣāṭ*, *°śāham*, *°śāhaḥ*, discussed above, section 1.

3. Another puzzle of the same kind is the word for 'draught-animal, ox', which has the following inflection in Vedic (cf. Jamison 1991: 78f):

	sg.	du.	pl.
nom.	<i>anaḍvān</i> (AV+)	<i>anaḍvāhau</i> (RV+)	<i>anaḍvāhas</i> (AV+)
acc.	<i>anaḍvāham</i> (RV+)		<i>anaḍuhas</i> (PB)
instr.	<i>anaḍúhā</i> (YV)		<i>anaḍúdbhis</i> (AVP, YV)
dat.	<i>anaḍúhe</i> (YV)		<i>anaḍúdbhyas</i> (AVŚ, AVP)
gen.	<i>anaḍúhas</i> (AV+)		<i>anaḍuhām</i> (AVP)
loc.	<i>anaḍúhi</i> (AV)		<i>anaḍútsu</i> (RV)
fem.	<i>anaḍvāhī</i> (MS, KS), <i>anaḍuhī</i> (ŚB)		

In spite of the fact that the derivation of this word is perfectly clear (it is a compound of *ánas*- 'cart' and *vah*- 'to draw'), the forms are very unusual and still unexplained<sup>5</sup>.

Let us again start with the nominative. The compound *\*anas-vāh*- must have first yielded *\*anazvāṭṣ* (forms like *ánas-vant*-, *anas-vín*- 'having a cart', etc. show the restored voiceless *s*, which is the usual procedure in Sanskrit). The assimilation rule of section 1 turned *\*anazvāṭṣ* into *\*anaḍvāṭṣ*, which contained a unique sequence *-aḍv-*. The only position within a word where *ḍ* occurred in Proto-Indo-Aryan was before a voiced stop. As we have seen above, this sound was then lost with compensatory lengthening of the preceding short vowel. My contention is that in the sequence *-aḍv-*, *ḍ* was not lost, but at some stage merged with *ḍ*. What happened next? In a way similar to *\*puroḍāṭṣ* > *puroḍāḥ*, *\*anaḍvāṭṣ* yielded *\*anaḍvāṣ* > *\*anaḍvāḥ*. The latter form was then replaced by the attested *anaḍvān* (= *anaḍvāms*). As is well known, all nominatives in *\*-vāḥ* have got an analogical *-n-* in Vedic,

by Oldenberg 1904-1912 7.18.7, however, this form may be due to a poetic analogy to *puroḍāḥ* in 7.18.6a.

<sup>5</sup> Jamison explains the *ḍ* by a metathesis of *ḍ* and *d* in *anaḍúdbhis* < *\*anaduḍbhis*, but, even if we accept the explanation through metathesis, which is entirely *ad hoc*, it is hardly conceivable that the instr. and dat.pl. can lead to the complete restructuring of the paradigm, particularly in a word of this semantics, where the plural cases are not too frequent.



cf. nom.sg. *svátavān* of *svá-tavas-* ‘possessing his own power’, *svávān* of *svávas-* ‘of good help’, *tuvirāvān* of *tuvi-rávas-* ‘bellowing (?) loudly’ and the nom.sg. of the perfect active participles *-vān*, cf. Debrunner-Wackernagel 1930: 287. It follows that the nom.sg. of the word for ‘ox’ can be accounted for with only one assumption for which there is no parallel, viz. that *-azv-* became *-adv-*.<sup>6</sup>

As to *anaḍúdbhis* (AVP, YV) and *anaḍúdbhyas* (AVŚ, AVP), they must be due to some kind of dissimilation (Wackernagel 1896: 180, where TS *paṣṭhavāt* vs. the usual *paṣṭhavāt* is given as a parallel), but the exact conditions are difficult to determine, since we do not know what the phonetically regular reflex of *\*žb<sup>h</sup>* was.

4. This analysis of *puroḍāḥ* and *anaḍvān* has further important consequences for the notorious problem of the nom.sg. of root nouns in a palatal stop. The problem is usually formulated as that of the distribution between the ending *-ṭ* (nom.sg. *vīṭ* from *vís-* f. ‘settlement, community’) vs. the ending *-k* (nom.sg. *dík* from *dís-* f. ‘direction’). Now, as we have seen, there is one more ending, viz. *-ḥ* in *puroḍāḥ* and *\*anaḍvāḥ* (→ *anaḍvān*).

Let us now look at the complete evidence. Considering the fact that nom.sg. in *-k* is mainly found after *r*, while nom.sg. in *-ḥ* is only found after a retroflex stop, it is clear that the distribution among the three endings must be basically phonetic, as has already been surmised by Meillet (1905-1906) and others (see Kuiper 1967: 116, fn. 56 for the references). The precise conditions have never been formulated, however. Below I have arranged the relevant material in accordance with the phonetic context (if not otherwise indicated, the forms are attested in the RV). The collection is based on the evidence presented in Wackernagel 1896: 173f. and Debrunner 1957.

<sup>6</sup> There are several cases in Sanskrit, where *ḍ* stands for *\*ž* (cf. Wackernagel 1896: 176), e.g. 2sg.impv. s-aor. *aviḍḍhi* (which has replaced *\*avīḍ<sup>h</sup>i* < *\*aviz-d<sup>h</sup>i*), instr.pl. *viprúḍbhiḥ* of *viprúṣ-* ‘drop’.

Nom.sg. -*t̥*:

*vít̥* (-*ś-*) f. 'village, people', *spát̥* (-*ś-*) m. 'spy', *vipāt̥* (-*ś-*) f. 'name of a river', *°vāt̥* (-*h-*) 'driving'; *°nāt̥* (-*ś-*) adj. 'perishing' (*jīvanāt̥* adj. 'destroying life', MS 1.4.13:63,4);<sup>7</sup>

ṣV\_: *ṣāt̥* 'six' < \**sueks*;

rV\_: *bhrāt̥* (-*j-*) f. 'shine', *°bhrāt̥* (-*j-*) adj. 'shining upon', *rāt̥* (-*j-*) m. 'king', *°rāt̥* (-*j-*) adj. 'reigning';

ṣV̄\_: <sup>(o)</sup>*ṣāt̥* (-*h-*) adj. 'victorious';

Nom.sg. -*k*:

r̥\_: -*d̥ṛk* (-*ś-*) adj. 'looking', -*sp̥ṛk* (-*ś-*) adj. 'touching'; *purusp̥ṛk* (-*h-*)<sup>8</sup> adj. 'much desired, coveted by many', *ūr̥k* (-*j-*) f. 'strength' (YV);<sup>9</sup>

rV̄\_: ? *gartā-rūk* (-*h-*) adj. 'die Schaubühne besteigend (Geldner)' (RV 1.124.7)<sup>10</sup>;

ṣV̄\_: *bhiṣák* (-*j-*) m. 'physician'<sup>11</sup>, *uṣṇík* (-*h-*) f. 'name of a metre' (AVŚ 19.21.1);

?\_: *dík* (-*ś-*) f. 'direction' (AV+), *ṛtvík* (-*j-*) m. 'priest';

Nom.sg. -*ḥ*:

d̥\_: *puroḷāḥ*, \**anaḍvāḥ* (→ *anaḍvān*).

5. The distribution is quite clear. The "normal" reflex is -*t̥*; -*k* is found either directly after *r̥* or after *r* and *ṣ(ṇ)* followed by a short vowel, while -*ḥ* is found after preceding *d̥*. There are only three forms which fall out of this picture, and we shall discuss them first.

<sup>7</sup> Other forms are unclear. The interpretation of *rét̥*, attested in the mantra *réḍ asi* VS 6.18; VSK 6.4.1; MS 1.2.17: 27.2; KS 3.7:26.7; ŚB 3.8.3.20, etc. is uncertain. The origin of *sarát̥* f. 'bee' (TS, ŚB), dat.pl. *sarāḍbhyaḥ* (RV) is enigmatic, since the stem of this word is *sarāgh-*, cf. nom.pl. *sarāghaḥ* (ŚB), *sāraghā-* adj. 'pertaining to the bees', m. 'bee' (RV+), *saraghā-* f. 'bee' (AVP).

<sup>8</sup> *purusp̥ṛk* (RV 10.55.2) is neuter, for which see below, section 9.

<sup>9</sup> Possibly, also *svāv̥ṛk* (RV 10.12.3) belongs here, if this word is related to *svāv̥ṛṣṭi-*, an epithet of Indra, cf. Mayrhofer, EWAia II: 795. Unclear is *viśva-s̥ṛk* (-*j-*) adj. 'creating everything' (MS 4.14.1:215.16) (Debrunner 1957: 93), only occurring in a mantra *prājāpate viśvas̥ṛg jīvādhanayaḥ*. The mss. of the MS actually write *viśvas̥ṛk jīvādhanayaḥ* and *viśvas̥ṛj jīvādhanayaḥ*. The latter reading, which presupposes *viśvas̥ṛt̥*, is further found at TB 2.8.1.4, TĀ 10.63.1, ĀśvŚS 2.14.2, ĀpŚS 20.20.9.

<sup>10</sup> The etymological value of the final consonant of this root is unclear, however (cf. Lubotsky 1995: 139f. for a discussion), which makes this example doubtful. Also the meaning of the compound is by no means certain.

<sup>11</sup> Cf. also *bhiṣāktama-* and *bhiṣākti* 'heals' (RV 8.79.2), where the -*k-* may have analogically been introduced from the noun. For 3sg. impf. *abhiṣṇak* (RV 10.131.5) see section 7 below.

Traditionally, *ṛtvík* has been interpreted as a compound *ṛtu-* 'season' + *-ij-* 'sacrificing', i.e. 'sacrificing at the proper time', 'zur rechten Zeit offernd', but this interpretation is most probably wrong. First, as has been repeatedly pointed out, this compound would be unique in that there is no hiatus between *ṛtu-* and *-ij-*, the word being disyllabic, and that all other compounds with the root *yaj-* have full grade of the root both in Sanskrit and Iranian (cf. *devayáj-* adj. 'sacrificing to the gods', Av. *daēuuaiiaz-*). These problems are usually dismissed by assuming that the compound is extremely archaic, but there are no further indications in this direction. It looks fairly transparent and has no parallels in Iranian. Secondly, the meaning 'sacrificing at the proper time' (= priest) has a strong flavour of folk etymology<sup>12</sup>. Thirdly, and most importantly, *ṛtvíj-* cannot, in my view, be separated from Vedic *uśíj-* (nom.sg. *uśík*, acc.sg. *uśíjam*, abl.dat.pl. *uśígbhyas*), which is an epithet of priests and Agni and which has a perfect parallel in OAv. *usij-* 'sacrificer (hostile towards the Zoroastrian religion)'. The two Vedic words, *ṛtvíj-* and *uśíj-*, have comparable meanings, the same "suffix" and accentuation. Since OAv. nom.sg. *usixš* (Y 44.20) unequivocally shows that the final consonant of *uśíj-* is a velar (< PIIr. *\*uśíg-*), the same must be true of the final consonant of *ṛtvíj-*. The same suffix is probably also found in *vañíj-* 'merchant' and *bhuríj-* '?' and has nothing to do with the root for 'to worship, sacrifice'. I believe that all these words are of non-Indo-European origin (cf. Lubotsky 2001a: 304-305) and that *ṛtvíj-* was adapted to *ṛtú-* folk-etymologically.

Nom.sg. *dík* 'direction' is first attested in the prose passages AVŚ 3.27.1a = AVP 3.24.1a *prācī díg agnír ádhipatir* 'The Eastern direction, Agni is the overlord' etc., AVP 2.49.1a *prācī díg gāyatraṃ devatā* 'The Eastern direction, Gāyatra is the deity', etc., which are clearly late, probably of the Yajurvedic provenance. It seems likely to me that *-k-* in this nom.sg. has been taken over from loc.pl. *dikṣú*, where it is regular. The loc.pl. occurs nine times in the AVŚ (seven times in the AVP), of which eight times in the cadence. It should be stressed that the *-k-* also spread from *dikṣú* to dat.pl. *digbhyáḥ* (3x AVŚ, 5x AVP) and instr.pl. *digbhiḥ* (AVP 15.22.5a), so that the allomorph *dík-* was solidly rooted in the language of this text. Note further that *dís-* very often occurs in the plural (e.g. 11x pl. vs. 6x sg. in the RV), so that the plural cases are more important for this word than usual.

<sup>12</sup> Oldenberg (1909-1912, ad 1.1.1) defends the analysis of *ṛtvíj-* as a compound with *yaj-* by pointing to various collocations of *ṛtú-* + *yaj-* and to the fact that *ṛtvíjaḥ* are often connected with the seasons in the texts. In my opinion, these parallels do not prove that *ṛtvíj-* is an original compound, only that the connection with *ṛtú-* was clearly felt by the speakers.

ṣāt 'six' reflects PIE \*sueks (cf. Av. xšuuas) and, as I have argued elsewhere (Lubotsky 2000), the -u- must still have been present in Sanskrit at a relatively late stage. Otherwise, we cannot account for -o- in ṣolhā adv. 'six times', ṣoḍaśá- adj. 'the sixteenth' (AV+), ṣoḍaśa 'sixteen' (TS+), etc. (see above, section 2). Since the proposed distribution (-k directly after ṛ or after r and ṣ(ṇ) followed by a short vowel, -h after ḍ in the root) clearly implies dissimilation, the presence of -u- may have played a crucial role, blocking the dissimilatory influence of the initial ṣ- (see further the next sections).

6. As we have seen above, -k in the nom.sg. is found either directly after ṛ or after r and ṣ(ṇ) followed by a short vowel. If the vowel is long ā, we find -ṭ (bhrāt, rāt, <sup>(o)</sup>ṣāt). Although this condition may appear strange, it is phonetically understandable. Since we are dealing with dissimilation of retroflex consonants, a long open ā may block their dissimilatory power. There is a perfect parallel for this effect of ā elsewhere in Sanskrit. As is well-known, if s is followed by r or ṛ, it does not undergo the "ruki"-rule (e.g. tāmīsrā-, vi-sṛjānt-, etc.). The same limitation applies to s followed by ar (sisarti, vi-sārjana-, etc.), but not to sār, as follows from su-ṣārathī- m. 'good charioteer' (RV 6.75.6).<sup>13</sup>

7. A similar distribution to that discussed in the previous sections is found in the 2nd and 3rd sg. imperfect and aorist to the verbal roots in an original palatal stop. These forms normally end in -ṭ: āvāt 2sg. s-aor. (vah- 'to convey'); āprāt (RV 10.32.7) 3sg. s-aor. (pras- 'to ask'); naṭ 2sg. root-aor.inj., ānaṭ 2,3 sg. root-aor. (naś- 'to attain'); ābhrāt 3sg. root-aor. (bhrāj- 'to shine'); yāt 2sg. s-aor.inj. (yaj- 'to sacrifice'); rāt (RV 6.12.5) 3sg. pres.inj. (rāj- 'to shine'); alet (MS 4.8.1:106,10) 3sg.impf. (lih- 'to lick').

The -k forms are rare: we find prá ṇak 2,3sg. root-aor.inj. (naś- 'to attain'), abhiṣṇak (RV 10.131.5) 3sg. impf. (bhiṣaj-) and asrāk (RV 4.53.3c, 4c) 3sg. s-aor. (sṛj-). The first two forms show that (ṣ)ṇ, followed by a short vowel, triggers -k, but asrāk (vs. āprāt, ābhrāt) is surprising. In later texts, we observe some vacillation in these forms, cf., on the one hand, AVŚ aprāk, and MS asrāt, on the other. Since Wackernagel (1896: 174)<sup>14</sup>, this state of affairs is explained by paradigmatic levelling: it is postulated that 3sg. \*-k(s)t yields \*-ṣṭ > -ṭ, whereas 2sg. \*-k(s)s yields -k, which could understandably lead

<sup>13</sup> The only other example of this sequence is vi-sārā- m. 'expansion' (RV 1.79.1) with an -s- which is likely to be secondary, based on other forms of ví-sṛ- (note that the specific meaning of vi-sārā- is also found in ví ... sasre in 7.36.1, cf. Geldner ad 1.79.1).

<sup>14</sup> Strangely enough, Wiedenmann 1992: 242 attributes this theory to Karl Hoffmann.

to regularization in different directions. This explanation is untenable for several reasons, however. First, in the 3sg., *\*-ṣṭ* can hardly yield *-ṭ*, as the final sequence of consonants is always reduced to the first one. Secondly, in the 2sg., *\*-k(s)s* does not normally yield *-k*, but *-ṭ* (see above on the nom.sg.). Thirdly, this scenario does not account for the distribution of the actually attested forms. Why have *ávāt*, *áprāt*, *ānat*, etc. generalized the 3sg. form, and only *asrāk* the 2sg.?

I think that the explanation of *asrāk* is much simpler: except for 2,3sg., all other persons of the active paradigm had the stem *srākṣ-*, and it is only to be expected that this stem was introduced into these persons, too. I thus assume that MS *asrāt* is regular, whereas RV *asrāk*, AVŚ *aprāk* and, later, Br. *adrāk* from *drś-* are analogical formations.<sup>15</sup> It is further well-known that we find secondary *-g-* in the root *srj-* very early, cf. 3pl. pass.aor. *ásrgran/m* and the noun *sárga-*, which are already attested throughout the RV. This early spread of *-g-* may explain the analogical creation of *asrāk*.

8. Let us recapitulate our results thus far. The distribution of the nom.sg. forms clearly demonstrates that *-ṭ* is the normal reflex, whereas *-k* and *-ḥ* are due to dissimilation. Also the verbal forms of the 2nd and 3rd sg. usually have *-ṭ*, whereas *-k* is either due to dissimilation or (in the case of *asrāk*) to analogy. The distribution of the verbal forms further shows that there was no difference between the 2nd and the 3rd person. Finally, the nom.sg. reflexes can only be accounted for if we start with *\*-ṭṣ*: normally, this final cluster is reduced to *-ṭ*, but if there is a *-ḍ-* in the stem, the *-ṭ-* of *\*-ṭṣ* is lost by dissimilation, which yielded the final *-ṣ = -ḥ*. If *\*-ṭṣ* is preceded by *r* or by *ṣ(n)* + a short vowel, *\*-ṭṣ* becomes dissimilated to *\*-kṣ > -k*.

This analysis leads to the conclusion that, in word-final position, the Indo-Iranian clusters *\*ćs* and *\*ćt* (< PIE *\*ks* and *\*kt*, respectively) show aberrant reflexes in Sanskrit. Whereas their reflex in intervocalic position is Skt. *kṣ* and *ṣṭ*, at the end of a word they must have become *\*-ṭṣ* (a comparable point of view was expressed by Meillet 1905-1906: 417). I believe that this scenario provides a much easier explanation of the attested distribution than the position of Wackernagel 1896: 173 and Kuiper 1967, who took for granted that word-internal and word-final reflexes need to be the same<sup>16</sup> and, starting with *\*ćs# > \*-kṣ* and *\*ćt# > \*-ṣṭ*, had to have

<sup>15</sup> A different type of regularization is shown by 2sg. s-aor. RV 3.29.16 *ayāḥ* (*yaj-*) and AVŚ 11.2.19,26 *srās* (*srj-*), for which see Narten 1964: 200, 273 and fn. 869. Note, incidentally, that AVŚ *srās* presupposes 3sg. (*a*)*srāt*.

<sup>16</sup> Cf. Kuiper 1967: 117: "In contrast with the latter form [= Av. *spaš*] Ved. *spāt* cannot directly represent PIE. *\*spéks*."

recourse to complicated analogical mechanisms in order to arrive at the  $-t̥$ .<sup>17</sup>

9. What was the phonetic reality behind our reconstructions? As I have argued in Lubotsky 2001b: 45f., PIIr.  $*ć j̥^h$  were palatal stops, something like  $[t' d' d^{h}] = [t̥ d̥ d^{zh}]$ . For the Indo-Iranian clusters  $*ćs$  and  $*ćt$  in intervocalic position, I assume the following developments:

PIIr.  $*-ćs-$  [ $*-t̥s-$ ] >  $*-t̥ś-$  >  $*-t̥š-$  >  $*-t̥ṣ-$  > Iranian  $*š$ , Skt.  $*-t̥ṣ-$  >  $*-t̥ṣ-$  >  $-kṣ-$   
 PIIr.  $*-ćt-$  [ $*-t̥t-$ ] >  $*-śt-$  > Iranian  $-(x)št-$ , Skt.  $*-ṣt-$  >  $-ṣt-$

In final position, however, Skt.  $*-t̥ṣ$  < PIIr.  $*-ćs$  presumably did not become  $-kṣ$ , but remained unchanged (before losing the  $-ṣ$  at a later stage). As to the other cluster, we can surmise that PIIr.  $*-ćt$  [ $*-t̥t$ ] lost its final  $-t$  in Sanskrit, which is quite plausible from a phonetic point of view, and thus merged with  $*-t̥ṣ$ .

Here we may address the problem of the outcome of final  $-ś$  (<  $*ć$ ) in Sanskrit. Unfortunately, there is no unambiguous evidence. The only examples are nom.sg. neuter and vocatives of bahuvrīhi compounds, e.g. the neuters *etādr̥k* (8.102.19, 10.27.24), *susamdr̥k* (7.3.6), *purusp̥r̥k* (10.55.2), the vocatives *tveṣasamdr̥k* (6.22.9), *hāvvyavāt̥* (5.6.5). These forms are always identical to the nom.sg. m./f., which may of course be due to analogy (thus e.g. Kuiper 1967: 116, fn. 55: "The neuter form *purusp̥r̥k* indirectly proves the existence of a nom. sing. masc.  $*purusp̥r̥k$  'coveted by many'"), but it might also be due to regular development (thus Wackernagel 1896: 174). In the latter case, we must assume that the final PIIr.  $*-ć$  [ $-t̥$ ] has merged with  $*-t̥ṣ$ , too, which seems a reasonable option to me.

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<sup>17</sup> Wackernagel assumed that  $-t̥$  comes from the neuter forms and from *bh*-cases, whereas Kuiper tried to make plausible that "in proto-Indo-Aryan the inherited nominative form  $*spāk̥s$  (from PIE.  $*speks$ ) has been replaced by a new formation  $*spaś-s$  (with the normal antevocalic representation of  $k$  by  $s$ )", which would then get an additional  $-t̥$ , due to emphatic pronunciation in order to preserve the cluster (like in  $*vas-syati \rightarrow vatsyati$ , 3sg. fut. of the root *vas-*) with the further development  $*spaśts > *spaṣts > *spaṭs > spāt̥$ .

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