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Máté Ittzés

The augment of vowel-initial roots and *vr̥ddhi*-derivation in the Indo-Iranian languages

Abstract: The augment of vowel-initial roots in Old Indo-Aryan consists in the *vr̥ddhi* grade of the initial vowel of the verbal stem. Although the origin of this feature can basically be explained in phonological terms, as described by Lubotsky (1995) and others, it is pointed out that the analogy of verb stems with full or lengthened grade root might have played a role as well. On the other hand, in absence of relevant forms in Avestan and Old Persian, the parallelism between the augment and *vr̥ddhi*-derivation has to be taken into account if we want to describe the augment of vowel-initial roots in the Old Iranian languages. It is argued that the *vr̥ddhi*-derivation in Old Persian was similar to the situation in Avestan, i. e. simple vowels were replaced by short diphthongs (not by long ones, as in Old Indo-Aryan) and this has to be assumed for the Old Persian augment of vowel-initial roots as well.

Keywords: augment, vowel-initial roots, *vr̥ddhi*-derivation, Old Indo-Aryan, Avestan, Old Persian

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1 The augment of vowel-initial roots in Old Indo-Aryan¹

1.1 Thanks to the abundant attestation of relevant forms and the teaching of the native Indian grammarians, the synchronic rule concerning the augment of vowel-initial verb stems in OIA is entirely clear. However, no augmented forms are attested that would safely permit us to describe the exact rule of this kind of augment in Av. and OP. In this paper, I will try to answer the question on the basis of indirect evidence, what the augment looked like in the OIr. languages in the case of verbs with initial *i* and *u*.

¹ This section is the revision of Ittzés 2005: 214–23.

As is well known (see, e. g., MacDonell 1910: 315; MacDonell 1916: 122; Renou 1952: 250; Whitney 1993: 48; cf. also Pāṇini 6,4,71–2; 6,1,90), the augment of vowel-initial roots in OIA consists in the *vr̥ddhi* grade of the initial vowel (e. g., *iṣ-* ‘to desire’, pres. *icchá-*: impf. *áicchāma* RV 10,51,3a; *ubj-* ‘to force’, pres. *ubjá-*: impf. *aubjat* RV 1,85,9d; *ubh-* ‘to confine’, pres. *ubhnā́-/ubhnī-*: impf. *aubhnāt* RV 4,19,4c), which is synchronically irregular, if the general sandhi rules of vowel contractions are considered. The most convincing explanation of this phenomenon is the one given by Lubotsky (1995: 222–3, 227) following earlier treatments (such as AiG: 1, 318–9; Thumb 1959: 191–2; Mayrhofer 1986: 130 n. 134). Lubotsky assumes that following the loss of the intervocalic laryngeals (which probably occurred already in PIIr., cf. also Kümmel 2000: 2 with n. 3), the two adjacent vowels, the first of which was the augment **a-*, were first combined to **ai^o* or **au^o* in PIIr. (PIA **a-Hi^o*, **a-Hu^o* > **a-i^o*, **a-u^o* > PIA **ai^o*, **au^o*), which could be pronounced either monosyllabic or disyllabic. Later, when the short diphthongs **ai* and **au* became monophthongized (**ai* > *e*, **au* > *o*), the augment was restored giving rise to “new” **ai^o* and **ai̯^o* with hiatus.² In a second wave, these vowel-combinations were contracted into the diphthongs *ai^o* and *au^o* and merged with the original, PIIr. long diphthongs **āi* and **āu*, which by this time had been shortened to *ai* and *au*. This particular treatment of the augment obviously results from the effort to preserve the augment of the verbs with initial vowel in a morphologically transparent form.

1.2 This development may have had analogical support from behalf of augmented forms of such present and aorist stems which were derived from roots with synchronically initial *i* (< **Hi*) or *u* (< **Hu*), but had full or lengthened grade root throughout and therefore had regular *vr̥ddhi* diphthongs as their augment: e. g., *uṣ-* (< **h₁eus-*) ‘to burn’, pres. *óṣa-* (< **h₁éus-e-*), 3s impf. *áuṣat* < **áuṣat* < **á-Hauṣ-at* < **é-h₁eus-et*. These PIE stem types include the simple thematic present (R(é)-e-), the athematic acrostatic root present or “Narten-present” (R(é̌)-/R(é)-), the athematic *s*-aorist (R(é̌)-/R(é)-s-; later also the athematic *iṣ*-aorist as an OIA innovation), the thematic present with the unaccented suffix **-iē/o-* (R(é)-iē-) and the causative (R(o)-é iē-) with OIA *guṇa* or, in the case of the operation of Brugmann’s Law, *vr̥ddhi* grade. We may imagine a proportional analogy

² This assumption is supported by the occasional disyllabic scansion of *ai^o* and *au^o* of augmented forms in the Ṛgveda (cf. Lubotsky 1995: 223, 227): *áicchaḥ* 10,108,5a; *áũṛṇoḥ* 7,79,4d. On the other hand, such cases as *dṛḷhāny aubhnād* 4,19,4c or *samudrīyāny ainoḥ* 4,16,7c with a “missing” syllable have to be restored as *dṛḷhāni aubhnād* and *samudrīyāni ainoḥ* with monosyllabic *au^o* and *ai^o* and not as *dṛḷhāny aũbhnād* and *samudrīyāny aĩnoḥ* (the latter “restoration” would even yield a wrong *triṣṭubh* cadence).

which, even if, of course, not alone responsible, could contribute to the phonological development described above: e. g., zero-grade *uṣ-* : impf. *áuṣ*^o = zero-grade *ubh-* : impf. $X \rightarrow X = \acute{a}ubh^o$.

This analogical process seems to be theoretically possible.³ The only real objection to it might be that the actual attestations do not seem to support it. Namely, such augmented forms of the above mentioned present and aorist formations⁴ that could be considered as the very starting points of the analogy are either sporadic or secondary or unattested until post-*R̥gVed.* times (cf. Appendix).⁵ In fact, there are only a handful of mainly thematic presents (cf. Appendix, 1.) that are relatively old, although their augmented forms do not occur in the RV or AV (they are attested either YV+ or B+). But since there seems to be no principled reason why such presents could not in fact have formed augmented imperfects earlier, I assume that their absence may simply be due to chance and that, even if it is strictly speaking not verifiable on the basis of our data, they (together with the imperfect of *i-* ‘to go’ as per Renou, cf. note 1 above) could indeed have a role, albeit a relatively minor one, in the formation of the OIA augment of vowel-initial roots.⁶

Now, since the OIA rule of the augment of vowel-initial roots could be interpreted as the outcome of an inner-OIA development resulting from a recent contraction of the adjacent vowels, such a general rule cannot be automatically assumed for OIr. Therefore the reasoning of such scholars who want to determine

3 Cf. already the short remark by Renou (1952: 30) that the augment of vowel-initial verbs “pourrait être analogue de la solution normale *áit* = **a-e-t*, de *I-*” (i. e. *áit* < **a-Hai-t*). Renou’s view is criticized by Lubotsky (1995: 223), who says that “as this analogy has led to the loss of opposition between full grade (**a-e-*) and zero grade (**a-i-*), Renou’s solution does not seem probable”. But one should not forget that even *within* the impf. paradigm of *i-* ‘to go’ the opposition between full grade (**a-e-*) and zero grade (**a-i-*) was lost as the result of paradigmatic levelling. This levelling was probably supported by the accentual immobility of the imperfect, which consistently accented the augment (e. g., 1s *áyam* : 1p *áima*) in contrast to the (amphikinetic) present indicative (e. g., 1s *émi* : 1p *imás*): namely, in the impf. active, on the basis of 1–3s **a-Hai-* > **ái-*, 3p **a-Hi-* > **áy-*, such forms as 1–3d, 1–2p **a-Hi-* > **ai-* were analogically transformed into **ái-*.

4 No root with initial *i* and *u* forms a R(é)-*je*-present in OIA.

5 Remember that, as Narten (1964) has shown (and also the data listed in the Appendix confirm), the sigmatic aorists of roots with non-final *i* and *u* are in general innovations of Ved.

6 It is remarkable that, in comparison with the stem types treated above, augmented forms of stems with zero-grade root (type *iccháti* : *áicchat*) are already well established in Early Ved. (i. e. several times attested in the RV). Cf. also Bakyta 2008: 16 with n. 15 (however, I do not share the scepticism of Bakyta concerning the ablaut grade of augmented stems such as **é-h₁eus-*, since in my view the augment was a post-PIE innovation, which never induced *Schwundablaut* in the verbal stem).

the OP augment of vowel-initial roots directly on the basis of the OIA evidence is unfounded.⁷

2 The augment of vowel-initial roots in the Old Iranian languages

2.1 Unfortunately, no relevant augmented forms of Av. or OP are actually attested. Imperfect forms of the root *i-* ‘to go’ with *āi*^o are attested in Av., but they are either phonetically regular (YAv. 3s *°āiṭ* in *upāiṭ* Y 9,1; *°para.āiṭ* Vd 22,13 < **a-Hai-* and 3p *°āin* in *auuāin* Y 57,23 < **°āian* < **a-Hi-*) or the result of obvious paradigmatic levelling (YAv. 3d *°āitəm*⁸ in *aṇtarə.pairi.auuāitəm* Yt 13,77 < **a-Hi-*; cf. Ved. *āitam* RV 10,13,2a+).⁹

2.2 Imperfect forms of the root *i-* occur in OP documents as well and can be accounted for in a similar way (1s *°āyam*, e. g., *n-i-ṣ-a-y-m* DB II 64 *niṣ-āyam* and 3s (*°*)*āiš*, e. g., *a-i-š* DB I 93 reflect **a-Hai-*; 3p (*°*)*āiša*, e. g., *p-t-i-y-a-i-š* DB I 13 *patiy-āiša* reflects **a-Hi-*).¹⁰ However, no forms with original **a-Hi-* comparable to YAv. *°āitəm* are attested in OP.

The verb form *a-y-t-a* DZc 11 probably has to be read as *āyantā* ‘went to’.¹¹ It is an isolated 3p middle imperfect, which was apparently created for the sake of transparency instead of the expected active form **āya* < **āian* (cf. the above mentioned 3p act., (*°*)*āiša*, which has another type of innovated ending). But the form is irrelevant in the present discussion in any case, because it probably contains the preverb *ā-*.

The interpretation of the OP verb form *f-r-a-i-š-y-m* DB I 82+ *frāišayam* ‘I sent (a messenger)’ from PIE **h₁eish₂-* ‘to strengthen, to drive’ (LIV²: 234) is ambiguous. It may be the cognate of the Av. present stem *išaiia-* (part. pres. *išaiiqs* ‘being prosperous’ Y 50,9; cf. also Ved. *iṣāyati*; see Kellens 1984: 135; Gotō 1993: 129) with zero-grade root and could therefore be relevant to our problem (cf., e. g.,

⁷ Cf., e. g., Meillet & Benveniste 1931: 127: “dans les verbes à voyelle initiale, on attend ā-, comme en sanskrit”; Schmitt 1965: 277: “Gemäss dem altindoar. Regelgebrauch erwarten wir zu einem mit *r*- anlautenden Verbum in den Augmenttempora anlautendes ār-” (italics mine). On verbs with initial *r*, however, cf. below.

⁸ Since the verb form is contracted with the preverb *auua-*, *°auuāitəm* could theoretically be segmented as *auua-aitəm* as well.

⁹ Cf. Kellens 1984: 85–6 with n. 6 on the problems of these forms.

¹⁰ In 3s and 3p the ending was taken over from the s-aorist.

¹¹ Schmitt (2009: 150) prints *ayantā*.

Gotō 1993: 133).¹² However, it still has to be left out of consideration, because its morphological analysis is ambiguous: it can theoretically be segmented either as *fra-āiṣayam* with long diphthong augment or *fra-aiṣayam* with a short diphthong.¹³

The 3s middle impf. *a-i-ṣ-t-t-a* DB I 85 ‘took stand’ comes from PIr. **a-hiṣta-* (cf. YAv. *hištənti*) < **a-siṣta-* < PIIr. **a-sti-ṣtH-a-* (cf. Ved. 3p middle *atiṣṭhanta* RV 1,11,6c). In spite of the diphthongal reading of Kent (*aiṣtatā*) and earlier editions (*āiṣtatā*; see the apparatus of Kent), it probably has to be read as *a.iṣtatā* (Schmitt 2009: 49; cf. Hoffmann 1975–1992: 2, 627; Schmitt 2008: 83) with a syllabic augment before the hiatus, which results from the loss of intervocalic *h* (*a.i°* < **ahi°*).

2.3 The trouble is that the fricative *h*, although it disappears in a number of other contexts in OP (e. g., before *u*; cf. Brandenstein & Mayrhofer 1964: 42–3; Kümmel 2007a: 118, 369), does not do so anywhere else before *i*.¹⁴ On the other hand, it is well known (for the data cf. Kent 1953: 14–5) that the Pre-OP sound sequence **(°)hi* (even if it is secondary, i. e. **siV* > **hiV* > **hiyV*) is regularly represented by the simple grapheme ⟨*h*⟩ in OP: e. g., *h-z-a-n-m* ‘tongue’ (cf. OAv. *hizuuā*) < PIr. **siḡhu-* (EWAia: 1, 592); *-h-y* 2s act. primary ending (cf. Av. *-hi/-hī*, *-ši/-šī*; Ved. *-si*, *-ṣi*) < PIIr. **-si*;¹⁵ for a secondary *hi* cf., e. g., *d-h-y-a-u-ṣ* ‘land’ (cf. OAv. *daḡiiu-*, YAv. *daḡhu-*) < PIIr. **dasju-*; *a-h-y-a-y-a* pronominal loc. sing. f. (cf. Ved. *asyām*; AiG: 3, 550) < PIIr. **asj°*. The spelling with ⟨*h-i*⟩¹⁶ is sporadic and not earlier than the inscriptions of Xerxes: *a-h-i-y-a-y-a* XPb 17+; *a-n-h-i-t* A²Sd 3–4 (elsewhere *a-n-h-t* A²Sa 4+).

Following Karl Hoffmann (1975–1992: 2, 642; cf., e. g., Werba 1991–1993: 142; Testen 1997: 582), this orthographical practice (i. e. ⟨*h*⟩ instead of ⟨*h-i*⟩) has to be in-

12 If it were connected (cf. again Gotō 1993: 133 on this possibility) to the YAv. causative *°aēṣaiia-* (*parā°* ‘to spill’ N 68), it would be the reflex of **a-HaiṣH-* (and not **a-HiṣH-*) with original *o*-grade and would be irrelevant in any case.

13 Although containing etymologically related material, OIA *preṣayati* (e. g., 3s impf. *praiṣayat* MBh 8,42,42c) from the root *iṣi-* ‘to send, incite’ cannot be immediately equated with OP *frāiṣayam*, since *preṣayati* is attested first in Ep. (Gotō 1993: 130) and is probably a late formation following the productive pattern of forming causatives.

14 *A-u-r°* (passim) *a.ura-* < **ahura-*, which is frequently mentioned (e. g., Hoffmann 1975–1992: 2, 627; Schmitt 2008: 83) as a parallel to *a.iṣtatā*, cannot be taken into account in the present context, because **hu* > *u* is regular in (Achaemenid) OP (see, e. g., Hoffmann 1975–1992: 2, 639–40; Werba 1991–1993: 142; Kümmel 2007a: 118, 369). The absence of **⟨h⟩* before ⟨*u*⟩ cannot be explained orthographically (as done, e. g., by Testen 1997: 582).

15 For the final ⟨*y*⟩ cf. Hoffmann 1975–1992: 2, 635, 643; somewhat differently Werba 1991–1993: 142. Most recently, it has been explained orthographically by Schmitt (2008: 79).

16 Explained as a kind of “Rückverwandlung” by Hoffmann (1975–1992: 2, 642–3).

terpreted phonologically,¹⁷ namely by positing a Pre-OP sound change **hi* > *hə*.¹⁸ Apart from *a-i-š-t-t-a*, the only early exception of this phenomenon is the name of the province *Hindu* (later also its ethnic derivative *Hinduya*), which is *consistently* spelled with ⟨*h-i*⟩ (*h-i-d^u-u-š* DPe 17–18+; *h-i-d^u-u-y* A³Pb 13).¹⁹ How can we explain these two exceptions, *a.ištātā* (instead of **a-h-š-t-t-a*²⁰) and *hindu-* (instead of **h-d^u-u-*)? There have been various suggestions concerning these forms, but none of them seems fully satisfactory.²¹ To explain all the relevant cases containing the Pre-OP sound sequence **hi*, I tentatively suggest to posit two successive sound changes. Needless to say, this is only a hypothesis and further data would be most welcome to test its validity, especially since rule (1) and the exception to rule (2) are based on only one example each. The first change²² is the loss of the fricative *h* between an accented *á* and an *i*.²³ The second one is the well known

¹⁷ And not orthographically, as maintained, among others, by Kent (1953: 14–5), Prosdocimi (1967: 31), and Schmitt (2008: 80).

¹⁸ For the spelling of *hə* with ⟨*h*⟩ cf. other cases of spelling *Cə* with ⟨*C^a*⟩: e. g., *k-r-t* [karta] (generally transcribed as *karta* following a suggestion of Hoffmann 1975–1992: 2, 627 n. 8) from PIIr. **kṛta-* (cf. Av. *kəṛata-*, Ved. *ṛtá-*).

¹⁹ Therefore the explanation of YAv. *həndu-* beside *hiṇdu-* as being perhaps due to OP influence (Hoffmann & Forssman 2004: 73) is contradicted by Achaemenid OP inscriptional evidence. One may wonder whether it could be another case of dialectal difference within OP. On OP dialectal differences cf., e. g., Schmitt 1989b: 87.

²⁰ Note, however, regular *h-š-t-t-y* XPI 39 *həšta^o* < **hišta^o* usually interpreted as 3s pres. ind. middle *həštātay* (e. g., Hoffmann 1975–1992: 2, 642; on the other hand, Schmitt (2009: 174) reads 3p act. *hištanti* “stellt sich”).

²¹ As regards *a-i-š-t-t-a*, for instance, it has been suggested (Kümmel 2007a: 369) that *h* was sporadically lost in intervocalic position in OP (on p. 117 the remark {sporad.} is missing!), which is descriptively true, but one would rather want to have a regular sound change. Prosdocimi (1967: 31) suggested that the reason might have been a preventive dissimilation to avoid a contraction “*aha-* > *ā-*”. However, the reduplicative vowel was not *a* in this stem (cf. YAv. *hištənti*). Of course, the assumption of a spelling error ⟨*i*⟩ in place of ⟨*h*⟩ is unsatisfactory as well. As far as *h-i-d^u-u-* is concerned, it has been suggested (e. g., Testen 1997: 582 n. 18) that its irregularity is due to the fact that it is a loanword in OP. However, lots of examples (e. g., **-si* > *-h-y*) show that the change **s* > **h* preceded the change **hi* > *hə*. Since the borrowing of OIA *Sindhu-* into OP must have preceded the change **s* > **h*, it must have also preceded, a fortiori, the change **hi* > *hə*, therefore one would rather expect **həndu-* to be spelled as **h-d^u-u-*.

²² A similar rule was assumed already by Foy (1899: 14 n. 1; 1900: 284 n. 1; 1904: 508–13), but his conditioning (i. e. loss of *h* after all accented *á* [and “*á*”]) is not correct, as shown, e. g., by 3s subj. *ahatiy* < **áhati*. The 2s subj. form *āhay* (or simply *ahay*?) < **áhahi* is probably due to some sort of haplology or dissimilatory loss of the first *h* in the sequence **ahah* and subsequent contraction (cf., e. g., Schmitt 1989a: 70).

²³ That the conditioning *a__i* is not sufficient in itself is shown, e. g., by the pronominal form *a-h-y-a-y-a*. The feminine stem of this pronoun, **ahyā-* was formed to a stem **ahya-* that was

change of *i* to *ə* after *h*²⁴ described by Hoffmann, but in my view, this change was blocked by an immediately following uvular nasal.²⁵

(1) *h* > Ø / *á*__ *i* (*a.ištata*)

(2) *i* > *ə* / *h*__ with the exception of /__ *ŋ* (e. g., *hazānam*, *dahayāuš*, but *Hindu*-)

3 Vṛddhi-derivation in Old Indo-Aryan and Avestan

3.1 All this means that, in absence of relevant augmented forms, some indirect evidence has to be looked for, if we would like to find out the precise rule of the augment of vowel-initial roots in the OIr. languages. It has already been pointed out that there is a close parallelism between the augment of vowel-initial verbs and the vowel-changes in secondary nominal derivation, the so-called vṛddhi-derivation, both of which can be interpreted as consisting originally in the addition of an **e* > PIIr. **a*.²⁶ This parallelism can be clearly observed in OIA. For examples of vṛddhi-derivatives of words containing *i* or *u* see, e. g., *girikṣit-* ‘living in mountains; *PN’ : *gairikṣitá-* ‘descendant of Girikṣit’; **trivṛṣan-* ‘having three bulls; PN’ : *traivṛṣṇá-* ‘descendant of Trivṛṣan’; *sumānas-* ‘good-minded, well-disposed’ : *saumanasá-* ‘benevolence, kindness’; *durgáha-* ‘n. impervious

extracted from the (unattested) gen. sing. m. **ahya* (cf. Kent 1953: 69). Ved. *asyá* shows that the OP gen. sing. m. (**ahyá*) and the feminine stem derived from it (**ahyā-*) was probably accented on the second vowel (cf. also Ved. loc. sing. f. *asyām*). It is possible that the free accent survived in OP until the reign of Darius I (Schmitt 2008: 84). It has to be added that, in spite of Ved. *dāsyu-* with an initial accent, *d-h-y-a-u-š* is not an exception to the first rule (PIIr. **dāsju-* > PIr. **dāhju-* > Pre-OP **dāhiyu-* > OP **dāiyu-*), because the OP noun probably had the accent on the *ú* and therefore it is not an immediate cognate of the Ved. word: PIIr. **dāsju-* m. ‘foe’ > Ved. m. *dāsyu-* : PIIr. **dasjū-* ‘belonging to the foe’ f. ‘land (of the foe)’ > PIr. **dahjū-* (for their relationship cf., e. g., Ved. n. *āyu-*; Av. n. *āiiu-* ‘life, vital energy’ : Ved. *āyú-* ‘having vital energy, living’ m. ‘man’; see Widmer 2004: 97). As per de Vaan 2003: 574 (cf. Kümmel 2007b: 179), OAv. *xi* (instead of *hii*) in *daḥiiu-* does probably *not* indicate in itself that the accent was on the immediately following syllable (*pace* Hoffmann & Forssman 2004: 107).

24 As mentioned above, this change was preceded by the change **i* > *iy* / C__ V (cf. also Werba 1991–1993: 142).

25 On the uvular nasal (ŋ) see Hoffmann 1975–1992: 2, 429–30 (cf. Kümmel 2007a: 369: /*n*/ > *ŋ* / __ T, D). Note that, e. g., *h-š-t-t-y* XPI 39 *hāṣṭa*^o shows that the change was not restricted to open syllables only.

26 For the interpretation of vṛddhi-derivation as the infixation of **e* cf., e. g., Tichy 2004: 48; Ringe 2006: 13–4 (PIE “proto-vṛddhi”); Meier-Brügger 2010: 420.

place; m. PN' : *daurgahá-* 'descendant of Durgaha'. I assume with Kuryłowicz (1968: 309–10) that the same principle must have existed in the OIr. languages. Thus, it is inevitable to have a closer look at the process of *vṛddhi*-derivation in the OIr. languages.

3.2 The process of *vṛddhi*-derivation is relatively well-known in Av. (Darms 1978: 367–75; de Vaan 2003: 86–97). In contrast to Ved., simple vowels were replaced by *guṇa* vowels and *guṇa* vowels in all probability by *sensu stricto* *vṛddhi* vowels (although the latter type happens not to be attested): e. g., *husrauuaḥ-* 'having good fame' : *haosrauuaṇha-* 'good fame'; *θrita-* 'PN' : *θraētaona-* 'PN'.²⁷ It follows that Av. (at least YAv., if there was still a phonemic laryngeal, and thus no vowel-initial verb stems, in OAv. as per Beekes 1988: 50, 85; cf., on the other hand, Kümmel 2000: 2 with n. 3; see also Lubotsky 1995) must have had augmented forms with short (*guṇa*) diphthongs: e. g., *iš-*, *isaiti* 'to search, to desire' inj. *isaṭ*; impf. **aēsṭ* and not **āisaṭ* (cf. Kuryłowicz 1968: 310).

4 *Vṛddhi*-derivation in Old Persian

4.1 The evaluation of the situation in OP is much more complicated. Most *vṛddhi*-formations (for a quick, but not always reliable overview see the list of Kent 1953: 44–5) are namely derived from words with *a* in the first syllable, which changes to *ā* in the derivative, and are therefore irrelevant to our question: e. g., *m-r-g^u-u-š* DB II 7+ *marguš* 'Margiana' : *m-a-r-g-v* DB III 12 *mārgava* 'Margian'; **xšayaθa-* 'kingdom' (cf. Ved. *kṣayátha-*) or **xšaya(n)t-* 'ruling' (cf. Av. *xšaiiat-*) : *x-š-a-y-θ-i-y* DB I 1+ *xšāyaθiya-* 'king' (cf. Szemerényi 1975: 313–23). There are no uncontroversial OP *vṛddhi*-derivatives from words with *i* or *u*.

4.2 One of the potentially important examples is the month name (3rd month, May–June) *θāigrači-* (attested in gen. sing. in the phrase *θ-a-i-g-r-č-i-š* : *m-a-h-y-a* DB II 46–47 *θāigračaiš māhaya* 'in the month of *θāigrači-*'), but its exact interpre-

²⁷ Words with PIIr. **ṛ* form their derivatives with *ār* in both Ved. and Av.: e. g., Ved. *pṛthivî-* 'earth' : *pārthiva-* 'earthly, terrestrial'; Av. *vərəθrayna-* 'victory' : *vārəθrayni-* 'victorious'. There are no OP *vṛddhi*-formations of this type, but due to the assumable parallelism between the augment of vowel-initial roots and *vṛddhi*-derivation, the 1s impf. *a-r-s-m* DB I 54+ *ārsam* (cf. Ved. 3s impf. *ārcchat* TS 2,3,3,1+ of pres. *ṛcchā-*; Schmitt 1965) shows that the same operated in OP as well. It is not clear whether **ṛ* : **ār* was already a feature of PIIr. (as maintained, e. g., by Darms 1978: 375; Kuryłowicz 1947–1948: 46) or it is an independent development of the two branches (as per Kuryłowicz 1968: 308–9), which was based in the Iranian branch on the sound change PIIr. **ṛ* > PIIr. **ar* (on which cf., e. g., Werba 1991–1993: 142; Hoffmann & Forssman 2004: 90).

tation is full of problems. First of all, the spelling of the word is generally taken to point to a long diphthong in the first syllable. However, it has to be born in mind that, since there are no ⟨θⁱ⟩ and ⟨θ^u⟩ signs in the OP syllabary, the series ⟨θ-*a*-*i*⟩ could theoretically denote the short diphthong (θ)*ai* with “plene writing” (cf., as a parallel case, the gen. sing. *čišpaiš* [not *čišpāiš*!] of the *i*-stem *čišpi-* ‘PN Teispes’ spelled as *č-i-š-p-a-i-š* in DB I 5–6 in contrast to regular *č-i-š-p-i-š* DBa 8). But, apparently, this possibility was adopted only in case of ambiguity, i. e. if homography was to be avoided (in the present case, there was homography with nom. sing. *čišpiš*, which was also written as *č-i-š-p-i-š* DB I 5; cf. Meillet & Benveniste 1931: 43; Hoffmann 1975–1992: 2, 632–3). Such a reason seems to be lacking for θ-*a*-*i*-*g*-*r*-*č*-*i*-*š* (cf., explicitly, Schmitt 2003: 36 n. 119).²⁸ Unfortunately, the Elamite transcription with ⟨*Sa-a*°⟩ (which is more frequent than ⟨*Sa*°⟩ or ⟨*Šá*°⟩, cf. the lists of Schmitt 2003: 20 and Tavernier 2007: 85–7) indicates only a diphthong, but not its length.²⁹

As for the etymology of the word, there has been a wide consensus (cf. the overview of Schmitt 2003: 37–9) that *θāigrači-* is somehow related to the reconstructible OP noun **θigra-* ‘garlic’ (> NP *sīr*; cf. OIA *śigru-* ‘a kind of horse-radish’; EWAia: 2, 635; Simon 2005³⁰) and that, one way or another, vṛddhi is also involved in its derivation. Since the OP month-names usually refer to and are etymologically derived from words denoting events, religious festivals or natural phenomena that are characteristic of the particular month (cf. Schmitt 2003: 25; Lubotsky 2012: 99),³¹ *θāigrači-* cannot be derived directly, in one step, from the OP

²⁸ Note, in particular, the *i*-stem gen. ending -°*čaiš* written as °*č-i-š* instead of the available unambiguous °*č-a-i-š* mentioned above. Remember, however, that this is only an argument from silence and we cannot be absolutely sure whether the scribe did not have another word in his mind with which he intended to avoid confusion by resorting to an unambiguous plene spelling.

²⁹ It has to be mentioned, however, that El. ⟨(°)*Ca-a*°⟩ in the examples referred to by Schmitt (2003: 36 n. 121 with ref. to Mayrhofer 1973) always corresponds to an OP *short* diphthong: e. g., El. *da-a-ma* ~ OP *daiva-* (Mayrhofer 1973: 20 § 2.41). Cf. also Hoffmann 1975–1992: 2, 644 and Paper 1955: 17–8 with examples of only *short* diphthongs rendered as ⟨(°)*Ca-a*°⟩ in El. transcriptions.

³⁰ As an alternative etymology, it has been suggested that OP **θigra-* is a Scythian loanword and comes from Plr. **tigra-* ‘sharp’ (Lubotsky 2002: 198–200; Lubotsky 2012: 103), but this does not immediately affect the problem of its derivative *θāigrači-*, at least under the scenario envisaged below.

³¹ Cf. the following three month-names, which are certainly derived from the name of some religious festival (for more detailed treatments see the respective sections of Schmitt 2003; Lubotsky 2012): *b-a-g-y-a-d-i-š* DB I 55 gen. sing. *bāgayādaiš*: *bāgayādi-* (7th month, Sept.–Oct.) by vṛddhi and suffix -*i-* from **baga-yāda-* ‘Gottes- bzw. Götterverehrung’ or ‘offering to Baga (= Miθra)’; *a-č-i-y-a-dⁱ-i-y-h-y-a* DB I 89, III 18 gen. sing. *āçiyādiyahayā*: *āçiyādiya-* (/°*āçiyādi*°) (9th month, Nov.–Dec.) by (invisible) vṛddhi and suffix -*i-* from **āçiyāda* (< **āṭṛ-yāda-*) ‘Feuerverehrung’;

garlic-word and interpreted, for instance, as being ‘the month related to garlic’ (as maintained, e. g., by Eilers 1953: 42–3 n. 3: ‘die mit Knoblauch verbundene [Zeit]’). It is therefore probable that an intermediate stage meaning ‘garlic-festival’ (for the concept cf. NP *Sīrsūr*) has to be reconstructed, from which the month-name was derived: i. e. **θigra-* ‘garlic’ → adj. ‘related to garlic’, substantivized as ‘garlic-festival’ → adj. ‘related to the garlic-festival’, substantivized as ‘month in which the garlic-festival was celebrated’.

The month-name *θāigrači-* has been dealt with in detail most recently by Schmitt in his monograph on the OP month-names (Schmitt 2003: 38–9; with refs. to earlier views, e. g., Wüst 1966: 149–60, esp. 154–155 and 159 n. 33–35; cf. also KEWA: 3, 334; Lubotsky 2002: 199; Lubotsky 2012: 102–4; Tavernier 2007: 39). He assumes that the name of the festival was **θigraka-*, derived from **θigra-* by the suffix *-ka-*. Finally *θāigrači-* was derived from **θigraka-* by the application of the suffix *-i-* in connection with the *vr̥ddhi* of the first syllable.³² The latter derivational process has a precise counterpart in the month-name *bāgayādi-* from **bagayāda-*. If we trust in the reading of the word with a long diphthong *āi*, Schmitt’s assumption directly implies that this long diphthong *āi* was the regular *vr̥ddhi*-replacement of *i* in the first syllable of the base word.

4.3 As an alternative explanation, I would like to raise the possibility that the first derivative was not **θigraka-*, but **θaigraka-* (i. e. suffix *-ka-* together with the *vr̥ddhi* of *i*, which consisted in *ai*), while the second derivative was in fact *θāi-grači-* with long diphthong *āi* (i. e. suffix *-i-* together with the *vr̥ddhi* of the short diphthong *ai*, which was *āi*).³³ This interpretation is based on the hypothesis that the suffix *-ka-* could be applied simultaneously with *vr̥ddhi* not only in OIA, but in OP as well.

fire-offering’; *a-d^u-u-k-n-i-š-h-y-a* DB II 69 gen. sing. *ādukan(a)iśahayā*: *ādukani/a-* (1st month, March–April) from **adukana-* ‘excavation of the canal’ by *vr̥ddhi* and suffix *-i-*.

32 See Schmitt 2003: 39 for the explanation of *č*. With the help of an indirect piece of Ossetic evidence, Lubotsky (2002: 200; cf. also 2012: 102–4) tries to revive the theory that the second part of the month-name rather contains the verbal root **či-* ‘to collect’, but his assumption that the missing of the expected *-t*-extension of the root is due to the fact that the word is a loanward from the Scythian language, which might have lost word final consonants at an early date, is clearly ad hoc.

33 A possible parallel for the *vr̥ddhi*-derivation *ai* : *āi* might be *u-v-a-i-p-š-i-y-m* DB I 47 *uvāi-pašiyam*, which is sometimes interpreted as a noun ‘own property’ derived by *vr̥ddhi* from the adjective *u-v-i-p-[š]-i-y-h-y-a* DNb 15 *uvaipašiyahayā* gen. sing. ‘own’ (see, e. g., Brandenstein & Mayrhofer 1964: 149; cf. also Kent 1953: 177). However, potential counterarguments were pointed out by Darms (1978: 373–4 and 513–4 n. 5).

However, this derivational process cannot simply be projected back to PIIr., since Av. has no examples of it and even the Ved. examples with *-(i)ka-* are not attested earlier than the latest parts of the Ṛgveda (cf. AiG: 2.2, 530–533): e. g., *varṣá-* RV+ ‘rain’ : *vārṣika-* AV+ ‘rainy’; *vasantá-* RV+ ‘spring’ : *vāsantika-* RV-Kh, YV+ ‘vernal’; *hemantá-* RV+ ‘winter’ : *hāimantika-* YV+ ‘wintery’; *pitár-* RV+ ‘father’ : *paitýka-* Sū+ ‘paternal’. There are only two examples³⁴ that are attested in the latest parts of the Ṛgveda (books I and X) and both are derived from case forms of personal pronouns: *māma* gen. of *ahám* ‘I’ : *māmaká-* ‘my’ (X³) beside *mamaká-* (I²); *táva* gen. of *tvám* ‘you’ : *tāvaká-* ‘your’ (I¹). It seems to be clear that the simultaneous application of the two features (i. e. vṛddhi and *-(i)ka-*) has to be interpreted as the result of hypercharacterization or contamination (AiG: 2.2, 532: “kann man die Vṛddhi bei adjektivischem *-(i)ka-* auf das Vorbild der sinnverwandten Bildungen auf vṛddhierendes *-a-* ... zurückführen”; cf. *vārṣá-* VS beside *vārṣika-*; *vasantá-* YV+ beside *vāsantika-*; *haimantá-* YV+ beside *hāimantika-*).³⁵ Therefore, we have to assume that even if it can be demonstrated that this phenomenon existed in OP, it has to be regarded as a parallel but independent innovation of the two branches that have it (cf. Darms 1978: 371). In my view, nothing in principle seems to stand in the way of such an assumption.

4.4 It has to be admitted that the OP evidence is quite controversial. First, the noun meaning ‘lancer’, which is attested both as a simplex (*a-r-š-t-ī-k* DNb 44, *a-r-š-t-i-k* XPl 48–49) and as the second member of a compound (*u-v-a-r-š-t-i-k* DNb 44 ‘good lancer’ with first member *uv*^o < **huu*^o < **su(u)*^o; on its spelling in XPl 49 cf. below), is certainly derived from PIIr. **ṛṣṭí-* ‘lance, spear’ (cf. Ved. *ṛṣṭí-*) by the suffix *-ka-*. While the spelling of the simplex would in itself permit a reading with *ār*, *ar* or *ar*, the orthography of the compound ‘good lancer’ in the Naqsh-e Rostam inscription of Darius the Great (*u-v-a-r-š-t-i-k*) apparently suggests that the noun began with *ār* and thus vṛddhi was involved in its derivation (*ārṣtika-*). However, Hoffmann (1975–1992: 1, 57 n. 15; 2, 633) pointed out that the compound is spelled without the medial ⟨a⟩ sign in the Persepolis inscription of Xerxes (*u-v-r-š-t-i-k* XPl 49), the text of which is identical to the Darius-inscription. Hoffmann thinks that the later spelling is the orthographically regular and correct one (*uvṛṣtika*), while the earlier plene spelling has to be interpreted as reproducing the orthography of the simplex (i. e. *u-v-a-r-š-t-i-k* *uv*^a*ṛṣtika* along *a-r-š-t-ī-k*

³⁴ The interpretation of the hapax *sānuká-* RV 2,23,7b referring to a wolf, which is sometimes thought to be related to *sanutár* ‘aside, away’, is uncertain (cf. AiG: 2.2, 530; EWAia: 2, 724 with refs.).

³⁵ Cf. also the application of *-ya-* together with vṛddhi as a similar derivational innovation, but, in this case, probably of PIIr. date (AiG: 2.2, 818–819; Szemerényi 1975: 318–9 on OP *xšāyaθiya-*).

arštika). All this would mean that the noun was *arštika* (< **ṛṣṭi-ka-*) in OP without *vṛddhi* in the first syllable.

However, doubts can be raised against this interpretation, if one considers the fact that the Persepolis inscription of Xerxes is full of orthographic mistakes and aberrancies.³⁶ It does not seem to me advisable to base one's argument on the unreliable orthography of the Xerxes-inscription in this particular case either.

I think it is possible that the noun in question was in fact *ārštika* derived from **ṛṣṭi-* by suffix *-ka-* and *vṛddhi*³⁷ and the irregular omission of the ⟨*a*⟩ sign in the Xerxes-inscription is simply due to the model of the regular orthography of a parallel phrase three lines earlier: i. e. *u-v-r-ṣ-t-i-k* (XPl 49), immediately after *a-r-ṣ-t-i-k* (XPl 48–9), was written as such following the model of *a-s-b-a-r* : *u-v-s-b-a-r asabāra uvasabāra* ‘[as a] horseman a good horseman’) three lines earlier (XPl 46).³⁸ I conclude that the interpretation of *a-r-ṣ-t-i-k* as *ārštika* (derivation by suffix *-ka-* and *vṛddhi*) cannot be excluded.

The interpretation of the name of the Arachosian fortress *k-a-p-i-ṣ-k-a-n-i-ṣ* DB III 60–61 *Kāpiṣakānī-* is also problematic. While most scholars (most recently Tavernier 2007: 26) have interpreted it as a compound (cf. KEWA: 3, 664; EWAia: 1, 301–2), Wüst (1966: 50–1) plausibly suggested that it rather has to be interpreted as a derivative of the toponym **Kapiṣa/ā-* (which is most probably related to OIA toponyms of North-West India [cf. Hoffmann 1975–1992: 3, 827] such as *Kapiṣā-* f. ‘name of a river’ [e. g., Ragh. 4,38 with vv.ll.]; *Kāpiṣī-* f. ‘name of a region’ [e. g.,

³⁶ See Schmitt 2009: 170–1: “Der weitgehend mit DNb identische, insgesamt aber mit weniger Sorgfalt geschriebene Text ... die vielen offenkundigen Schreibfehler ... Auch die sonstigen graphischen Divergenzen finden zum Teil in ‘defektiver’ Schreibung, Haplographie u. dgl. eine einfache Erklärung”. Note, in particular, the omission of ⟨*a*⟩ before ⟨*r*⟩ in the immediately following line: *a-s-b-<a>-r* XPl 50 (Schmitt 2009: 175). On the relationship of DNb and XPl see also Mayrhofer 1996.

³⁷ Since the simultaneous application of *vṛddhi* and suffix *-ka-* must have been an independent innovation of OP and OIA in any case, the potential existence of OIA *ṛṣṭikās* m. pl. ‘name of a people’ (Rāmāyaṇa 4,41,10c Bombay ed.; cf. pw: s. v. other editions print *ṛṣṭikān* 4,40,11a) does not refute in itself this interpretation.

³⁸ In this case, *u-v-r-ṣ-t-i-k* XPl 49 would have to be emended as *u-v-<a>-r-ṣ-t-i-k*. The orthography of *u-v-a-s-b-a-r* DNb 42 might have been taken over from the simplex *a-s-b-a-r* (as per Hoffmann) or, alternatively, it might anticipate the regular orthography of *u-v-a-r-ṣ-t-i-k*. It is important that the orthography of the two parallel phrases is identical in both versions: DNb 41–42 *asabāra* (*a-°*) ... *uvasabāra* (*u-v-a-°* with “plene” spelling following the orthography of the simplex) ... and 44 *ārštika* (*a-°*) ... *uvārštika* (*u-v-a-°*) ... vs. XPl 46 *asabāra* (*a-°*) ... *uvasabāra* (*u-v-°*) ... and 48–9 *ārštika* (*a-°*) ... *uvārštika* (*u-v-°* with defective spelling following the orthography of *uvasabāra*) ...

P. 4,2,99]) by means of the simultaneous application of the suffix *-ka-* and vṛddhi and, finally, by the suffix *-ānī*³⁹ (i. e. **Kapiša/ā- → *Kāpiśaka- → Kāpiśakānī-*).

To sum up, since the derivational process “vṛddhi plus suffix *-ka-*” might have existed in OP as well⁴⁰ and thus the alternative derivation **θigra- → θaigraka- → θāigrači-* cannot be excluded, the month-name *θāigrači-* does not prove that in OP secondary nominal derivation the simple short vowel *i* (and by extension *u*) was replaced by the long diphthong *āi* (and *āu*).

4.5 Moreover, the assumption of the replacement of the simple vowels *u* (and *i*) by short diphthongs *au* (and *ai*) in OP vṛddhi-derivation finds reasonable support in the adjective *skauθi-* DNb 8–9+ ‘weak’ (cf. MP *škōh*), the opposite of *tunuvant-* ‘strong, powerful’, the most convincing explanation of which is in my view still Hoffmann’s idea (1975–1992: 2, 414; cf. Wüst 1966: 283–7; Colditz 2000: 167), which derives the adjective from a reconstructible noun **skuθa-* ‘humiliation’ (from PIE **(s)kaṃ-* or **(s)keṃ-*; cf., e. g., Ved. *kavatnū-* ‘humiliating’; Goth. *hauns* ‘humble’; Werba 1997: 168; EWAia: 1, 326–7) by suffix *-i-* and vṛddhi in the first syllable.⁴¹

5 Conclusions

5.1 My conclusion is that the OP system of vṛddhi-derivation must have been exactly the same as that of Av., i. e. simple vowels were replaced in derivatives by guṇa and guṇa vowels probably by vṛddhi. To return to our starting point: as an indirect evidence, this means that OP augmented forms of verb stems with initial *i* or *u* had short diphthongs *ai* and *au* as their augment (e. g., 3s pres. ind. **isati*, impf. **aisat* from the unattested OP root **iš-*, pres. **isa-* < PIr. **(H)isa-* < PIIr. **Hisća-* < PIE **h₂is-ské/ó-* [cf. the Av. cognate above and LIV²: 260]).

³⁹ On the OIA (and PIIr.) suffix *-ānī-*, which mainly forms feminines from *-a-*stems with different shades of meaning, cf. AiG: 2.2, 279–281.

⁴⁰ Another seeming example, the noun *k-a-s-k* DSf 37, 39 *kāsaka* (cf. Elam. *ka-si-ka* < OP **kāθika-*?) ‘semi-precious stone’ is probably not derived from **kasa-* vel sim. by vṛddhi and suffix *-ka-*. It is rather a loanword from some E-Ir. source and related to OIA *kāś-* ‘to be visible, to shine’ (see Hoffmann 1975–1992: 3, 824–8; EWAia: 1, 335).

⁴¹ According to Lubotsky 2002: 197, OP *skauθi-* might be a Scythian loanword, but his argumentation (i. e. that OP *au* instead of *u* before the suffix *-ti-* should be regarded “as adaptation or mishearing of a foreign word. It is conceivable, for instance, that Scythian *u* was more open than the Old Persian one and was therefore rendered by *au*”) is, in my view, clearly ad hoc.

It has to be added that the Av. and OP system of *vṛddhi* faithfully preserved the inherited PIIr. rule of secondary nominal derivation (**i* : **ai*, **u* : **au* < PIE **i* : **ei*, **u* : **eu*). On the other hand, the OIA system of replacing *i* and *u* with so-called “long” (*sensu stricto* *vṛddhi*) diphthongs *ai* and *au* (< **āi*, **āu*) in the derivatives must be a secondary development, as shown by the scattered remains of the earlier rule in Ved. (cf. Darms 1978: 371–2, where also dubious cases are listed), the most conspicuous of which is the pair *bhiṣáj-* ‘healer, physician’ RV+ : *bheṣajá* ‘healing; n. remedy, medicine’ RV+ (< PIIr. **bhišáj-* : **b^haišajá-*; cf. Av. °*biš-* ‘healing’; *baēšaza-* ‘healing’; MP *bizišk* ‘physician’ < **bišaz-ka* [Nyberg 1974: 48]).⁴² The triggering factor of the substitution of earlier *guṇa* vowels by *vṛddhi* ones, as argued by Kuryłowicz (1947–1948: 46–7; cf. de Vaan 2003: 86 with n. 51), was most probably the OIA monophthongization of the PIIr. and PIA short diphthongs **ai* and **au* to *e* and *o*.

5.2 This scenario seems to be contradicted by MP *wāspuhr* ‘principal’ (for the attestations see, e. g., Nyberg 1974: 205, 214–5; Colditz 2000: 328), which is generally interpreted as coming from an earlier **vāispuθri-*, a *vṛddhi*-derivative of the compound **vispuθra-* > *wispuhr* ‘(orig.) son of the ruling house, prince’.⁴³ If this were true, it would suggest the replacement of *i* by a long diphthong in the derivative, since short **ai* would yield *ē* in MP (cf., e. g., Nyberg 1974: 205; Szemerényi 1977: 132; Colditz 2000: 353; Alam, Blet-Lemarquand & Skjaervø 2007: 32 with refs.).

There has been a great controversy concerning the age of the *vṛddhi*-derivative (cf. the references to earlier scholarship in Szemerényi 1977: 132; Colditz 2000: 353 n. 138; Alam, Blet-Lemarquand & Skjaervø 2007: 31–2). While some scholars assume that the formation is of OIr. (e. g., Eilers) or even Plr. date (e. g., Bartholomae), others suppose that it cannot be earlier than the Early MIr. period (e. g., Henning). An argument in favour of an early (i. e. OIr.) dating has been that such *vṛddhi*-formations ceased to be productive in MIr. (e. g., Alam, Blet-Lemarquand & Skjaervø 2007: 32: “it must date back to OP, when such formations were productive”). On the other hand, the absence of the *vṛddhi*-adjective **vāispuθri-* (and

⁴² PIIr. **bhišáj-* has no cognates in other branches. If its **i* came from **H* (as tentatively mentioned by EWAia: 2, 264), it would mean that the formation of the derivative could not be earlier than PIIr. See also *div-* ‘sky’ RV+ : *devá-* ‘god < *related to the sky, dwelling in the sky’ RV+. However, in this case, the derivative is a preserved archaism of PIE date (cf. Arch. Lat. *deiuos*; Lith. *diēvas*; etc. < PIE **deiuó-*), which could be preserved intact, since its derivational relation with *div-* was not conspicuous any more.

⁴³ Note that *s* and the consonant cluster *hr* (instead of *h* and *s*, respectively, i. e. **wihpus*, **wāhpus*) point to NW-Ir. (Parthian) origin (cf., e. g., Colditz 2000: 33).

even of its base, the compound **vispuθra-* in OIr. sources⁴⁴ is remarkable and may point to a later formation, although it may also be due to chance, of course.

Having all this in mind, I would venture the hypothesis that the vṛddhi-derivative **vāispuθri-* of the compound **vispuθra-* may have been formed in Late(r) OIr., when the derivational pattern was still productive, but short diphthongs were being monophthongized. The monophthongization of short diphthongs, which cannot antedate the time of Xerxes' reign (Hoffmann 1975–1992: 2, 643–5; Schmitt 1989a: 67; Schmitt 2008: 83⁴⁵), triggered a change of the derivational pattern, by which long diphthongs emerged in the place of short ones in secondary derivatives of words with *i* and *u* in the first syllable.⁴⁶ This change can be regarded as being exactly parallel to the development observed in OIA, although clearly independent of it. I think therefore that MP *wāspuhr* provides no conclusive evidence for an Early OIr., i. e. (Achaemenid) OP rule of replacing *i* and *u* by long diphthongs *āi* and *āu* in vṛddhi-derivatives. Until the monophthongization of short diphthongs there was nothing that would have triggered a change of the inherited PIIr. derivational process.

Appendix: Ved. presents and aorists of verbs with initial *i* or *u* containing full or lengthened grade root

1. Simple thematic presents:⁴⁷

- (a) *éja-ti* from the root *ij-* 'to stir' RV+ (e. g., RV 5,78,8b): The imperf. (*áij°*) is attested first in GopB 1,1,4, if the emendation *+aijata* of the editor (D. Gaaststra) is correct instead of the reading *ejata* of the mss. (but cf. Gotō 1987: 108 with n. 80 in favour of the "unaugmented impf." *ejata* with reference to Hoffmann 1967: 108). *Náijan* RV 1,63,1d probably has to be restored

⁴⁴ OIr. has only the Av. genitival phrase *vīsō.puθra-* (cf. AIW: 1455–6; Colditz 2000: 329–30). Therefore, the formation of the compound **vispuθra-* (and by extension the formation of its vṛddhi-derivative) cannot be dated exactly.

⁴⁵ The early dating of the monophthongization to the period shortly before Darius' reign by Brandenstein & Mayrhofer (1964: 29) has to be rejected.

⁴⁶ The earlier rule might be reflected in MP *dōšaxw* 'hell' (e. g., Nyberg 1974: 65) < **dauš°* by vṛddhi from **duš°*. Nevertheless, it may also be an Av. loanword (on Av. loanwords in MP see, e. g., Klingenschmitt 2000: 217, 219): cf. Av. *daožan'ha-* 'hell < [place] of bad life/existence' < *dužahu-* '*bad life/existence > hell' (cf. Darms 1978: 368). However, there is a remarkable difference between the voiced *ž* in Av. and the voiceless *š* in MP (< OP *š*), which was pointed out by Hoffmann (1975–1992: 2, 628 with n. 10).

⁴⁷ *Anv-eṣa-ti/te* from the root *iṣ-* 'to desire' is unattested in Ved. (only Ep.+; cf. Gotō 1993: 125).

as *ná éjan* (inj.) following Hoffmann (1967: 181) and not as *ná áijan* (imperf.) as per the Pp. followed by the edition of van Nooten–Holland. The inj. ⁺*éjat* probably occurs also in RV 4,17,2b pace Pp. *dyáu réjat* (cf. Gotō 1987: 108 n. 78).

- (b) *édha-te* from the synchronic root *edh-* ‘to thrive’ (on the ultimate etymological identity of *idh*₋₁ ‘to kindle’ and *idh*₋₂ ‘to prosper’ [different lemmata, e. g., in Lubotsky 1997] see EWAia: 1, 267 with refs.) RV+ (e. g., RV 8,74,4d): The imperf. (*áidh*^o) is attested first in various brāhmaṇas (ŚBK 1,6,4,5; 2,5,3,1; *samái/aidhanta* TB 1,4,10,7; PB 7,10,15; 8,8,14).
 - (c) *óṣa-ti* from the root *uṣ-* ‘to burn’ RV+ (e. g., RV 1,130,8f): The imperf. (*áuṣ*^o) is attested first in YV^p (*údauṣat* MS 2,1,11; 4,1,1; *pratyauṣat* KS 25,7; KKS 39,5; *áuṣat* ŚB 14,4,2,2; PB 14,6,6; etc.).
2. Athematic acrostatic root presents:
- óh-ate* (3p) from the root *uh-* ‘to esteem’ RV+ (e. g., RV 2,23,16c): Its imperf. (**áuh*^o) is not attested in Ved. The imperfect form *auhat* AV 10,2,17c; AVP 16,60,5 is not from this root (as per Vishva Bandhu’s *Vedic Word Concordance*), but rather from the secondary root *ūh-* ‘to push, thrust’, pres. *úha-ti* (cf. *ápauhat* RV 10,61,5b; *auhata* RV 1,164,29d).
3. Athematic s-aorists:⁴⁸
- The aor. ind. *áiṣanta* RV 1,126,5d from the root *iṣ-* ‘to desire, wish’⁴⁹ is ambiguous. The assumption of an s-aorist is suggested by the existence of Av. *āiš* (LIV²: 260 with n. 7–8; Lat. (*qu*)*aesō* may come from the desiderative as per LIVAdd: s. v. with refs.), but inj. middle *iṣe* (RV; e. g. 4,23,6d) and opt. *iṣema* (RV 8,44,27c) rather support its classification as a thematic aorist with zero-grade root (Joachim 1978: 44–5; Gotō 1993: 125 with n. 35–40; Kümmel 2000: 127).
4. Athematic *iṣ*-aorists:
- (a) *aindhiṣata* ŚB 1,4,4,1; *áindhiḍhvam* ŚB 1,4,1,29: This is a late formation based on the secondary root *indh-* derived from the nasal-infix present of *idh-* ‘to kindle’ (Narten 1964: 89–90).
 - (b) *edhiṣiṃyá*, *edhiṣimáhi* AV+: This is an isolated aor. opt. from the root *edh-* ‘to thrive’, which appears only in the variants of a single mantra containing also the noun *édhas-* and therefore probably has to be regarded as a

⁴⁸ As Narten has shown, roots with medial *i* and *u* (and *ṛ*) “scheinen keinen alten sigmatischen Aorist zu bilden” (Narten 1964: 80).

⁴⁹ Assignment of the verb form to this particular root pace Lubotsky 1997: 316 (cf. parallelism of *śráva áiṣanta* 5d and *śráva icchámānaḥ* 1d).

- (grammatically correct) “Augenblicksbildung” and “Wortspiel” (Narten 1964: 94). There are no ind. forms attested.
- (c) *āiṣīt* MS+ from the root *iṣ-* ‘to desire’: “Lebendige Neubildung” according to Narten (1964: 91); cf. Gotō 1993: 126, 128.⁵⁰
 - (d) *āva ailayīt* AV 6,16,3b; AVP 19,5,9b: This is a clearly secondary formation based on the present stem *ilāyati* (Narten 1968: 239; Whitney *Roots* has a root “il-” ‘to be still’).
 - (e) *sām-aikṣi* RV-Kh 1,1,1a; *āpaikṣiṣṭhās* ŚB 11,5,3,3+ from the secondary root *ikṣ-* ‘to see’ (Narten 1964: 142).
 - (f) *+ud-aiṣīt* HGS 1,17,5 (mss. *udaikṣīt*): This is a totally isolated formation from the secondary root *iṣ-* ‘to move, hasten’ (Narten 1964: 293; Gotō 1993: 121 with n. 16).
 - (g) *aukṣis* (*prāukṣis*) TS+ from the root *ukṣ-* ‘to sprinkle’: Since this form is based, as all other forms of the root, on the zero-grade root (< **a-ukṣ-*; cf. Narten 1964: 92), it is irrelevant for our purposes.
 - (h) *vy-auṣis* KŚS 10,9,4 (augmented impf. after *mā*; cf. Hoffmann 1967: 62); *ūd-oṣiṣṭam* MS 1,1,13; *udoṣis* ŚŚS 1,5,9 from the root *uṣ-* ‘to burn’ (Narten 1964: 92).
 - (i) *āuhiṣṭa* RV 6,17,8c: This is an isolated secondary formation based on the acrostatic root present (cf. above) of the root *uh-* ‘to esteem, praise’ (Narten 1964: 92).
 - (j) *auhīt* MS+ from the root *ūh-* ‘to push, thrust’: Since *ūh-* is invariable and forms no full or lengthened grade forms, *auhīt* probably comes from **a-ūh-* (cf. Narten 1964: 93) and is therefore irrelevant.
 - (k) *āukṣis* RV 10,27,7a: This is a secondary formation based on the present stem *ūkṣa-* of the root *vakṣ-* ‘to grow’ (Narten 1964: 230; Gotō 1993: 135).
5. Causatives:⁵¹
- (a) *ejāyati* from the root *ij-* ‘to stir’ YV+ (pres. act. part. *ejayan* KS 11,6; 35,14; KKS 48,13; *ejayati* ŚB 7,5,1,9): The existence of the causative stem is presupposed for Early Ved. (RV) by the compound (voc.) *viśvamejaya* RV 9,35,2b; 9,62,26c (Jamison 1983: 108–9; Gotō 1987: 108 with n. 81). The impf. (**āij°*), on the other hand, is unattested in Ved.
 - (b) *édhayati* from the root *edh-* ‘to thrive’ AV+ (*edhayanti* AVP 19,13,11): The impf. (*áidh°*) is attested first in JB (*samaidhayanta* JB 2,232).

⁵⁰ *Praiṣīt* from the root *iṣⁱ-* ‘to send, incite’ is unattested in Ved. (Ep.+). *Sampraiṣīt* ŚBK 4,9,3,14 is “kaum richtig” (cf. Gotō 1993: 130 with n. 72).

⁵¹ *Anv-eṣayati* from the root *iṣ-* ‘to desire’ is unattested in Ved. (only Cl. Skt.+; cf. Gotō 1993: 127).

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Abbreviations

AiG	Jakob Wackernagel & Albert Debrunner (1930–1957). <i>Altindische Grammatik</i> . 2nd ed. 3 vols. Göttingen: Vandenhoeck & Ruprecht.
AIW	Christian Bartholomae (1904). <i>Altiranisches Wörterbuch</i> . Strassburg: Trübner.
EWAia	Manfred Mayrhofer (1986–2001). <i>Etymologisches Wörterbuch des Altindoarischen</i> . 3 vols. Heidelberg: Winter.
KEWA	Manfred Mayrhofer (1956–1980). <i>Kurzgefaßtes etymologisches Wörterbuch des Altindischen</i> . 4 vols. Heidelberg: Winter.
LIV ²	Helmut Rix (2001). <i>Lexikon der indogermanischen Verben. Die Wurzeln und ihre Primärstammbildungen</i> . Unter Leitung von Helmut Rix bearbeitet von Martin J. Kümmel, Thomas Zehnder, Reiner Lipp, Brigitte Schirmer. 2nd ed. Wiesbaden: Reichert.
LIVAdd	Martin J. Kümmel (2014). <i>Addenda und Corrigenda zu LIV²</i> . www.martinkuemmel.de/liv2add.html (last access: 11.04.2014).
pw	Otto Böthlingk (1879–1889). <i>Sanskrit- Wörterbuch in kürzerer Fassung</i> . 7 vols. St. Petersburg: Akademie.

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