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Uncovering the Prehistory of the Tocharian Class II Preterite*)

1. The Tocharian Class II preterite(s): one formation or two?

Few verbal categories in the Tocharian languages have raised such complex problems of historical reconstruction and evaluation as the Class II preterite. In both Tocharian A and B, Class II preterites are associated with "causatives" to verbal stems containing a reflex of PT *ə, i.e. TB /ə/, /əy/=[i], or /əw/=[u], TA *ä*/Ø, *i*, *u*.[1]) The following forms are listed by Krause (1952:175–7) and Krause and Thomas (1960:245–6):[2])

PT	TB	TA
*kətk(a)- 'c. to go over, trespass'	mp. sg. 2 *śātkatai*	pp. *śaśätku*
*kən- c. 'accomplish', Gv. 'come about, happen'	sg. 1 *kyānawa*, 2 *kyānasta* (MQ), *kyāna* pl. *kānare*	
*kərn- (c.) 'strike'		*kakräṃ*, pp. *kakärnu*[3])
*kərsa- 'c. to know'	*śārsa*, pl. *śarsāre*, pp. *śeśśarsu*	*śaśärs*
*kəl- (c.?) 'bear, endure'		*kakäl*, pl. *kaklār*
*kəla- (c.) 'lead, bring'	mp. sg. 1 *śālamai*	
*kəln- 'c. to sound'		pl. *kakälnār*
*kəlpa- 'c. to attain'		*kakälypā-ṃ*
*kəlt^{s}a- (c.) 'threaten'		*kakälts*
*kəw- 'c. to pour'	pl. *kyauwar(e)*	[*śosā-ṃ*, Cl. III]
*(k)ləwtk- c. 'make (happen)', Gv. 'turn around, become'	sg. 2 *klyautkasta*, 3 *klyautka*, mp. *klyautkate*, pl. 1 *klyautkā(m)t(e)* pp. *keklyutku*, abs. *-ormeṃ*	*lalyutäk*, mp. *lyalyutkāt* [also *lyockäs*, Cl. III]

*) The first major insight behind this paper, the underlying analysis of the TB Cl. II pret., first occurred to me in December 1997; the other, that the TA forms could reflect a pre-TA stem vowel *a, followed in April 2001. A preliminary version was presented at the 20th East Coast Indo-European Conference at Cornell University, 31 May-3 June 2001; thanks very much to Miles Beckwith, Olav Hackstein, Stephanie Jamison, and Jay Jasanoff for their comments and suggestions. I also wish to thank my advisor Don Ringe for our discussions of Tocharian and Indo-European morphology and for making available his office library after the theft of my computer forced me to work at school; H. Craig Melchert for reading through a near-final draft and wisely suggesting that I postpone examination of the PIE causative formations (which took up a lengthy additional section) to a future date; Masato Kobayashi, who made available his spring 1997 term paper and his familiarity with the Indo-Aryan data; and Thomas McFadden, who assisted me in looking up the Old High German forms in fn. 9. All opinions and errors contained herein remain entirely my responsibility. H.V.S.

[1]) TB verb stems and selected forms are given in underlying phonemic representation. For forms in the "standard" language of central and eastern dialect texts, I print *á* for /ə́/ where necessary, to distinguish them from other *a* = unstressed /a/. Underlying stressed /á/ is of course written *ā*. No accents are given for underlyingly disyllabic words, which always exhibit initial surface stress. In western dialect texts (MQ, from Ming-öy Qızıl), /ə/ is written *ä* or *a* and /a/ *a* or *ā*, regardless of stress. See Marggraf 1970 and Ringe 1996:xxi-xxii, xxiv for the TB accentual system and Winter 1955 for dialectal variation.

[2]) TB and TA forms are 3rd person singular unless otherwise marked. Glosses after the PT preform are for the causative; where the semantic relationship between base and causative is less transparent, the meaning of the basic verb (Gv., *"Grundverb"*) is also given. A (c.) indicates that either the verb is causative only (*"causativum tantum"*) or there is no discernable difference in meaning from the basic stem.

Note that TB drops root-final /-a-/ and has initial stress in the caus. pres. and subj.: TB *anā-ṣṣäṃ* /aná-/ 'breathes (in)' vs. caus. 1pl. *ānäskem* /án-/ 'id.'; *kärsanaṃ* /kərs-ə́n-a-/ 'knows' vs. caus. pres./subj. *śársäṣṣäṃ* /śə́rs-/ 'lets know, informs'; *wiketär* 'disappears' (root /wəyká-/) vs. caus. pres./subj. *wíkäṣṣäṃ* /wə́yk-/ 'makes disappear, removes'. TA likewise drops root-final *-ā-* in the pres., but regularly retains or adds *-ā-* in the subj., e.g. pres. *tsälp-äṣ-tär* 'releases', subj. *tsälp-ā-ṣ-tär* vs. TB pres./subj. *tsálp-äs-tär* (to TA *tsälpā-*, TB /t^{s}əlpa-/, non-caus. pres. TB *tsälpetär*, TA *śalpatär* 'is released'; Sieg, Siegling, and Schulze 1931:372–4, Krause and Thomas 1960:175, 232–3). Hackstein (2003) proposes that these TA subjs. continue the PIE desiderative suffix *-h$_1$s^{e}/$_{o}$- reconstructible from Indo-Aryan and Celtic (reduplicated, e.g. Ved. *jígāṃsati* 'wants to go' < *g^{w}i-g$^{w}_{o}$m-h$_1$se-ti, OIr. fut. 3pl. *-aith-géna* 'will recognize' < *(aθi-)ɣeɣnaθ < *gignāset < *ǵi-ǵn̥h$_3$-(h$_1$)se-ti; Thurneysen 1946:414–5, McCone 1986:248–59, 1991:147–74) and Greek (unreduplicated, e.g. fut. μενέω 'I will stay' < *men-h$_1$s^{e}/$_{o}$-): PIE *ǵenh$_1$-h$_1$s^{e}/$_{o}$- → TA subj. 1sg. *kn-āsa-m* 'I will accomplish', PIE *nem-h$_1$s^{e}/$_{o}$- → TA abstr. II *nm-āṣ-lune* 'bow, sign of reverence'. The loss of -a- in the caus. pres. of seṭ-roots, on the other hand, he explains as due to a rule of laryngeal loss in post-tonic syllables (Hackstein 1995:33–4, 2001:24–5). If Hackstein is correct, the synchronic resemblance of caus. pres. and subj. suffixes in TA and TB would have to have arisen independently in the two languages: PT pres. *-skë- ~ *-ṣṣə- > *-ska- ~ *-ṣä- was replaced by *-sa- ~ -ṣ- in TA, while TB conversely generalized *-sk- and loss of root-final /-a-/ from pres. to subj.

The so-called TB "*s*-causatives" with Cl. VIII pres. (and usually Cl. II subj.), e.g. *wikṣäṃ* 'avoids' to *wiketär* 'disappears' (vs. *wíkäṣṣaṃ* 'removes'; merged in TA *wikäṣ* 'removes; avoids'), are not causatives at all: see the extensive discussion of Hackstein 1995:1–2, 147–65. On the semantics of causative verbs in Tocharian, see § 5 below.

[3]) If this does not belong to Cl. III (Krause and Thomas 1960:245).

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*təla- (c.) 'endure, bear'	sg. 1 *cālawa*, *cāla*, pp. *ceclu*, abs. *ceccalor*	sg. *cacäl*, pp. *caclu*
*t(p)əwk- c. 'conceal, hide (tr.)'	mp. sg. 1 *caukamai*, 3 *caukate*, pl. *caukante-ñ*, pp. *ceccuku*	pp. *cacpuku*
*trəyka- c. 'confuse'	*traika-ne*, mp. *traikate*, pp. *tetriku*	pp. *caccrīku* [also *tatriku*, Cl. III]
*trəywa- c. 'mix (up), mingle'	mp. sg. 2 *traiywatai*, pp. *tetriwu*	pp. *tatriwu*
*trəysk- 'c. to resound'		*tatrisäk*
*trəws- (c.) 'tear (up)'		*tatrūsā-ṃ*
*nətk(a)- (c.) 'support'		mp. *nanätkāt*, pp. *ñañitku*
*nəyp- (c.) '(with)draw (money)'	*ñaipa*	
*nərs- (c.) 'press, push'	*ñyārsa-me*	
*nəwa- (c.) 'roar'	*ñāwa*	pl. *ñañwār*
*nəwsk- (c.) 'oppress'	sg. 1 *ñauskuwa* (for *ñauskawa**), pp. *ñeñusku*	
*pəlk- 'c. to shine'	*pyālka*	
*pəlk- (c.) 'burn, torment'	[sg. 1 *pelykwa*, mp. sg. 2 *p(e)lyks(a)t(ai)*, Cl. III]	mp. sg. *papälykāt*, pp. *papälyku*
*pyəwtk- (c.) 'come about'	*pyautka*, pl. *pyautkare*, pp. *pepyutku*	*papyutäk*, mp. *papyutkāt* [also *pyockäs*, Cl. III], pp. *papyätku* (! for *papyuktu**?)
*prənka- c. 'reject, turn away', Gv. 'be reserved, hold o.s. back'	pp. *pepraṅku*	sg. 2 *papräṅkāṣt*
*prəwtka- c. 'fulfill'	*prautka*, pp. *peprutku*	pl. *paprutkār*, pp. *paprutku*
*məy- (c.) 'damage'	sg. 1 *myāyawa*, 2 *myāsta*[4]), mp. *myāyate*, pp. *memīyu*, pl. masc. *memyoṣ*	pp. *mam(i)yu*
*mərsa- 'c. to forget'	*myārsā-ne*, mp. sg. 2 *myārsatai*	
*məska- c. 'exchange', Gv. 'be'	sg. 1 *myāskawa*, 2 *myāskasta-ñ*, 3 *myāska*, mp. sg. 1 *myāskamai*, 3 *myāskate*, pp. *memisku*	[mp. pl. *māskant*, pp. *māmäsku*, Cl. I]
*yət- (c.) 'adorn'	sg. 1 *yātwa*, mp. sg. 1 *yātamai*, pp. *yaitu*, abs. *yaitor*	mp. pl. *yetānt*, pp. *yetu*
*rəytwa- c. 'join, unite'	mp. *raittate*, pl. 3 *raittante*, *raittānte*, pp. *rerittu*	sg. 1 *raritwā*, *raritu*, pp. *raritwu*
*ləma- 'c. to sit, set'	*lyāma*, mp. *lyāmate*	*lyalymā-ṃ*, mp. *lyalymāt*, pp. *lyalymu*

[4]) Apparently a mistake for (or contracted from?) *myāyasta**.

*wətk(a)- 'command', Gv. '(be) decide(d)'	sg. 1 *yātkawa*, 2 *yātkasta*, 3 *yātka*, pl. *yātkare*, pp. *yaitku*, abs. *yaitkor*	*wotäk*, pp. *wotku*
*wəyka- 'remove', Gv. 'disappear'	sg. 2 *yaikasta*, 3 *yaika*, pp. *yaiku*	*wawik*, pl. *wawikār*, pp. *wawiku*
*wər- (c.) 'exercise, purify'	pp. *yairu*	pp. *wawru*
*ścəmn-[5]) (c.) 'bind'	*śānmya*, pl. *śānmyāre*, mp. 2 *śānmyatai*, 3 *śānmyate*, pp. *śce[ś]ä(n)[mo]ṣä*, *śeśśanmu*	
*ṣərk- (c.) 'surpass'	mp. 2 *ṣārkatai*, *ṣārkate*, pp. *ṣeṣṣirku*	pp. *ṣaṣärku*
*ṣərtw- (c.) 'drive on'	pp. *ṣeṣartu*	pp. *ṣaṣärttwu*
*ṣərp- (c.) 'indicate, explain'		*ṣaṣärp*, pp. *ṣaṣärpu*
*sətka- c. 'spread (tr.)'	[mp. sg. 1 *sätkasamai*, Cl. III]	pl. *sasätkār*
*stəma- c. 'put, stand (tr.)', Gv. 'remain, (come to) be standing'	pp. abs. *śceśc(a)mor*, *śeśśamor-meṃ*	sg. 1 *śaśmāwā*, 3 *śaśäm*, pp. *śaśmu*
*spənta- 'c. to trust'	pp. *peṣpiṃtu*	
*spərka- 'c. to disappear, destroy'	mp. sg. 2 *ṣpyarkatai* (MQ)	mp. pl. *saspärkānt*, pp. *ṣaṣpärku*
*spərtwa- c. 'turn'	*ṣpyārta*, pp. *peṣpirttu*	*saspärtu* [pp. *sāspärtwṣu*, Cl. IV]
*srəwka- c. 'kill'		mp. *sasrukāt* [also *sruksāt*, Cl. III], pp. *sasruku* (Cl. II or III)
*tˢəwa- c. 'add', Gv. 'fit (intr.)'	pp. *tsetsuwu*	
*tˢəra- c. 'separate'	sg. 2 *tsyārasta*, 3 *tsyāra*, pp. abs. *tsetstsaror-meṃ*	sg. 2 *śaśrāṣt*
*tˢəlpa- c. 'redeeem, deliver'	mp. sg. 2 *tsyālpatai*, 3 *tsyālpāte*	pp. *śaśälpu*

By contrast, causatives to verbal stems containing the stem vowel /a/ (TB /a/, /ay/, /aw/; TA *ā*, *e*, *o*) form Class IV preterites (Krause 1952:188–91, Krause and Thomas 1960:251–3): these are dis-

[5]) Schmidt (1992:106–8 with refs.; cf. 1995:273–4) has persuasively argued that this root, previously attested only in Cl. X caus. pres. /śənməsk-/ (e.g. pres. ptcp. *śanmäṣṣeñca*), in fact continues an old nasal pres. to *stəma- (see below on list) with root ablaut, i.e. PIE 3sg. *stémb^{h}-n-h$_2$-ti ~ 3pl. *st$_{\emptyset}$mb^{h}-n-h$_2$-énti; the full-grade of the root was generalized, producing the palatalized initial *śc- of *śanmau* 'chain, bond' and pret. ptcp. masc. obl. sg. *śce[ś]ä(n)[mo]ṣä* (Thomas 1973:187; reading after 1974:79). On root-ablauting nasal presents in PIE, see Strunk 1967:49–54, 1979, Oettinger 1979:169–70, McCone 1991:25ff. (esp. for Celtic evidence).

tinguished by the suffix /-ṣṣ-a-/ in TB, where /-ṣṣ-/ has clearly been introduced from the pres./subj. in /-ske-/ ~ /-ṣṣə-/.[6])

As the above forms demonstrate, the two languages disagree sharply in the formal details of the Class II preterite. In TA, we find reduplication with the typical Tocharian reduplicating vowel *a* < PT *ë, base vowel /Ø/ < pre-TA *ä and, in some verbs, palatalization of the initial consonant of both base and reduplicant. By contrast, Class II preterites in TB are characterized by the base vowel /a/ and initial palatalization (including the unusual *py*, *ky*, *tsy*; see below), but no reduplication.

This striking discrepancy has led to two principal opposing views on the relation between the preterites in the two languages. In an article of 1924,[7]) Schulze compared the contrast between reduplicated TA *śaśärs*, etc. and the corresponding TB *śärsa*, etc. with the preterites of Class VII strong verbs in Germanic: cf. Gothic *faifalþ*, *haíhait*, *saíslēp*

[6]) Cl. IV prets. are also found to a few causatives with stem vowel continuing PT *ə, e.g. TB *lákäṣṣa* 'showed' to /ləka-/ 'see', pret. ptcp. TB *tetánmäṣṣu*, TA *tatämṣu* '(having) borne, produced' to /təm-/ 'be born'; cf. also TA pret. ptcp. *säspärtwṣu* vs. Cl. II pret. *saspärtu*. The only non-causative with a Cl. IV pret., TB *yamáṣṣa* (3pl. *yamáṣṣare*, mp. 3sg. *yamáṣṣate*) to Cl. IX pres. /yaməsk-/, Cl. I subj. /yam-/, is clearly innovative: cf. TA Cl. III pret. *yämäs*. The pret. of TB /wəynask-/, TA *winäsk-* 'honor' (denominative, cf. TB *wīna* 'liking, pleasure'), TB *winäṣṣa*, TA *winäṣä-ṃ*, which Krause (1952:188), Krause and Thomas (1960:252) assign to Cl. IV, belongs with the subtype of Cl. I discussed immediately below.

Note that alongside ptcps. such as *tatämṣu* or abs. *käkätkṣur-äṣ* 'having (been) made happy', only one finite Cl. IV pret. is attested in TA, namely 1sg. *laläkṣäwä* (reduplicated! Sieg, Siegling, and Schulze 1931:374, 406–7). I will argue elsewhere that preterite Classes IV and V were formed separately in TA and TB through suffixation of the pret. marker *-a- to the 3sg. of the imperfect (i.e. optative of the present), which created a new stem *-C^{y}-əy-a- to which pret. suffixes were then added. Syncope of *ə in open syllable and loss of *y after most palatalized consonants resulted in the observed suffixes, e.g. TB -ṣṣ-əy-a- > *-ṣṣya- > /-ṣṣa-/. The same remodeling of an old impf. in *-əy- underlies the set of Cl. I preterites with stem-final palatalization to (formerly) Cl. II presents, except that here the suffixation of *-a- was already PT: cf. TB 3sg. *klyauṣa*, TA *klyoṣ* 'heard' < PT *kl^{y}ewṣ-əy-a, TB mp. 2sg. *paṣṣatai* (for *paṣṣä-*), TA *pāṣäte*, 3sg. *pāṣät* 'protected' < PT *paṣṣ-əy-a-tay, *-të. In addition to the otherwise mysterious *-y-* < *-əy- after root-final labial in e.g. TB *campya* 'was able' < PT *cəmp^{y}-əy-a (cf. the discussion of TB Cl. II prets. in *pyā-*, *myā-*, *tsyā-* below in § 2), this hypothesis accounts for the retention of word-final *-ā* in the 3sg. of the TA impf. and Cl. IV and V pret., the failure of vowel weakening in TA (cf. *pāṣäte*, *pāṣät*), and the "palatalizing" PT *a (usually taken as a special development of *ē, but without convincing parallels) that has so bedeviled Indo-Europeanists. For further details, see R. Kim, forthcoming.

[7]) Hereafter cited from the 1934 reprint.

(*saízlēp*), *laílōt* vs. Northwest Germanic forms such as ON *felt*, *hét*, *lét*, OE *fēold*, *hēt*, *slēp*, *lēt*, OHG *fiald*, *hiaz*, *sliaf*, *liaz*. Following an old proposal dating back to Jacob Grimm, he considered the latter to be the result of (irregular) dissimilatory deletion of the initial consonant of the stem and subsequent contraction of reduplicated PGmc. preterites such as *fefalþ, *xexait, *seslēp,[8]) *lelōt; this view, expounded upon at length by Flasdieck (1936), is supported by various relics scattered throughout the NWGmc. languages, particularly OE.[9]) Schulze saw in the correlation between the functionally equivalent TA

[8]) Or *feβalþ, *xeɣait, *sezlēp, with voicing of the initial consonant of the stem by Verner's Law (as if < pre-PGmc. *pepált-, *kekáit-, *seslép-) if this was still operative when these reduplicated preterites – most of which have no good PIE etymologies – were formed (Bech 1969:5ff., Bammesberger 1986:64). PGmc. *sezlēp may be preserved in Goth. *ga-saízlēp*, although other possible explanations for the *z* cannot be excluded (cf. *saíslēp*, *anasaíslēp*, *-un* and see Streitberg 1896:328, Bammesberger 1986:145–6 n.9). On Verner's Law in the (post-)PIE perfect of *seh$_1$- 'sow' (Goth. *saian* < *seh$_1$-y^{e}/$_{o}$-; cf. Lith. *sėti*, pres. 1sg. *sėju*, OCS *sěti*, *sějǫ*, Lat. *serō* < *se-sh$_1$-^{e}/$_{o}$-), see fn. 9.

[9]) Cf. northern (Anglian) OE *heht* 'called' alongside *hēt* (Goth. *haíhait*; already recognized as a relic of reduplication by Grimm 1822:898–9), *leolc*, *lēc* 'played, jumped' (Goth. *laílaik*), *leort*, *lēt* 'let (go of), left' (Goth. *laílōt*), *reord*, *rēd* 'advised' (Goth. *ga-raírōþ*; also *ond-reord*, *ond-rēd* 'feared', see Bammesberger 1977:208–10), and Northumbrian 3pl. *beafton* (West Saxon sg. *bēot*) 'beat'. See Flasdieck 1936:254ff. (with earlier refs.), Campbell 1959:306, 320, Bech 1969:22–4. As Don Ringe reminds me, *heht* cannot be merely archaic or poetic, since it survives into the Norman period, developing regularly to Middle (and archaic Modern) Engl. *hight*.

The small set of irregular Cl. VII prets. in ON (*greri*, *grøri* 'grew', *reri*, *røri* 'rowed', *seri*, *søri* 'sowed' and, to roots in *-ū-, *bnere* (1x), *gneri* 'rubbed', *sneri*, *snøri* 'turned, wrapped'; also analogical Cl. VI *sleri* 'struck' alongside *sló*) demonstrates that sound changes which had obscured the reduplication led to a morphological reanalysis: starting from forms such as (post-)PIE 1sg. *se-sóh$_1$-h$_2$e 'sowed' > PGmc. *sezō̃ (→ Goth. *saísō*) > PNWGmc. *serō → ON *sera* (whence 3sg. *seri* after the pattern of weak preterites; Flasdieck 1936:308–10, Lindeman 1968, Bammesberger 1986:60–1), speakers apparently extracted an infix *-er-, extended thence to the prets. of 'grow', 'row', etc. A similar explanation must lie behind OHG 3pl. *pleruzzun*, subj. 3sg. *ca-pleruzzi* 'worshipped' (to inf. *bluozan*), 3pl. *biruun*, subj. 2sg. *biruuuis* 'dwelled' (to *būan*), *ki-screrot* 'cut' (to *scrōtan*), *ana-steroz*, 3pl. *sterozun* 'pushed' (to *stōzan*), and probably also Cl. I 3pl. *scrirun*, ptcp. *gi-scriran* 'screamed', *er-scrirena* 'made scream' (to *scrīan*) and late OHG ptcp. *pespiren* 'spit' (to *spīwan*), which have influenced each other (cf. 3pl. *er-scriuun*; Flasdieck 1936:278–9, 279fn.1, Braune/Eggers 1975:274–5): so Streitberg 1896:327, Hammerich 1964:14, Bech 1969:15–22, Bammesberger 1986:65, 146n.11, contra Lehmann 1952:56–61, Connolly 1983 (*r* < laryngeal) and Flasdieck 1936:277–9 (*r* as hiatus-breaker, with refs. going back to Grimm).

and TB Class II preterites a typological parallel for the Gothic vs. NWGmc. pattern and therefore proposed, though without venturing into phonetic details, that TB *śārsa* represented a contraction of a PT reduplicated preform preserved more faithfully in TA *śaśārs*.

This hypothesis is followed by Flasdieck himself (1936:251–2), Pedersen (1941:187), Couvreur (1947:69), Krause (1952:175), and Krause and Thomas (1960:244–5), as well as more recent studies such as Saito (1997:155); it is implicitly assumed in comparisons with reduplicated aorist formations elsewhere in IE, e.g. Jasanoff (1987:93fn.4): "I think it more than likely that the class II (reduplicated) preterites continue the same formation as the Indo-Iranian and Greek reduplicated aorist, albeit with the secondary addition of **-ā-* from class I."[10]) But attractive as Schulze's proposal was, it could not convince those who objected to the irregular phonological developments required to derive *śārsa*, *cāla*, *myāyawa*, etc. from reduplicated preforms. The relative archaism of TB as compared to TA doubtless played a role in furthering the suspicion of some scholars that the TB Class II preterites cannot continue the same formation as their TA counterparts, but must instead reflect a separate type, possibly (also) of *voreinzelsprachlich*, i.e. (post-)PIE vintage. Such is the view of Lane (1948:307–8, 1953:281–4), who equates the TA Class IIa imperfect type of *lyāk* 'was seeing, used to see', 3pl. *śārsar* 'knew, was aware', etc. with the TB prets. *lyāka* 'saw', *śarsāre* 'knew', etc. and emphatically rejects Schulze's explanation: "As in the case of the Germanic forms so also in that of the Tocharian...the long-vowel preterits and imperfects in question have in origin nothing to do with the reduplicated forms. The coincidence in grammatical meaning between causative preterits like Kuch. *śārsa* : Turf. *śaśārs*, or Kuch. *cāla* : Turf. *cacäl* (to *täl-* 'lift') is purely accidental" (1953:282). He instead associates the TB Class II preterite, and the small set of TA imperfects with palatalized initial consonant followed by stem-vowel *ā* (Class 3, 1 in Krause and Thomas 1960:220–1), with long-vowel preterites in Latin and Germanic: TA impf. mp. *pārat* 'was carrying', cf. Goth. 1pl. *bērum* 'bore, carried'; TB pret. *lyāka*, TA impf. *lyāk*, cf. Lat. 1sg. *lēgī* 'read' < *'gathered'.[11]) Adams (1988:87–8) concurs, and suggests that PT inherited two aorist formations from (post-)PIE which were later specialized in causative function in Tocharian: a reduplicated aorist comparable to that of Greek or Indo-Aryan, preserved only in TA, and a "functionally equivalent" *ē-grade aorist, which survived and was generalized in TB. The same opinion is followed by Pinault (1989:149), although the only argument he gives for rejecting Schulze's hypothesis is that "les conditions de la "contraction" survenue en tokharien ne seraient pas claires."

To be sure, this view cannot be disproved, since it is certainly conceivable for two or more closely related languages each to generalize different formations existing in their common ancestor; within IE, one need look no farther than the various (originally periphrastic?) derived perfects of the Italic languages.[12]) Nevertheless, the exact match in function and distribution between the Class II preterites of TA and TB

[10]) Contra Jasanoff (1983:55 ff. with earlier refs.), the all but universal PT preterite suffix **-a-* does not continue PIE **-ā-*, but instead was originally proper to PIE root aorists of *seṭ* roots which survived into Tocharian and were remodelled as Cl. I prets. (Schmidt 1982, 1997b:255–7, Ringe 1996:34–5; see now Jasanoff 1992:151fn.25). Cf. TB 2sg. *śtasta*, 3pl. *śtare* (w. dial., for *śtāsta**, *śtāre**) 'scattered, sowed' < PT *śəta- < PIE *kedh$_2$- (Hom. σκέδα-σα), TB 3sg. *śama*, *ścmā(-c)*, TA *śäm* 'stopped, came to a stand' < PT *ścə́ma < PIE *stemb^{h}H-d (Ved. *ástambhīt*); TB 1pl. *käryām* 'we bought' < PT *k^{w}ərʸya- < *k^{w}rih$_2$- (Ved. *krītá-* < *k^{w}rih$_2$-tó-; Gr. aor. 3pl. ἐπρίαντο < *é-k^{w}rih$_2$-ento, whence 3sg. ἐπρίατο [Rix 1976:215]).

[11]) For the semantics, cf. English 'gather' in the meaning 'observe, infer'. Weiss (1993:179–81) interprets these and certain other Latin perfects in *ē* as dissociated imperfects of inherited PIE Narten roots with generalization of lengthened-grade sg. **ē* (vs. pl. **e*); on the possibility of a similar origin for TB *śem*, Lat. *vēnī* (so Schindler 1994:398), see R. Kim 2001:140fn.50. On PGmc. Class IV and V pret. pls. in *ǣ < *ē, see § 3 below.

This view presupposes that *a*-umlaut, the sound change by which pre-PT sequences of *ë...a (*ë unstressed) > *a...a (first observed by Winter 1962:32–3), also affected PT *e < PIE *ē: PIE *lēg- → pre-PT *l^{ʸ}ek-a- (with pret. suffix *-a- from originally seṭ roots, see fn. 10) > *l^{ʸ}aka > TB *lyāka*, TA *lyāk*. Clear-cut examples of this change appear to be lacking, however: forms such as TB *piśāka*, *p$_i$śāka* 'fifty' (see fn. 24) < PT *p^{ʸ}əñśaka < *p^{ʸ}əñśeka < *penk^{w}ēkōmt ← *penk^{w}e (d)kōmt 'five tens' (cf. Gr. πεντήκοντα) may be analogical to e.g. TB *täryāka* (TA *taryak* with unexplained first *a*) < PT *tər^{ʸ}yaka < PIE *trih$_2$ (d)kōmt (cf. Gr. τριάκοντα). Possible evidence that PT *e was not affected by a following *a in TB comes from *weśeñña* 'voice', clearly built to the same PIE root *wek^w- as TB *wek*, TA *wak* 'voice' < PT *wëkə < PIE acc. sg. *wók^{w}m̥ (Gr. ὄπα, Lat. denom. *vocāre* 'call'; on delabialization of *k^w next to *o, see R. Kim 1999:149–50, 159–61) and TB *weñ-*, TA *weñ-* < PT *wëñn- < *wëk^w-ñn^ə/$_ë$- (Winter 1977:133–4, 148 ff., Ringe 1996:164). Although the morphology of this noun is unclear, the palatalized *ś* suggests that the following *e* continues PT *e (< *ē), hence PT *wëśeñña < *wëk^{w}enya < (virtual) *wok^{w}ēnih$_2$ or the like. (Thanks to Don Ringe for bringing this form to my attention.)

[12]) For a discussion of the formation of the perfect in Sabellic, and the likelihood that the suffixes of both Oscan and Umbrian replaced an originally periphrastic Proto-Italic perfect preserved in Latin, see Rix 1992:237–40.

makes it more likely that they are formally cognate as well and share a common origin. The burden of proof is on those who would assume that two formally distinct preterites coexisted in the pre-PT period – identical in function and built to the same roots – and that one was completely generalized in TA, the other in TB, with neither language preserving a single trace of the eliminated alternant.

As observed by Krause (1952:174) and Krause and Thomas (1960:244–5), the attested forms of the TB Class II finite preterite exhibit the following peculiarities:

1. The initial consonant of the root is palatalized if it undergoes synchronic alternation in TB. Hence roots in /t-/, /s-/, /k-/, /k^{w}-/, /n-/, /l-/, /w-/[13]) form Cl. II prets. in *c-*, *ṣ-*, *ś-*, *ś-*, *ñ-*, *ly-*, *y-*, respectively.
2. If the initial consonant does not participate in synchronic alternation, it instead occurs with "secondary palatalization": *py-*, *my-*, *tsy-* to roots in /p-/, /m-/, /t^{s}-/, respectively (Krause and Thomas 1960:64).[14]) Two roots beginning with /k-/ also belong here: sg. 1 *kyānawa*, 2 *kyānasta* (MQR), 3 *kyāna* to /kən-/ 'come about, happen',[15]) 3pl. *kyauware* to /kəw-/ 'pour'.
3. The root vowel is *ā*, underlyingly /á/. In virtually all TB texts which provide orthographic evidence for stress, i.e. in central and eastern dialect texts, this vowel remains stressed throughout the entire paradigm, and the customary stress shift to the second syllable in suffixed forms[16]) does not occur (so already Schulze 1934:243). Contrast Cl. I pret. /taká-/ in sg. 1 *takāwa* /takáwa/, 3 *tāka* /taká/ (*takā-ne* /taká-ne/ with suffixed 3sg. enclitic pronoun), pl. 2 *takās* /taká-sə/ 'was, were' with Cl. II pret. sg. 1 *myāskawa*, 2 *myāskasta-ñ*, mp. sg. 1 *myāskamai*, 3 *myāskate* 'exchanged (for oneself)' and the suffixed 3sg. forms *myāska-ne*, *cāla-ne*, *yātka-me*, *śārsa-me*.[17])

[13]) On /k^{w}/ as a phoneme in TB (and TA), see R. Kim 1999:142–5. Note that /t^{s}/ no longer participates in synchronic alternation with /ś/, in contrast to TA; see Krause and Thomas 1960:63–4 and already Schulze 1934:241.

[14]) This was incorrectly interpreted by Schulze (1934:245) as evidence for *py* and *my* as palatalized counterparts of /p/ and /m/. (On the synchronic status of the alternations *p-* ~ *py-*, *m-* ~ *my-*, see § 2 below.) Not surprisingly, the one root in initial /r-/ for which a Cl. II pret. is attested, /rəytta-/ 'join, unite', has mp. 3sg. *raittate*, 3pl. *raittäṃte*, pp. *rerittu* (Krause 1952:176), with no sign of palatalization, primary or secondary; similarly for roots in initial /tr-/ and /pr-/, e.g. *traika-ne* 'led astray, confused', *prautka* 'fulfilled'.

[15]) But note 3pl. *kānare* without *y*. On these forms, see fn. 31.

[16]) Actually the appearance of underlying second-syllable stress on the surface. Pinault's view (1989:149) that "la voyelle radicale *ā* reste longue, même lorsqu'elle est inaccentuée" is incompatible with the generally accepted understanding of the TB vocalic system. It cannot be overemphasized that there is *no* persuasive evidence for phonemic vowel length in either Tocharian language; see most recently Schmidt 1997a.

The first of these, root-initial palatalization, is anything but exceptional within Tocharian morphology: an association between palatalization and causativity or transitivity recurs in other verbal categories, e.g. the act. sg. (and in TB, du./pl.) of ablauting Class I preterites (Winter 1980:430ff.), or the Class III preterite (e.g. TB *kauwa* 'I killed', *śauwa-me* 'I caused them to be killed'; Ringe 1990b:189–90), however this may have come about. The other two features, however, may be considered synchronic irregularities. Among the verbal categories of TB, initial stress is otherwise found only in the Cl. I and V subjunctives and the pres./subj. of "causatives", to judge from central/eastern dialect spellings (see fns. 1, 2). All other paradigms, including the remaining preterite classes, exhibit underlying second-syllable stress, which may shift to the first syllable by the well-known retraction in underlyingly disyllabic forms or other, more specific accentual rules.[18]) Of course, the initial stress of the causative pres./subj. could simply have been extended to the pret., but as the origin of the former is itself unknown (see fn. 75), such an appeal to analogy is less than satisfying.

Most puzzling of all is the so-called "secondary palatalization" of root-initial consonants which lack synchronic palatalized counterparts in the phonological system of TB. Unlike the widespread alternations between e.g. *c* and *t* or *ly* and *l*, the alternation of *py*, *my*, *tsy* with *p*, *m*, *ts* is almost entirely confined to the formation in question. Krause

[17]) The only exceptions in the table given above are *śarsāre* (Kuča) 'they knew', *klyautkā(m)t(e)* (Murtuq) 'we made (happen)', *myārsā-ne* 's/he forgot him/her/it', *raittānte* 'they joined' (Šorcuq; alongside *raittante*), *śānmyāre* (Kuča) 'they bound', and *tsyālpāte* (Šorcuq) 's/he redeemed'. The reason for these irregularities is unclear: except for *klyautkā(m)t(e)* (Couvreur 1947:69fn.50a), none appears to be from a western dialect text.

[18]) See Marggraf 1970:15–7, Ringe 1996:xxi-xxii, xxiv on stress retraction from underlyingly final syllables. Winter (1993:199–201) has explained Cl. III prets. such as 3sg. *préksa*, *préksa-ne* 'asked (him/her)', mp. 3pl. *párksante-ne* as underlying /prekə́sa, -ne/, /pərkə́sante-ne/, with deletion of /ə́/ before /s/ and stress retraction to the first syllable.

(1952:21–2, 174), Krause and Thomas (1960:64, 245), and Pinault (1989:48, 149) have all noted this distributional peculiarity, but none has commented on it or attempted to explain how these highly restricted morphophonological alternants could have arisen.

Of the two hypotheses discussed above, it is clear that the *ē*-preterite favored by Lane and Adams accounts for neither of these two idiosyncrasies. Certainly the accentual development of a PT *C^{y}e(R)C-a- in TB ought to have been no different from, say, that of a Class I preterite such as /ścəmá-/ or /taká-/, e.g. TB 3sg. *śama*, *ścmā-c*, 3pl. *śimāre* /ścəmá-Ø, -cə, -re/, *tāka*, *takāre* /taká-Ø, -re/.[19]) Even worse, a root vowel *ē > PT *e fails to account for the secondary palatalization of forms such as *pyālka* or *tsyāra*: roots in initial *p-, *m-, *t^{s}- should have had preterites in PT *p^{y}e-, *m^{y}e-, *t^{sy}e- (*śe-), whence *p^{y}a-, *m^{y}a-, *t^{sy}a- (*śa-), assuming *a*-umlaut of *e (see fn. 11), and then regularly TB "*pa-*", "*ma-*", and analogical "*tsa-*". Since it is precisely these unusual formal characteristics which any proposal should seek to explain, I believe that the *ē*-aorist hypothesis must be abandoned.

2. *Internal and comparative reconstruction*

Let us reconsider Schulze's original proposal of dissimilation and contraction in TB from a PT reduplicated preform better preserved in TA. The formation of the TA Cl. II preterite is fairly straightforward: many roots of the shape *Cä(R)C-* form a preterite stem *C^{y}aC^{y}ä(R)C-*, where *C^{y}* stands for the morphophonemically palatalized counterpart of the root-initial consonant. This then takes the normal person-number endings of the Class I (non-causative) preterite: hence *śaśärs* 's/he knew', *kakälypā-ṃ* 's/he attained it', *cacäl* 's/he endured', *ñañwār* 'they roared', *ṣaṣärp* 's/he indicated'; mp. *papälykāt* 's/he burned, was tormented'; *lyalymā-ṃ* 's/he set it', mp. *lyalymāt*; *śaśmāwā*, *śaśäm*

[19]) TA 3pl. *ṣtamar* < *stĕmarë, with *a* < *ë unaffected by *a*-umlaut of unstressed *ë, shows that the stress lay on the first syllable in PT (Cowgill 1967:176–7); likewise for TB *pratsāko*, TA *pratsak* 'chest' < PT *prĕt^{s}ako < *protyōk^{w}- < PIE *proti-h$_3$k^{w}-om 'face (or sim.)' (Skt. *prátīkam* 'surface, face'; see Adams 1984:400 on possible Wackernagel lengthening as in Gr. πρόσωπον 'face'). The second-syllable stress of TB in /ścəmá-/ and other originally ablauting Cl. I prets., as well as 'face', must be due to "accent-throwing" (Ringe 1987:258 ff.; see fn. 32). TB has generalized *a*-umlaut to stressed PT *ĕ; see Cowgill, op. cit. and Ringe 1987:262, 1996:160–2.

'I, s/he made stand'; *śaśrāṣt* 'you separated'. Other verbs, however, lack initial palatalization in base and reduplicant: the list in § 1 includes *kakräṃ* 's/he struck', *kakäl*, *kaklār* 's/he, they endured, suffered', *kakälnār* 'they sounded', *kakälts* 's/he threatened', mp. *nanätkāt* 's/he supported her/himself', *sasätkār* 'they made spread', *saspärkānt* 'they disappeared, were destroyed', *saspärtu* 's/he turned', *sasrukāt* 's/he was killed'.[20]) The latter examples, pointed out by Harðarson (1997:95), have been ignored in most other historical treatments of the Class II preterite; as will shortly be argued (§ 3), both palatalized and nonpalatalized forms result from analogical leveling of pre-TA sg. *C$^{(y)}$a-C^{y}ä(R)C- ← PT *C^{y}ə-C^{y}ə(R)C-.[21])

[20]) Note that in all reduplicated formations in Tocharian, the palatal or nonpalatal quality of the reduplicant-initial consonant always matches that of the base-initial consonant (as Pedersen [1941:187] observed for the TA Cl. II pret.; see also Lindeman 1969:22 on the pret. ptcp. and van Windekens 1982:109, 110, 111); on the apparent exception TA *lalyutäk*, see fn. 21. The analogical depalatalization of isolated forms such as TB *kokále*, TA *kukäl* < PT *k^{w}ə́k^{w}lë ← *k^{wy}ə́k^{w}lë < PIE *k^{w}ék^{w}los (see below) indicates that this process of matching reduplicant and base palatalization had already begun in the pre-PT period. Hence the pattern of palatalization in pret. ptcps. provides no basis for determining whether the productive reduplication vowel TB *e*, TA *a* reflects PT *ë (< PIE *o) or *e (< PIE *ē).

Lindeman (1969:20–3) argues for PT *e < PIE *ē (which he incorrectly refers to as "Kürzung"), comparing Indo-Iranian perfects with reduplicating *ā*, e.g. Ved. *dādhára* 'has held (on)', *vāvárta* 'has turned around' (Macdonell 1910:351–2), Av. 1sg. *dādarəsa* 'have seen' (cf. Ved. *dadárśa*), and the isolated Hom. pf. δηδέχαται, plupf. δήδεκτο, δηδέχατο to δέχομαι 'accept, welcome' and Att. ἐγρήγορα 'am awake' (Hom. 3pl. ἐγρηγόρθᾱσι [*Il.* 10.419], iptv. 2pl. ἐγρήγορθε 'stay awake!' [*Il.* 7.371, 18.299]) to ἐγείρω 'awake, rouse, stir up'. The long vowel of the latter is historically justified, however: (post-)PIE pf. *h$_1$ge-h$_1$gór-e > Ved. *jāgára*, Gr. *ἐγήγορα → ἐγρήγορα, whence other examples of "Attic reduplication", e.g. Hom. ὄλωλε 'has perished, is dead/ruined' (*Il.* 15.111), mp. 3pl. ὀρωρέχαται 'stretched forth' (i.e. 'galloped', of horses; *Il.* 16.834) to ὄλλῡμι 'destroy', ὀρέγω 'stretch/reach (out)', Att. ἀκήκοα, Ion. ἀκήκουκα (Herodotos; cf. Lak. ἄκουκα) to ἀκούω 'hear' (Schwyzer 1939:766). The reduplicating *ā* of such laryngeal-initial roots could then have spread within Ved. and Av. as a convenient prosodic alternant: see Jamison 1988:217 ("the relative metrical shape of reduplication and root syllable [is] an area especially susceptible to manipulation for convenience or effect"), Krisch 1996 (esp. pp. 48–57), and see § 5 below on the Skt. reduplicated aorist. As for Hom. δηδέχαται, δηδέχατο, these are almost certainly for δεδέχαται*, δεδέχατο*, whose sequence of three consecutive short syllables would not have fit the meter; hence δήδεκτο for δέδεκτο* (Schwyzer 1939:648: "wohl rhythmische Dehnung"). Since the pret. ptcps. do exhibit *a*- and *o*-umlaut (e.g. TB *papaikau*, *sosoyu*; see below), and there is slim evidence that *e did not undergo *a*-umlaut (see fn. 11 on TB *weśeñña*), I tentatively reconstruct this vowel as PT *ë.

[21]) TA *lalyutäk* 'made (happen)' < *la-l^{y}äwtk-a ← PT *l^{y}ə-l^{y}əwtk-a *may* un-

Should we therefore automatically reconstruct pre-TA *$C^{(y)}$a-$C^{(y)}$ä(R)C-ā-, and by extension PT *$C^{(y)}$ë$C^{(y)}$ə(R)C-a-, as the ancestors of the TA preterite? Not necessarily: although a PT 3sg. *śëśərs-a, for instance, would certainly have developed to TA *śaśärs*, other preforms can also have produced the root vowel *ä* (underlyingly /Ø/) by sound change. Consider how the paradigm of a PT stem *śëśërs- or *śëśers- would have evolved in TA:

1sg.	*śëśërs-a-wa	> *śaśarsāā	> *śaśarsā	> *śaśärsā	> *śaśärsā**
2	*śëśërs-a-sta	> *śaśarsāstā	> *śaśarsāst	> *śaśärsāst	> *śaśärsāṣt**
3	*śëśërs-a-Ø	> *śaśarsā	> *śaśars		> *"śaśars"*
1pl.	*śëśërs-a-mə	> *śaśarsām	> *śaśarsām	> *śaśarsām	> *śaśärsām**
2	*śëśërs-a-sə	> *śaśarsās	> *śaśarsās	> *śaśarsās	> *śaśärsās**
3	*śëśërs-a-rë	> *śaśarsāra	> *śaśarsār	> *śaśarsār	> *śaśärsār**

Outside the 3sg., the TA sound change generally referred to as "vocalic balance" (Krause and Thomas 1960:45–7, Adams 1988:28–9, Pinault 1989:45)[22]) has raised the *a* of the second syllable to *ä*, thus giving the correct stem vocalism. Based on alternations such as pres. ptcp. *eṣant* 'giving', pl. obl. *eṣäntās* < PT *aiṣṣënt-a, *-a-sə (? cf. TB *aiṣṣeñca*) or *āknats* 'ignorant', pl. nom. *āknt̄sāñ* < PT *aknát^{s}a, *aknát^{s}añə (TB *aknātsa*, *aknātsañ*), this change, which requires a "full" vowel (i.e. *ā*, *a*, *e*, or *o*) in the first and third syllables, must have taken place after apocope of word-final PT vowels[23]) and so would not have applied to the 3sg. The stem vocalism of *śaśärs* and the like can easily result from analogy to the rest of the paradigm, but it may, of course, directly

iquely preserve a contrast in palatalization between stem and reduplicating syllable. If so, this would not be the only case in which verbal stems in initial *l- are archaic with respect to palatalization: cf. the TB Cl. III (*s*-)preterite, which has lost the inherited stem-initial palatalization in all forms (e.g. *neksa*, *tessa* ← PT *ñekə́sa, *cesə́sa [see fn. 18] vs. TA *ñakäs*, *casäs*) except for *plyeṅksa* 'sold' (1pl. *plyeṅkám*, 3pl. *plyeṅkáre* for *-ár**), *lyauksa* 'illuminated, lit', *lyautsa-ñ* 'he banished me' (lit. 'drove me forth'; 3pl. *lyautár*) to /plənk-/, /ləwk-/, /ləwt-/ (Ringe 1990b:185–9). The stem-initial palatalization has spread to the reduplicant in mp. *lyalyutkāt*; cf. Cl. III pret. mp. TA *lyokät* 'it grew bright' (3pl. *lyokänt*), TB 3pl. *lyútstsante* 'they traversed, withdrew' (1sg. *lyútsāmai* for *-amai**, 2sg. *lyútstsatai*, all w. dial.; pres. *lutásträ*), with *ly-* for expected *l- by analogy to act. *lyokäs* (TB *lyauksa*), *lyautsa (-ñ)*.

[22]) Also "vowel weakening" (D. Ringe, 1997 class notes).

[23]) As well as after the raising of (PT *a >) pre-TA *ā > *a in words containing a full vowel in the first syllable: cf. *āknt̄sāñ* < *āknat^{s}āñ < *āknāt^{s}āñ < PT *aknát^{s}añə, just cited.

continue *$C^{(y)}$ë$C^{(y)}$ə(R)C-a-; the latter possibility will be further explored in § 3.

The TA reduplicated preterite may therefore continue PT *$C^{(y)}$ë-$C^{(y)}$ə(R)C-a- or *$C^{(y)}$ë$C^{(y)}$ë(R)C-a- (*$C^{(y)}$ë$C^{(y)}$e(R)C-a-). Could either of these stems have developed, via a combination of sound change and analogical restructuring, into the synchronically unreduplicated TB forms?

Any response to this question must address the peculiarities of the TB data, in particular to the unusual initial clusters *py-*, *my-*, *tsy-* of roots in initial /p-/, /m-/, /t^{s}-/. What could the sequences *pyā-*, *myā-*, and *tsyā-* denote in underlying terms? Certainly not /p^{y}a-/, /m^{y}a-/, /t^{sy}a-/, which would correspond to surface "*pa-*", "*ma-*", "*tsa-*", with stress on the following (underlyingly second) syllable; furthermore, there is absolutely no justification for positing synchronic /t^{sy}/ in TB, and the evidence for underlying /p^{y}/ and /m^{y}/ distinct from /p/ and /m/ is limited to a few alternations in verb paradigms.[24]) The suspicious restriction of "secondary palatalization" to this one category strongly suggests that the forms in question are in fact to be analyzed otherwise.[25])

[24]) See Krause (1952:5–6) for examples of /p^{y}ə-/ and /m^{y}ə-/ surfacing as *pi* (*p$_{i}$*), *mi*. Note the following alternations: *piś* /p^{y}əśə/ 'five' vs. *p$_{i}$śäka* (alongside *piśäka*) /p^{y}əśaka/ 'fifty'; pret. act. 3pl. *pirsāre* /p^{y}ərsáre/ vs. mp. 3sg. *pärsāte* /pərsáte/ to /pərsa-/ 'sprinkle'; pret. ptcp. *memisku* /mem^{y}ə́skəwə/ vs. pres. *máskäṣṣäṃ* to caus. /məska-/ 'exchange' (R. Kim 1999:145–6fn.14; see fn. 52 below). In isolated nouns such as *mit* 'honey' < PT *m^{y}ə́tə < PIE *méd^{h}u 'sweet; honey, mead' or *misko* 'exchange' < PT *m^{y}ə́sko, *i* could of course have been reanalyzed as underlying /əy/; on the comparable reanalysis of e.g. TA *yuk* 'horse' < PT *yók^{w}ë < PIE *éḱwos from /yk^{w}/ to /ywk/ (i.e. from "rounded schwa" to "real" *u*), see Ringe 1998:613–4.

Note that TB *pyāktsi* 'beat, strike (down)' (cf. TA *pyākäṣ* 'post, stake') represents underlying /pyak-/ < PT *pyak- < PIE *pih$_{2}$-k-. Hackstein (1992) has made a thorough and convincing case for connecting this verb with Gr. root aor. πτη-(Hom. 2du. κατα-πτήτην), sigm. aor. πτῆξαι (→ Att. pres. πτήσσω) 'crouch, duck down (suddenly), be frightened' < PIE *pyeh$_{2}$-(k-).

[25]) Following the presentation of this paper at the East Coast Indo-European Conference on 1 Jun 2001, Jay Jasanoff suggested that roots in initial /p-/, /m-/, /t^{s}-/ could have developed morphological palatalization after the pattern of e.g. roots in /t-/ or /s-/ with Cl. II pret. *c-*, *ṣ-*, but this does not explain why the same secondary clusters with *y* are not found in, say, Class II presents, where the morphological alternation of stem-final palatalization in 2, 3sg., 2pl. vs. nonpalatalization in 1sg., 1, 3pl. (reflecting the inherited alternation of *e ~ *o in the thematic vowel) is fully retained: one finds TB pres./subj. 3sg. *cämpäṃ* (Cl. II, cf. TA 3pl. *cämpe* < PT *cəmpën; *-päṃ* for *-piṃ < *-p^{y}ə- by analogy to other Cl. I and II

I suggest that initial *Cyā-* here represents not palatalized consonant + /a/, but instead underlying /C$^{(y)}$əya-/.[26]) This immediately explains the third peculiarity listed above in § 1: at some stage of pre-TB, stress in (most) verbal categories was fixed on the second underlying syllable, hence on /a/ in /C$^{(y)}$əyá-/. Since the Cl. II pret. stem is followed by at least one additional syllable, stress retraction from final syllables does not apply: the result is a constant stress-bearing *ā* throughout the paradigm.[27])

If all Cl. II preterites were originally of the form *C$^{(y)}$əyá-, the distribution of ordinary vs. "secondary" stem-initial palatalization could have arisen in the following way. Since the /ə/ of the initial syllable would never have received surface stress, initial /cəyá-/ (or /təyá-/), for instance, could easily have been reanalyzed by speakers of prehistoric TB as /cyá-/ (or /tyá-/), with morphologically marked stress on the initial syllable. A parallel is provided by *medium tantum* verbs such as *kwātär* 's/he calls' < PT *kəwá-tər < PIE *ǵ^{h}uH- 'call, invoke' (cf. Ved. 1sg. *huvé*), where the absence of underlyingly disyllabic forms with stress retraction, i.e. with stressed /ə/ realized as *a*, may have led to reanalysis of the stem /kəwá-/ as /kwá-/ (Ringe 1996:33–4, n. 1).

Underlying sequences of /Cy/ in pre-TB must have been rare at best, since pre-PT *Cy resulted in PT palatalized geminate *C^{y}C^{y}, e.g. in the gerundive ending *-lle* ~ *-lye*[28]) /-l^{y}l^{y}e/ < PT *-l^{y}l^{y}ë < *-lyo- ← PIE *-lo- or the Cl. XII suffix /-ññə-/ ~ /-ññe-/ < PT *-ññ^{ə}/$_{ë}$- < PIE nominal *-n- + denominative *-y^{e}/$_{o}$- (Hilmarsson 1986:316ff.; Adams 1988:35, 44fn.4; Ringe 1996:116–7).[29]) If speakers of pre-TB treated a secondary yod-cluster such as *cy in an identical manner – giving *-cc-* word-internally and *c-* in initial position[30]) – underlying *cəyá-, reinterpreted as *cyá-, would have resulted in /cá-/, e.g. *cəyála- → *cyála- > /cála-/ in 1sg. *cālawa*, 3sg. *cāla* 'I, s/he endured'. All Cl. II preterites to roots in initial /t-/ appear to have undergone this secondary deyodization or gemination, as have those to roots beginning with other coronal consonants: *şy- → *ş-*, *ñy- → *ñ-*, *l^{y}y- → *ly-* /l^{y}-/; for roots in /k-/ the evidence is ambiguous, but at least mp. 2sg. *śātkatai* 'you trespassed' and mp. 1sg. *śālamai* 'I led', as well as *śārsa*, *śārsa-me*, should likewise have evolved via a sequence of changes *k^{y}əyá- > *śəyá- > *śyá- > /śá-/.[31]) Preterites beginning in consonants whose palatalized and nonpalatalized counterparts merge, namely /p/, /m/, and /t^{s}/, either preserve the underlying disyllabic form /Cəyá-/ or have been reanalyzed as /Cyá-/, with maintenance of the consonant + *y* cluster. As for roots in initial /y-/ or /w-/, *yəyá- and *w^{y}əyá- would both have become *yəyá- > *yá-, with automatic reduction of the initial geminate [yy-].[32]) These developments are summarized in the table below:

3sg. forms), not *"campyäṃ"* or the like. Note especially pret. act. 3pl. *pirsāre* /p^{y}ərs-á-re/ vs. mp. 3sg. *pärsāte* /pərs-á-te/ to /pərsa-/ 'sprinkle' (fn. 24), exactly parallel to *cärkāre* /cərk-á-re/ vs. *tärkāte* /tərk-á-te/ to /tərka-/ 'let go' (§ 3, fn. 38), with the morphological alternation of /p^{y}/ ~ /p/ faithfully preserved and reflected in the stem vowels *i* vs. *ä*. – On another minor category with secondary *py*, *my*, see fn. 6.

[26]) On the palatalization of the root-initial consonant, see below.

[27]) Cf. Ringe (1987:266): "Class II preterites clearly result from the contraction of old reduplicated forms by elimination of the root-initial consonant (Krause and Thomas (1960), pp. 244–5); the accented second syllable thereby became initial, and that accounts for the initial accent of the TB forms."

[28]) The orthographic variation between *-ll-* and *-ly-* appears to be at least partially conditioned by dialect: see Winter 1955:224 on fem./neut. pl. *-llona* (western/central) vs. *-lyana* (eastern).

[29]) However, pre-PT *ty and *t^{h}y developed to PT *t^{s}, e.g. in 'chest' (see fn. 19), TB /t^{s}aka-/ (pret. ptcp. *tsatsākau*) 'bite (of snakes), put out (the eyes), cause pain' < PT *t^{s}ak-(a-) < *t^{h}yag^{w}- < PIE *d^{h}ih$_2$g^{w}- 'stab', and probably also TB *petso*, TA *pats* 'husband' < PT *pët^{s}o < *poty- to PIE *pótis 'master, husband' (Winter 1962:20–2).

[30]) Probably due to a phonotactic constraint against initial geminates rather than simplification of erstwhile "/cc-/" (Ringe 1996:116). Cf. OIr. *-st- > *-ss-* in *·sissedar* 'places' < *sista- ← PIE *sti-sth$_2$- vs. initial *st- > *s-* in *ser* 'star' < *ster- < PIE *h$_2$ster- (Thurneysen 1946:96, 133).

[31]) But *kyāna* 's/he accomplished, made happen' (1sg. *kyānawa*, 2sg. *kyānasta*; 3pl. *kānare* for *kyā-*?), 3pl. *kyauwar(e)* 'they poured'. The origin of this *ky-* is unclear: note that the same cluster recurs in subj. mp. 1sg. *kyānamar* 'I will make happen' (cf. TA *knāsam*, fn. 2). If pret. 2sg. *kñanasta* (for *kñā-*), listed by Krause (1952:230), has been correctly read and interpreted, might *kyān-* in the other pret. forms and *kyānamar* be dissimilated from *kñān-? I cannot follow Hackstein (1995:238) in correlating the contrast between *ky-*, *py-* and *c-*, *ś-* with aniṭ- and seṭ-roots, respectively.

No examples of Cl. II prets. to roots in initial *k^{w}- are attested. It is likely that *k^{w}əya- would have merged with *kəya- to give */śá-/, with loss of labialization as in cases of original palatalization of labiovelars, e.g. TB *śtwer*, TA *śtwar* 'four' < PT *śətwĕr^{y}ə < PIE *k^{w}etwóres.

[32]) Cf. the following two nouns of the shape *SəSV-, where S is a sibilant; in both cases the *ə was probably stressed in PT, so that we must assume an accentual shift ("accent-throwing" from initial syllables? see Ringe 1987:258ff. for TB) prior to syncope of *ə:

TB *ṣer*, TA *ṣar* 'sister' < *ṣërə < PT *ṣw^{y}ə́sërə < PIE acc. sg. *swésorm̥ (Ved. acc. *svásāram*, Lat. *sorōrem*, OIr. *sieir*, Hesykh. ἔορ · θυγάτηρ. ἀνεψιός

pre-TB		TB	pre-TB		TB
*cəyá-	*cyá-	/cá-/	*p^{y}əyá-	*p^{y}yá-	/pyá-/
*ṣəyá-	*ṣyá-	/ṣá-/	*m^{y}əyá-	*m^{y}yá-	/myá-/
*ñəyá-	*ñyá-	/ñá-/	*t^{sy}əyá-	*t^{sy}yá-	/t^{s}yá-/
*l^{y}əyá-	*l^{y}yá-	/l^{y}á-/			
*k^{y}əyá-	*k^{y}yá-	/śá-/			
*w^{y}əyá-	*w^{y}yá-	/yá-/			
*yəyá-	*yyá-	/yá-/			

The same "secondary gemination" has also occurred in the preterite participle, where TB has preserved the geminate in word-internal position, e.g. *śeśśarsu* '(having) informed, made known' < *śe-śəyárs-a- < pre-TB *śe-śə́yərs-a- ← PT *śë-śə́rs-a-; see § 4 below.[33])

Pre-TB *C$^{(y)}$əya(R)C-a- may in turn be traced back to PT *C$^{(y)}$əyë(R)C-a-, with *a*-umlaut of *ë to *a before the suffixal *a; another possibility is PT *C$^{(y)}$əye(R)C-a-, although it is not clear whether *a*-umlaut in TB also affected PT *e (see fn. 11). In either case, the stem vowel does agree with TA *ä* (/Ø/) which, as observed above, may continue pre-TA *a < PT *ë or *e. But what of the vowel of the reduplicant, for which TA requires *ë (see fn. 20) and TB *ə? The other productive reduplicated verbal category in Tocharian, the preterite participle, regularly has PT *ë: cf. TB *kekamu*, TA *kakmu* 'having come' < PT *k^{w}ëk^{w}əməwə, TB *tetemu*, TA *tatmu* '(having been) born' < PT *tëtëməwə (or *tëteməwə?); TB *papaikau*, TA *pāpeku* '(having) written' < PT *pëpaykawə (with *a < *ë by *a*-umlaut); TB *sosoyu* 'satisfied' < *sësoyəwə (with *o < *ë by *o*-umlaut). This *ë in turn must continue PIE *o, however this arose (copied from sg. *o of

'daughter, cousin', ἔορες · προσήκοντες, συγγενεῖς '(female) relatives'; Schindler 1967:249) – or rather PT *ṣw^{y}əsə́rə < *swesórm̥ < *swésorm̥ by the "*k^{w}etwóres-rule"? (so Rix 1990:44);

TB *ṣar* /ṣər/, TA *tsar* 'hand' < PT *ṣə́sər < PIE *ǵ^{h}és̥r̥ (Hitt. *kiššar*, abl. *kiš(ša/e)raz* < PAnat. *ǵesr-óti; Gr. Att. χείρ, gen. sg. χειρός, Aiol. χερρός < PGr. *χεhρός, dat. pl. χερσί < *χε(h)ρ-σί; Arm. *jeṙn*) – or rather PT *ṣəsə́r < PIE loc. sg. *ǵ^{h}esér(i)? (Rix 1990:44, citing Schindler 1967:248–9) – but the disparity in initial consonantism (PT *ṣ́s > TB *ṣ*, TA *ts*?) and vocalism (TB /ə/ vs. TA *a*) makes this less than fully certain.

Note that haplology has also apparently affected PT sequences of initial *yayá- (and probably *yV$_1$yV$_1$- in general): cf. TB *yāmu* < PT *yayáməwə < *yëyáməwə (masc. obl. sg., nom. pl. *yāmoṣ*, fem. *yāmusa*) to /yam-/ 'do, make', the sole Cl. I pret. ptcp. lacking synchronic reduplication in TB, whose consistent initial surface stress is also explained in this way; false van Windekens 1982:115–6.

[33]) On Cl. II pret. ptcps. to labial-initial roots, see fn. 52.

PIE perfect stems? so van Windekens 1982:111, Pinault 1989:149, Harðarson 1997:95).

By contrast, the PIE reduplicating vowel is generally reconstructed as *e (other than in certain present stems which reduplicated with *i),[34]) which would have given pre-PT *ə. Outside the preterite forms in question, this vocalism is preserved in only three forms in Tocharian, and in all three the reduplication has long since become synchronically opaque:

TB *kokále*, TA *kukäl* 'chariot' < PT *k^{w}ə́k^{w}lë ← *k^{wy}ə́k^{w}lë (see fn. 20) < PIE *k^{w}é́k^{w}los 'wheel' (deverbal noun to *k^{w}el(H)- 'turn', but almost certainly lexicalized already in PIE, cf. Ved. *cakrá-*, Gr. κύκλος, OE *hwēol*, *hweowol/hweogol*; see Ringe 1987:258–9, R. Kim 1999:163–5 on the phonological details);

TB *s̄a̧suwa* (suppletive pl. to *soy* 'son') < PT neut. pl. *səsə́wa 'begotten ones, progeny' < *su-suH- (or ← pre-PT *ṣəsə́wa < *se-suH- with analogical depalatalization; see fn. 20) ← PIE *suH- 'beget, bear' (Ved. pres. 3sg. *sū́te* 'begets, gives birth'; Krause 1956:196, Winter 1985:260, Ringe 1996:30–2);[35]) and

TB subj. act. 3sg. *tattaṃ*, pret. ptcp. *tättā$_u$* /tət(t)a-/ 'set, lay' (TA *tā-* in abstr. *tālune*, pret. ptcp. *to*) < PT *tətta- ← *t$^{(h)y}$ət$^{(h)}$a- < *d^{h}e-d^{h}h$_1$- to PIE *d^{h}eh$_1$- 'put, place'.[36]).

[34]) E.g. PIE *sti-steh$_2$- ~ *sti-sth$_2$- > Gr. ἵστημι, thematized *sti-sth$_2$-^{e}/$_{o}$- → Ved. *tíṣṭhati*, Av. *hištaṇti*, Lat. *sistō*, OIr. *·sissedar* (e.g. *fo·sissedar* 'support'); cf. also thematized *sisd-^{e}/$_{o}$- > Ved. *sī́dati*, Gr. ἵζω, Lat. *sīdō* 'sit down'. That at least some present stems reduplicated with *e is suggested by OLith. 1sg. *demì*, 3 *dẽsti* 'put, place' (Mod. Lith. thematized *dedù*, *dẽda*; cf. OCS *deždetь* < *ded-y^{e}/$_{o}$-) < *ded- < PIE (*d^{h}e-d^{h}eh$_1$- ~) *d^{h}e-d^{h}h$_1$-. This *e may have originated in the perfect, but must have become established in the pres. "schon in voreinzelsprachlicher Zeit" (Brugmann 1916:24, 104, 110–2). LIV, p. 16 posits a distinction for PIE between acrostatic redupl. pres. in *e with *o ~ *Ø ablaut vs. hysterokinetic in *i with *e ~ *Ø ablaut, hence *d^{h}é-d^{h}oh$_1$- ~ *d^{h}é-d^{h}h$_1$- vs. *sti-stéh$_2$- ~ *sti-sth$_2$-' (cf. Rix 1976:208, Peters 1980:93), but the actual evidence for such a system is scanty. Greek has of course generalized ι in pres. vs. ε in aor. and pf.; the few exceptions are probably late creations, e.g. pres. τετραίνω 'bore through, make a hole in' (backformed to Hom. aor. τέτρηνε? cf. Schwyzer 1939:647–8).

[35]) With the same assimilation of reduplicating vowel to stem *u as in Ved. pf. *śuśrāva* 's/he heard', caus. aor. *ábūbudhat* 's/he woke (somebody) up' or Lat. pf. *pupugī* 'I pierced', *tutudī* 'I beat, struck'

[36]) If the geminated medial *-tt-* in TB represents voiceless [-t-], it might indicate that this intervocalic /t/ did not undergo lenition in intervocalic position because it was treated as stem-initial, i.e. that /tət(t)a-/ continued to be analyzed as synchronically reduplicated into PT and perhaps pre-TB (Ringe 1996:xxv, 145).

Thus PT *ë (> TB *e*, TA *a*) is firmly established as the productive reduplication vowel in both Tocharian languages, with only the above relics continuing PT *ə < PIE *e (or, in the case of *śąsuwa*, possibly *u ← *e). Given the contrast between pre-TA *a and pre-TB *ə in the Class II preterite, these synchronic facts indicate that we ought to reconstruct *ə for PT, since this could easily have been replaced by *ë (> pre-TA *a) in the prehistory of TA – by analogy to e.g. the pret. ptcp. (see § 4; false Saito 1997:157) – whereas the opposite replacement of PT *ë by *ə in pre-TB would be difficult to motivate.[37])

3. From Proto-Tocharian to Tocharian A and B

We are now in a position to reconstruct a single PT ancestor for the Class II preterite. As just argued, the vowel of the reduplicant must have been *ə. The conflicting evidence for a stem vowel *ə (TA 3sg. forms such as *śaśärs*, *cacäl*) vs. *ë (pre-TB *C^{y}əya- ← *C^{y}əCë-; see below) – the rest of the TA paradigm can continue either, as already noted – calls to mind the alternation between *ə and *ë reconstructible for Cl. I preterites to roots with internal *ə, which has been faithfully preserved in TA. Cf. the preterite of the PT root *tərka- 'let (it) go', which forms a nasal-infix present (TA 3sg. *tärnāṣ*; TB *tärkánaṃ*, pres. mp. ptcp. *tär(k)nāmane*) cognate with Hitt. *tarna-* 'let go, release' (Benveniste 1932:142).[38])

Both TA and TB also have a stem reflecting PT *tas- ~ *təs- ~ *ces-, e.g. TB pres. 3pl. *taseṃ* /təs-/, ptcp. *taṣeñca* /tas-/, subj. inf. *tāsi*, iptv. 2sg. *ptes*, pret. *tessa*, mp. *tässāte*, TA pres. *tāṣ*, ptcp. mp. *tāsmāṃ*, opt. mp. *tāṣitär*, iptv. 2sg. *ptas*, pret. *casäs*, mp. 2sg. *tsāte*. I hope to discuss the complexities of this paradigm in the near future.

[37]) Thanks to Miles Beckwith for clarifying this argument for me. I find unconvincing Winter's (1994:302) suggestion that PT *C$^{(y)}$əC$^{(y)}$ə(R)C-, preserved in the pret. ptcp. (e.g. TB *ceccalor*, TA *caclu*, supposedly from PT *cë-cəcəl-; see below, § 4 and fn. 51), served as a zero-grade from which TB C$^{(y)}$əC$^{(y)}$a(R)C- (e.g. *cāla*) and TA C$^{(y)}$aC$^{(y)}$ə(R)C- (e.g. *cacäl*) were independently created.

[38]) Hitt. *tarna-* may continue *tr̥-né-h$_2$- (Oettinger 1979:155: nasal infix to *tarḫ-* 'overcome' < *terh$_2$-; Melchert 1984:25, fn. 52) or *tr̥K-néh$_2$-, with loss of velar stop (Melchert 1994:81, 167). The prehistory of the Tocharian verb is likewise unclear. Ringe (1996:164) considers TA *tärnāṣ* the regular outcome of PT *tərna-ṣə < *tərk-na-, with TB having restored the /k/ after the subj. and pret. However, Schmidt (1995:280–1, revising 1988:479–80, 1992:103–5) takes TA *tärnā-* to be the direct reflex of *tr̥nh$_2$-, following Winter's hypothesis (1960:184) that *tärnā-* originally belonged to the same paradigm as TB *träṅk-* 'lament', TA *träṅk-* 'say' < *'utter a word' (suppletive pres. to subj./pret. *weñ-*, cf. TB pres. *wesk-* < PT *wëññ-sk- and see fn. 11 above). According to Schmidt, pre-PT *tərna- and *trənk- were conditioned reflexes of the nasal present of *terh$_2$-, depending on whether the following ending began with a consonant or a vowel, e.g. 1pl. *tr̥-nh$_2$-mes- > PT *tərna-məsə > TA *tärnāmäs* vs. 3pl. *tr-n̥h$_2$-énti → *trənk-ənti > PT *trənk-əñcə > TA *träṅkiñc*; paradigm split then occurred, and preconsonantal *tärnā-* and prevocalic *träṅk-* became synchronically separate stems. If Schmidt's sound change of *h$_2$ > *k after a syllabic sonorant is correct (Schmidt 1988, 1989:308–11, 1992:103–5, 1995:275ff.; cf. Winter [1960:183–4], who however posits *h$_3$ in the roots underlying *träṅk-*, TB *nättaṅkäṃ* 'supports', etc.), the resulting alternations must have been eliminated in the subj. and pret., e.g. pret. mp. 3sg. *tr̥h$_2$-tó > *tərk-të vs. act. *térh$_2$-t > *cəra, whence PT *tərka- ~ *cərka- by crossing. – The *ḫi*-conj. inflection of Hitt. *tarna-* (pres. 3sg. *tarnai*) suggests that this verb formed a "*h$_2$e*-conjugation" present in PIE (Jasanoff 1994:163).

[39]) For the stress see fn. 19. As Winter (1980:430ff.) has demonstrated, stem-initial palatalization in the act. sg. of the Cl. I pret. is correlated with transitivity: among seṭ roots, i.e. those ending in TB /-a-/, TA *-ā-* < PT *-a-, palatalization is found in transitive verbs such as TB *carka*, TA *cärk* or TB *śala*, TA *śäl* 'led, brought' (to PT *kəla-), but is absent in intransitives such as TB 3pl. *sätkāre*, TA *stäk* (*sätkā-ṃ*) 'spread (out), extended' or TA *tsälp* 'passed away' (to PT *sətka-, *t^{s}əlpa-; TB 3pl. *tsälpāre* is indeterminate, see fn. 13). Note also that the former group take Cl. VI nasal pres. in PT *-na-, e.g. TB *tärkánaṃ*, TA *tärnāṣ*, TB *källäṣ-ṣäṃ* (with additional pres. suffix *-sk-), TA *källāṣ* (← *kälā- < PT *kəlla- < pre-PT *kəl-na-); the latter form Cl. III mediopassive pres. in TB *-e-*, TA *-a-* < PT *-e-, e.g. TB *sätketär*, TA *sätkatär*, TB *tsälpetär*, TA *śalpatär* (the last with irregular and probably archaic root ablaut).

The irregular palatalization observed in TB pret. *palyka*, 3pl. *pilykār* 'saw' (mp. *pälkāte*, ptcp. *pälkau*, cf. TA *pälkāt*, *pälko*; Krause 1952:158, Krause and Thomas 1960:239, van Windekens 1982:131) is the result of liquid metathesis (see fn. 70): pre-PT *pl^{y}əka- ~ *pləka- > PT *pəl^{y}ka- ~ *pəlka- > TB *palyka* vs. *pälkāte*. TA pret. *kcäk* 'crossed over' (3pl. *katkar*, ptcp. *kätko*) is an innovation for *śtäk (cf. TB *śatka* < PT *śətka): once epenthesis and syncope had eliminated *ä < PT *ə as a phoneme (cf. Jasanoff 1987:110fn.42), confusion between roots of the shape *CäCC- and *CCäC- would have been inevitable. On the complicated paradigm of 'stretch', see Hackstein 1995:26–7, Ringe 2000:124–5.

[40]) TB has generalized *ə and, in cases such as *carka*, *śarsa* 'knew', *lyama* 'sat' (TA *śärs*, *lyäm*; see fn. 39), the stem-initial palatalization of the sg. to the pl.: hence 3pl. *śimāre* /ścəmáre/ 'came to a stop', *śtare* (for *śtāre**) /śətáre/ 'scattered' ← PT *stə́ma-rë, *kə́ta-rë (TA *ṣtamar*, *katar*). The unique surviving relic of non-sg. ablaut in the TB pret. is 3du. *stāmais* 'they two came to a stop' < *stama-ysə < PT *stə́ma-, identified by Adams (1978:284) and Ringe (1990a:91fn.81).

[41]) The origin of this bizarre *o*-grade, for expected weak Ø-grade, has defied generations of scholars working on Tocharian: cf. Pedersen 1941:183–5 (false: TA

	TB	TA	PT	PIE
3sg. act.	*carka*	*cärk*	*cə́rka*[39])	*térh$_2$-t
3pl.	(*cärkāre*)[40])	*tarkar*	*tə́rkarë	*torh$_2$-n̥t (??)[41])

3sg. mp.	*tärkāte*	*tärkāt**	*tərkatë	*$t_{\underline{r}}h_2$-tó

I suggest that the same alternation also characterized Class II preterites, i.e. that the latter had the stem variants *C^{y}ə-C^{y}ə(R)C-a- and *C^{y}ə-Cë(R)C-a-. The consistent stem vowel *ä/Ø* of the TA paradigm would then have arisen by regular sound change, with vowel weakening in the pl. leveling the opposition between sg. *ä < *ə and pl. *a < *ë, e.g. *śaśars-ā-mä, *śaśars-ā-sä, *śaśars-ā-ra > *śaśärsām**, *śaśärsās**, *śaśärsār** (see § 2). On the other hand, the pre-TA reduplication vowel *ä (< PT *ə) has been replaced by *a, resulting in sg. *Ca-C^{y}-ä(R)C-ā- ~ du./pl. (*Ca-Ca(R)C-ā- >) *Ca-Cä(R)C-ā-. As suggested in fn. 21, TA *lalyutäk* 'made (happen)' may preserve the original contrast in palatalization between reduplicant and base in the sg. – which would show that the reduplicant-initial consonant was depalatalized before the newly substituted *a (< PT *ë) – but is more probably merely dissimilated from *lyalyutäk**, cf. mp. *lyalyutkāt.* All other verbs have generalized either the base-initial palatalization of the sg., e.g. *cacäl*, *ṣaṣärp*, or the non-palatalization of the pl., e.g. *kakälts.*

Less obvious is the development of PT *C^{y}ə-C^{y}ə(R)C-a- ~ *C^{y}ə-Cë(R)C-a- to pre-TB *$C^{(y)}$əyé(R)C-a-, in particular the general replacement of the the base-initial consonant by *y. One could imagine that roots in initial /y-/ with Cl. II pret. in *yəyá- (> yá-; see § 2, fn. 32) provided the basis for the spread of the pattern *Cəya(R)C-, but as only one such form is attested, namely *yāta* to /yət-/ 'adorn', the more numerous roots in initial *w must have played a role in this process as well. Taking /wətk(a)-/ 'command' as an example, pre-TB *w^{y}əw^{y}étk-a- > *w^{y}əw^{y}átk-a- would have become *yəyátka- > *yātka* by sound change alone, assuming base- as well as reduplicant-initial palatalization. From such forms as *yāta* and *yātka*, I suggest that speakers of pre-TB generalized the pattern *C^{y}əya- to all Class II preterites: hence *k^{y}əyál-a- 'led, brought', *n^{y}əyárs-a- 'pressed, pushed', *m^{y}əyásk-a- 'exchanged'. The evolution of these to mp. 1sg. *śālamai*, act. 3sg. *ñyārsa-me*, *myāska* has been discussed in § 2.

The generalization of base-initial *y (< *y, *w^{y}) may at first seem implausible, but close parallels may be adduced from other IE languages. For instance, the *e*-vocalism of the weak stem of Vedic perfects to certain roots of the shape *CaC-*, e.g. *pat-* 'fly, fall' (du. *petivá*, *pe-*

pl. < PIE Ø-grade), Couvreur 1947:67, van Windekens 1982:122–5, Adams 1988:89–91, Pinault 1989:147–8.

táthur, *petátur*, pl. *petimá*, *petá*, *petúr*; cf. RV *paptimá*, *paptúr*!), need not have spread from *sed-* < *sa-zd- alone (to *sad-* 'sit'; so Wackernagel 1957:37, 39), but instead finds a broader origin in *y*-initial roots: "weak perfect stems like *pec-*, *śek-*, *sep-* need not have been created in analogy to *sed-* (< **sazd-*) with old *ē*, but can be innovations after *yem-*, *yet-* (Av. *yaēt-*) with old **ai*" (Thieme 1960:302fn.6; see already Bartholomae 1885:347ff., Macdonell 1910:354, Brugmann 1916:435, 454–5). A similar development underlies OIr. futures of the type 3sg. conj. *·béra* 'will carry', abs. *gébaid* 'will seize' to pres. *beirid*, *gaibid*: the *é* has developed by sound change in forms such as conj. 1pl. *·célam* 'will conceal' < *keχla < *ke-kl-ā (pres. *ceilid*), 3sg. *·géna* < *geɣna < *ge-gn-ā (pres. *·gní* and *·gnin*, e.g. *do·géna* 'will do' to *do·gní*, 3pl. *etir·génat* 'will understand' to *etar·gnin*), *·géra* < *geɣra < *ge-gr-ā (pres. *fo·geir* 'heats' and *gairid* 'calls').[42]) In each of these cases, child learners interpret surface forms such as pre-Ved. *yem-, pre-OIr. *gēna-, or pre-TB *yəatka as (underlyingly) unreduplicated, abstract new morphology, then generalize that morphology to the rest of the inflectional category.[43])

As for the plausibility of this sort of analogical remodeling, it must be emphasized that speakers of Western European and other languages without inflectional reduplication[44]) necessarily lack native-

[42]) See Thurneysen 1946:414, McCone 1997:48; for the loss of *χ, *ɣ before sonorant, cf. *muinél* 'neck' < *munexla- < *munixla- < *moniklo- vs. Welsh *mwnwgl*, *mynwgl.* The same sound change has resulted in loss of reduplication in pf. 1sg. *ro·cúala*, 3sg. *ro·cúalae* < *kōlow-a, *-e ← *koxlow- < *ku-klow- ← (post-)PIE *Ḱe-Ḱlow- (to pres. *ro·cluinethar* 'hears'; Pedersen 1909:253, 1913:373, 381; Thurneysen 1946:79, 425; Lewis and Pedersen 1974:68, 300); contrast Middle Welsh 1, 3sg. *cigleu*, with reduplication preserved.

Similarly, OIr. perfects (prefixed with *ro·* < PIE *pro) to reduplicated preterites lose their reduplication in the conjunct, e.g. absolute *ro·cechain* 's/he has sung'< *ke-kan-e vs. conjunct *(ní) roíchain* 's/he has not sung', 1, 2sg. *for·roíchan* 'I, you have taught' < *ro-e-kan- ← *ro-ke-kan- (pres. *cainid* 'sings', *for·cain* 'teaches'). It is generally assumed that the initial consonant of the reduplicating syllable was lost by dissimilation (Thurneysen 1946:112, 425, McCone 1997:49, 130–1, 143–4), but note that root-initial *y, *w, and *s would have fallen in intervocalic position by regular sound change, e.g. *ro-se-slag-e > *ro-he-hlag-e > *roelage > *·roílaig* to *sleg-, pres. *sligid* 'hew, fell' (cf. *fóesam* 'protection' < *fohessam < *fo-sessam-, Thurneysen 1946:112). From such cases, the pattern *ro-e-C- could have been generalized to perfect conjunct forms as a whole.

[43]) Thanks to Eric Raimy for a discussion of the crosslinguistic and acquisitional aspects of loss of reduplication.

[44]) As opposed to e.g. Yiddish (and Yiddish-influenced English) "*shm*-redupli-

speaker intuitions for reduplicating languages, which complicates the issue of judging which diachronic changes are "natural" or "unnatural".[45]) Elsewhere in Indo-European, dissimilation of the first consonant of the root in reduplicated perfect forms and subsequent lengthening of the reduplication vowel – an "irregular" sound change – has been proposed in order to account for Proto-Germanic *ǣ < *ē in the pret. pl. of Cl. IV and V strong verbs, e.g. Goth. 3pl. *qēmun* 'came' < *k^{w}ēmun < *k^{w}e-k^{w}m-un vs. 1, 3sg. *qam* < *k^{w}am ← *k^{w}e-k^{w}am (with the reduplicating syllable simply deleted; Cowgill 1957:109–21, 1980:71); see also McCone (1986:236–7) on the parallel OIr. *á*-preterite in the context of a hypothetical "Western IE" innovation shared by Celtic, Germanic, and Italic. A similar account of Cl. VII strong preterites in NWGmc. has already been discussed in § 1 above (see also fn. 9).

If roots beginning with *w did contribute to the generalization of base-initial *y in the Cl. II preterite, as proposed here, we must assume a pre-TB stem *C^{y}əC^{y}ə́(R)C-a-, with no trace of a stem vowel *ə (but see § 4 below on the pret. ptcp.). As in preterites of Cl. I, then, TB has apparently lost paradigmatic ablaut in Cl. II preterites, posited in order to account for those TA forms lacking palatalization (see above). Apparently TB has generalized the base-initial palatalization of the sg., just as in Cl. I, but the vocalism of the du./pl., unlike Cl. I: the two PT stems *C^{y}ə-C^{y}ə(R)C-a- ~ *C$^{(y)}$ə-Cə́(R)C-a- were "crossed" to yield pre-TB *C^{y}əC^{y}ə́(R)C-a-, whence *C$^{(y)}$əyə́(R)C-a- > *C$^{(y)}$əyá(R)C-a-.[46])

We thus find that the Class II preterites of TA and TB, so dissimilar at first glance, may be traced back to a single PT preform if one assumes certain plausible analogical adjustments in the development of each language. The most drastic of these, the pre-TB replacement of the base-initial consonant *C^{y} by *y, is responsible for the unreduplicated, "contracted" appearance of Cl. II prets. in TB; although somewhat surprising, it is paralleled by similar remodelings of reduplicative morphology in other ancient IE languages. Despite the obstacles involved, I consider this proposal more likely than – and far preferable

cation", which signifies a disparaging or dismissive attitude on the part of the speaker: *fancy-shmancy*, *fire hazards-fire shmazards*, "*waiting list? shmaiting list!*".

[45]) Thanks to Don Ringe for emphasizing this point to me.

[46]) On the possibility that the generalization of base-initial *y preceded this crossing, see § 4.

to – the only alternative, that the two languages continue entirely unrelated (pre-)PT or PIE formations.

4. A word on the preterite participle

Before turning to the wider connections of the Tocharian reduplicated preterite, let us briefly consider the formation of the associated participle. As described by Krause (1952:174–5) and Krause and Thomas (1960:245), the pret. ptcp. to Cl. II verbs in TB contains the reduplicating vowel *e* (< PT *ë); the preceding consonant matches the base-initial in palatalization, as already observed (fn. 20), e.g. *keklyutku* 'having made happen', *peprutku* '(having) included' vs. *ñeñusku* '(having) oppressed', *ṣeṣṣirku* '(having) surpassed'. Palatalized base-initial *ś*, *c*, and *ṣ* (to roots in /k-/, /t-/, and /s-/, respectively) are geminated: *śeśśarsu*, abs. *ceccalor* (pp. *ceclu* for *ceccalu**), *ceccuku*, *śeśśanmu*, *ṣeṣṣirku* , abs. *śeśśamor-meṃ*.[47]) These forms could at first sight continue PT and pre-TB *C$^{(y)}$ë-C$^{(y)}$áya(R)C- or *C$^{(y)}$ë-C$^{(y)}$áyə(R)C-, with leftward or righward shift of stress, respectively, and the same treatment of secondary *C$^{(y)}$y as described in § 2;[48]) the former interpretation is ruled out by pret. ptcps. to stems with internal /əy/ and /əw/, e.g. *tetriku*, *peprutku* vs. *traika(-ne)*, *prawtka*.

[47]) This pattern is regular, unlike sporadic cases of gemination elsewhere such as Cl. IV pret. ptcp. TB *kakkārpäṣṣu* (TA *kākärpṣu*) '(having) led down' to /karpa-/ 'descend'. Van Windekens's (1982:114) notion of a "redoublement secondaire de consonnes à l'intérieur du mot, phénomène qui a donc un caractère purement phonétique" is completely unconvincing. – Strictly speaking, *śeśśanmu* and *śeśśamor-meṃ* are not examples of gemination, since their *-śś-* results from assimilation of *-śc-, the original outcome of palatalized *st (simplified to *ś-* in initial position, see fn. 30).

[48]) As observed by Ringe (1989:37–8), the absence of stressed root vowel *á* in TB pret. ptcps. to roots of the shape /wəC(C)-/, /yəC(C)-/, e.g. *yaitku* 'commanded' (to /wətka-/), *yaipu* 'having entered' (to /yəp-/ ~ /yop-/), implies that stress was shifted from PT *ə́ between semivowel and consonant to one of the adjacent syllables at some point in the development of TB. Thus *yaitku* < *yéytkəwə < *w^{y}ew^{y}ə́tkəwə (or *yóytkəwə < *w^{y}ow^{y}ə́tkəwə ← PT *w^{y}ə́tkəwə [> TA *watku* 'command', vs. remade ptcp. *wotku*] < pre-PT *w^{y}ëw^{y}ə́tkəwə?), *yaipu* < *yéypəwə < PT *yëyə́pəwə. Cf. TB *ausu* 'clothed, having put on (clothing)' < *wówsəwə < *wowə́səwə ← PT *wə́səwə (> TA *wasu*) < pre-PT *wëwə́səwə; sim. *auṣu* 'having stayed', *aultsu* 'collected' (ibid.; see Þórhallsdóttir 1988 on contraction of sequences of *VwV). This loss of *ə may be of PT date: see Hilmarsson 1989:14, Hackstein 1995:26, fn. 31.

Pre-TB must therefore have had a participial stem *-C$^{(y)}$ə́yə(R)C-, which except for the vowel following the *y matches the stem of the finite preterite, pre-TB *C^{y}əyë(R)C-a-. As argued in § 3, the latter is a replacement for *C^{y}ə-C^{y}ë(R)C-a- ← PT *C^{y}ə-C^{y}ə(R)C-a- ~ *C^{y}ə-Cë(R)C-a-. The participial stem too might then have been remade from a reduplicated *-C^{y}əC^{y}ə(R)Ca-: cf. Schulze (1934:247, fn. 2), who views finite *cāl-* (in *cāla*) and ptcp. *-ccal-* (in *ceccalu**, *ceccalor*) as differing outcomes of *cacäl-, conditioned by the absence or presence of a preceding syllable. Such a preform is also consistent with the TA evidence: assuming e.g. PT *cë-cə́cəl-əwə, *t^{sy}ë-t^{sy}ə́t^{sy}əlp-əwə, haplology and apocope of *-ä would have given pre-TA *cacäläw, *śaśälpäw > *cacläw, *śaśälpäw > TA *caclu*, *śaśälpu*.[49])

The TB and TA formations may thus be reconciled under a single PT preform *C$^{(y)}$ë-C^{y}ə́C^{y}ə(R)C-əwə. But would the Cl. II preterite participle – which must indirectly continue the (post-)PIE perfect participle[50]) – really have been "doubly reduplicated" in PT, with the participial reduplicant followed by the reduplicant of the preterite stem itself (cf. van Windekens 1982:114)? As far as I am aware, other IE languages offer no morphological parallels for multiple reduplication. One would thus prefer to explain the secondary gemination of *śeśśarsu*, *ceccalor*, and the like as a post-PT innovation specific to TB.

What if the TA ptcps. *caclu*, *śaśälpu*, *tatriwu* directly continue PT *cë-cəl-əwə, *śë-śəlp-əwə, *të-tr^{y}əyw-əwə, without haplology or degemination? These would provide a suitable starting point for TB as well: after *y had been generalized as the stem-initial consonant in the finite preterite, *C^{y}e-C^{y}ə(R)C-əwə was remade to *C^{y}e-C^{y}əyə(R)C-əwə.[51]) The resulting evolution of the Cl. II finite pret. and pret. ptcp. from (pre-)PT to TA and TB is illustrated below for the roots /təla-/ and /prəwtka-/ 'fulfill':

PT sg. *cə-cəl-a- ~ du./pl. *cə-tël-a- → *ca-cäl-ā > TA *cacäl*;
pre-PT *të-cəl-əwə → PT *cë-cəl-əwə → *ca-cäl-äwä > TA *caclu*;

PT sg. *cə-cəl-a- ~ du./pl. *cə-tël-a- → *cə-cal-a → *cə-yál-a > *cyal-a > TB *cāla*;
pre-PT *të-cəl-əwə → PT *cë-cəl-əwə → *ce-cə́yəl-əwə > *ce-cyál-əwə > TB *ceccálu*.

PT sg. *p^{y}ə-pr^{y}əwtk-a- ~ du./pl. *p^{y}ə-prëwtk-a- → *pa-präwtk-ā > TA *paprutäk** (3pl. *paprutkār*);
PT *pë-pr^{y}əwtk-əwə → *pa-präwtk-äwä > TA *paprutku*;

PT sg. *p^{y}ə-pr^{y}əwtk-a- ~ du./pl. *p^{y}ə-prëwtk-a- → *p^{y}ə-prawtk-a → *p^{y}ə-yawtk-a (→ *prə-yawtk-a?) > *pr^{y}awtk-a > TB *prautka*;
PT *pë-pr^{y}əwtk-əwə → *pe-prə́yəwtk-əwə > *pe-prə́wtk-əwə > TB *peprutku*.[52]).

Roots in initial /w-/ present an additional complication, as there is general consensus that pre-PT sequences of *VwV were contracted in PT: cf. Þórhallsdóttir 1988, Winter 1988, Ringe 1996:155–6. These scholars have expressed doubts whether the same contractions applied to pre-PT *Vw^{y}V. Evidence that at least *ëw^{y}ə – and therefore probably also *əw^{y}ë – did contract to PT *o comes from the contrast between TA *wotku* < *wawtkäw, the regularly formed Cl. II pret. ptcp. of *wätkā-* 'command', and *watku* 'command': the latter, as a fossilized verbal noun, probably reflects the original sound-change outcome of

[49]) Alternatively, without haplology: *śaśśälpäw (syncope of *ä in open syllable) > *śaśälpäw (degemination) > *śaśälpu*, whence analogically *cacäcläw > *cacäclu → *caclu* (or by haplology → *caclu*?).

[50]) Cf. Adams 1981 and Þórhallsdóttir 1988; the latter successfully explains the attested pret. ptcp. endings as the product of contraction of vowels across *w (first proposed by Pedersen 1941:233, but with false examples; cf. Winter 1988).

[51]) The difference in vocalism between the ptcp. and pret. *C^{y}əya(R)C-a- suggests that the PT ablaut alternation survived relatively late in pre-TB, perhaps until after generalization of base-initial *y (i.e. PT *C^{y}ə-C^{y}ə(R)C-a- ~ *C$^{(y)}$ə-Cë(R)C-a- → *C^{y}ə-yə(R)C-a- ~ *C$^{(y)}$ə-yë(R)C-a- → *C^{y}əyá(R)C-a-, rather than the order assumed in § 3), but it is not impossible that the finite forms merely influenced the shape of the participle. The influence of the finite pret. may also account for the required third-syllable stress of ptcp. *C^{y}ë-C^{y}əyá(R)C-, but this should have become *C^{y}e-C^{y}ə́yə(R)C- by the sound change described in fn. 48; perhaps *C^{y}e-C^{y}ə́yə(R)C- > *C^{y}e-C^{y}əyá(R)C- again, with rightward stress shift from /ə́/ (common in metrical texts; Winter 1990)?? These difficulties are avoided by Winter's reconstruction of PT ptcp. *C$^{(y)}$ë-C$^{(y)}$əC$^{(y)}$ə́(R)C-, e.g. *cë-cəcə́l-əwə > TB *ceccalu** (abs. *ceccalor*; Winter 1994:302–3), likewise with stress on the third syllable. But if the PT reduplication remained intact in the ptcp., it should also have survived in the finite pret. in TB, and Winter's explanation of the latter is not without problems (see fn. 37 above).

[52]) TB pret. ptcp. *memisku* to caus. /məska-/ 'exchange' (pret. *myāska*, pres. *máskäṣṣäṃ*), underlyingly /mem^{y}ə́skəwə/, has developed regularly from *m^{y}e-m^{y}yə́sk-əwə < *m^{y}e-m^{y}ə́yəsk-əwə ← PT *m^{y}ë-m^{y}ə́sk-əwə ← pre-PT *më-m^{y}ə́sk-əwə; similarly *peṣpirttu* to /spərta-/ 'turn' (pret. *ṣpyārta*, pres. *spārttaṣṣäṃ* for *spārttä-**). On the stem vowel *i* see fn. 24. I have no explanation at present for the divergent treatment of *-t$^{s(y)}$əy- in finite pret. and ptcp., e.g. *tsyāra* 'separated' < *t^{sy}əyár-a ← *t^{sy}ə-t^{sy}ër-a [TA *śaśär**, 2sg. *śaśrāṣt*] vs. abs. *tsetstsáror-meṃ* < *t^{sy}e-t^{sy}óyər- ← PT *t^{sy}ë-t^{sy}ór-.

pre-PT *w^{y}ë-w^{y}ətk-əwə, i.e. PT *w^{y}otkəwə. Thus the development of *w*-initial Cl. II participles involves an additional stage of analogical remodeling after the pattern of participles to other roots, as illustrated below for TB /wətka-/, TA *wätkā-*:

pre-PT sg. *w^{y}ə-w^{y}ətk-a- ~ du./pl. *w^{y}otk-a- > PT sg. *w^{y}ə-w^{y}ətk-a- ~ du./pl. *w^{y}ə-wëtk-a- → *wa-wätk-ā (or *w^{y}a-w^{y}ätk-ā) > TA *wotäk*;
pre-PT *wë-w^{y}ətk-əwə → *w^{y}ë-w^{y}ətk-əwə > PT *w^{y}otkəwə → *w^{y}a-w^{y}ätk-äwä > *wa-wätk-äwä > TA *wotku*;
PT *w^{y}otkəwə > TA *watku.*

pre-PT sg. *w^{y}ə-w^{y}ətk-a- ~ du./pl. *w^{y}otk-a- → PT sg. *w^{y}ə-w^{y}ətk-a- ~ du./pl. *w^{y}ə-wëtk-a- → *w^{y}ə-w^{y}atk-a > *yə-yatk-a > TB *yātka*;
pre-PT *wë-w^{y}ətk-əwə → *w^{y}ë-w^{y}ətk-əwə > PT *w^{y}otkəwə → *w^{y}e-w^{y}ə́tk-əwə > *ye-yə́tk-əwə > *yéytkəwə (or *w^{y}o-w^{y}ə́tk-əwə > *yo-yə́tk-əwə > *yóytkəwə; cf. TB *ausu*, fn. 48) > TB *yaitku* OR
pre-PT *wë-w^{y}ətk-əwə → *w^{y}ë-w^{y}ətk-əwə > PT *w^{y}otkəwə → *w^{y}e-w^{y}ə́yətk-əwə > *w^{y}e-w^{y}yə́tk-əwə > *ye-yyə́tk-əwə > *yéy(y)tkəwə (or *w^{y}o-w^{y}ə́yətk-əwə > *w^{y}o-w^{y}yə́tk-əwə > *yo-yyə́tk-əwə > *yóy(y)tkəwə) > TB *yaitku.*

Thus the TA and TB Class II preterite participles, although resembling each other formally, do not directly continue the same PT preform: the analogical replacement of the stem required to account for the geminates of TB *śeśśarsu*, *ceccuku*, *ṣeṣṣirku* (unless one wishes to posit double reduplication) presupposes the specifically *pre-TB* generalization of stem-initial *y in the finite pret., and so could not have occurred in TA. Only a closer examination of the attested forms, their individual prehistories within the two languages, and reconstruction of their possible antecedents enables us to determine that TA *caclu* continues PT *cë-cəl-əwə by regular sound change, whereas TB has remodeled the participle to *ce-cəyəl-əwə > *ce-cyəl-əwə > *ce-ccəl-əwə > *ceccalu**, abs. *ceccalor.*

5. *Wider connections: the causative reduplicated aorist revisited*

The "dereduplication" account of the TB Class II preterite proposed here means that the traditional comparison of TA *śaśärs*, *cacäl*, etc. with the reduplicated aorists of Sanskrit and Greek may now be extended to Tocharian as a whole. If the PT reconstruction *C^{y}ə-C^{y}ə(R)C-a- ~ *C^{y}ə-Cë(R)C-a- arrived at in § 3 is valid, which PIE formation could it continue? The ablaut is almost surely a Tocharian innovation, adopted after the pattern of Class I preterites, which indirectly (and via partly obscure developments) reflect PIE ablauting root aorists; see fn. 41. Assuming that the sg. vocalism is the older, and subtracting the clearly innovative Tocharian pret. suffix *-a- (see fn. 10), we may reconstruct backwards to a PIE *Ce-Ce(R)C-.

Couvreur (1938:96–8, 1947:69) was apparently the first to note the structural parallelism between the causatives (i.e. transitive-causatives) of Tocharian and Indo-Aryan: both branches exhibit a suffixed present, formed with *-sḱ^{é}/$_{ó}$- and *-éy^{e}/$_{o}$-, respectively, and a reduplicated preterite or aorist. Based on this agreement, as well as Latin reduplicated perfects to old *o*-grade "causatives" in *-éy^{e}/$_{o}$-, e.g. *momordī*, *spopondī* (older *memordī*, *spepondī*), *totondī* to *mordeō* 'bite', *spondeō* 'pledge', *tondeō* 'shear',[53]) he concluded that the Cl. II pret. was of PIE origin; this view was followed by Specht (1939:206), Pedersen (1941:176–7), Krause and Thomas (1960:244), Adams (1978:87), and Van Windekens (1982:142–3).[54]) The Latin forms, however, are less problematically explained as regular reduplicated perfect formations: see Leumann 1977:588–9 and the other refs. in Harðarson 1997:97fn.5.

Vedic aorists of the type *ájījanat*, *ávīvr̥dhat*, *árūrucat*, *acikradat* (to *janáyati* 'produces, begets', *vardháyati* 'grows', *rocáyati* 'kindles', *krandáyati* 'cries out') are thus the only reduplicated verbal formation outside Tocharian unambiguously associated with causative meaning. Yet Leumann (1962) and more recently Jamison (1983:216–9), following earlier work by Thieme (1929:56), have convincingly argued that these are an Indo-Aryan innovation: specifically, the thematized reduplicated imperfect *jijan-a- came to be morphologically associated with the new pre-Indo-Aryan pres. *janáyati* (as if < PIE *ǵonh$_{1}$-éye-ti) once the latter had replaced the inherited PIE reduplicated pres.

[53]) Lat. *spondeō*, which does not function as a causative or iterative ("cause to pledge", "pledge repeatedly, continue pledging"), probably continues an old "*h$_{2}$e*-conjugation" present *spond- ~ *spend-: cf. Hitt. *išpand-* 'libate', Gr. σπένδω (Jasanoff 1979:87, 1994:159; on Hitt. *ḫi*-conj. verbs with cognate *o*-grade *-ey^{e}/$_{o}$- presents in the "classical" IE languages, see Oettinger 1979:414–30, 1992:230, Melchert 1984:35–6fn.73).

[54]) Thanks to Masato Kobayashi for bringing Couvreur 1938 and Specht 1939 to my attention in his paper on the Tocharian causative.

*ǵi-ǵenh$_1$- ~ *ǵi-ǵn̥h$_1$- (cf. thematized Av. 3pl. *zīzanəṇti*; Lat. *gignō* 'beget, produce', Gr. γίγνομαι 'become').[55]) On the basis of pres. *janáyati* ~ (impf. →) aor. *ájījanat*, by far the most common causative aorist in the Vedas, reduplicated aorists were formed to other causative presents.[56]) The metrically conditioned quantity of the reduplication and stem syllables, which with very few exceptions form a long-short sequence or trochee (cf. Whitney 1924:309–10),

> "arose from an effort to make the aorist formally as well as functionally parallel to the *-áya*-transitive. The long reduplication and short root syllable bring the form into metrical equivalence with most *-áya*-transitives. In roots with initial consonant clusters and short root vocalism, this metrical identity would have been original, even with a short reduplicating vowel and full-grade root syllable. Examples include *cucyavat* : *cyāváyat*; *titrasat* : *trāsayat*; thematicized *siṣvapat*, *svāpáyat*. From situations such as these, the metrical pattern spread to forms in which it was necessary to lengthen the reduplication and/or take zero grade of the root (type *vīvr̥dhat* : *vardháyat*)."[57]) (Jamison 1983:217–8)

The influence of the present in *-áya-* has probably also contributed to the thematization of the reduplicated aorist (so Jamison, ibid.), which Leumann (1962:156–8) views as parallel to e.g. the thematization of root aorists such as *agamam*, *agan*, *agan* → *agamam*, *-as*, *-at* 'I, you, s/he came': whereas root aorists are abundantly attested in Vedic, relatively few athematic reduplicated aorists survive, e.g. *ajīgar* 'awakened', *tūtos*, *-ot* 'strengthened', *siṣvap* 'put to sleep'.[58]) Clearly, then, the Vedic *ájījanat*-type is the product of a long series of language-specific morphological and phonological alterations, starting from a PIE reduplicated *imperfect*: any similarities between the Tocharian and Indo-Aryan formations cannot be inherited from PIE, but are instead due to parallel innovation in the two branches.

The only reduplicated aorist that may be of PIE date is the archaic type represented in Indo-Iranian and especially in Homeric Greek, e.g. Hom. ἔειπε (< *ἔϝειπε),[59]) Ved. *ávocat*, GAv. *vaocaṯ* 'said' < *(é-)we-wk^{w}-$^{e}/_{o}$-; Hom. ἔπεφνον, πέφνε 'slew' (to pres. θείνω < *g^{wh}en-y$^{e}/_{o}$-), Av. *auua-jaγnaṯ*[60])< *(é-)g^{wh}e-g^{wh}n-$^{e}/_{o}$-, Hom. ἔνεγκον 'brought, carried', GAv. *nąsaṯ* 'disappeared' (< *nansat ← *na'a-sat, cf. Ved. *aneśat*; Harðarson 1993:118–9fn.91) < *h$_1$ne-h$_1$n̥ḱ-$^{e}/_{o}$-; possibly εὗρον, OIr. pret. 3sg. *fúair* 'found' < *wewr$^{e}/_{o}$- < *we-wrh$_1$-$^{e}/_{o}$- (Beckwith 1994; but cf. Peters 1980:22–7). Among the examples confined to Greek alone, one may cite Hom. δέδαε 'taught' (pres. διδάσκω) to ἐδάην 'learned'; κέκλετο 'urged, exhorted' to κέλομαι; ptcp. τεταγών 'seizing' (cf. Lat. *tetigī*). Unlike the reconstructed pre-PT pret. *Ce-Ce(R)C-, these contain zero-grade of the root, and both their antiquity and functional value are far from securely estab-

[55]) Cf. also Strunk 1986:441–5, Hintze 1999:104–7. The Lat. and Gr. verbs probably continue *ǵiǵn$^{e}/_{o}$- < thematized *ǵi-ǵn̥h$_1$-$^{e}/_{o}$- with laryngeal loss by the "νεογνός-rule" (Gr. νεο-γνός 'newborn' < *-ǵn̥h$_1$-ó-; Mayrhofer 1986:129 with refs.), although *gignō* could in principle have been syncopated from *gigan-$^{e}/_{o}$- < *ǵiǵn̥h$_1$-$^{e}/_{o}$- (or < *gigena- < athem. *ǵi-ǵenh$_1$-; Rix 1995:407). Note that PIE *ǵonh$_1$-éye-ti should have given *jonéyeti > Ved. *"jānáyati"* by "Saussure's Law" (*HRo- > *Ro-, *-oRH- > *-oR-; Nussbaum 1997:181–6 with refs.); cf. pf. 3sg. *jajāna* < *jejóne < *ǵe-ǵónh$_1$-e, if not simply analogical to e.g. *cakára* 'did, made' < *ke-kór-e. *Janáyati* has probably taken its stem vowel from the older thematic pres. *jánati*, which is virtually confined to the RV (Jamison 1983:154, 206, Gotō 1987:146–7). OE *cennan*, ptcp. *cennede* ← PGmc. *kanja- in the sense 'beget', often cited as a cognate of *janáyati* (e.g. LIV:163), may be an independent creation of Gmc.: perhaps PIE aor. subj. *ǵénh$_1$-$^{e}/_{o}$- > PGmc. pres. *ken- (parallel to 'come', see fn. 66), whence *cennan* by confusion with caus. *cennan* 'show, explain' to *kann*, pl. *kunnon* 'know, can'? – On the origin of *jánati* see fn. 66; Cardona 1967:766fn.2 is agnostic.

[56]) This hypothesis also explains the complete absence of a cognate formation in Iranian, where the inherited reduplicated present survived alongside the imperfect (Av. pres. 3pl. *zīzanəṇti*, inj. *zīzanən*, subj. 3sg. *zīzanāṯ*). Once the present had been remade in pre-Indo-Aryan, the now dissociated reduplicated imperfect could easily have been reinterpreted as an aorist, since it no longer had a corresponding (indicative) paradigm characterized by primary endings: in the words of Thieme (1929:10), "redupliziertes Imperfekt und reduplizierter Aorist sich ursprünglich auch nur – vom morphologischen Standpunkt – dadurch unterschieden, daß zum erstern ein präsentischer Indikativ vorhanden war, zum zweiten nicht." See fn. 11 on the possibility of a similar reinterpretation of dissociated Narten imperfects already in (late or post-)PIE.

[57]) I find this explanation far more probable than Leumann's (1962:155–6) suggestion that the preconsonantal stem variant *didī-* (to the root *dī-* 'shine') was remade to *dīdi-*, and that this served as the (sole or principal) source from which the long-short pattern spread to perfects and reduplicated aorists.

[58]) See Thieme 1929:10–6; contra LIV, p.21 ("...die athematische Flexion (ved. *ájīgar*, gr. ion. *εἶπα*) wird hier als einzelsprachliche Neuerung angesehen").

[59]) The Hom. form exhibits dissimilation of *w...w to *w...y, also seen in pf. mp. εἴρημαι 'it is mentioned, agreed' < *ϝεϝρη- (Argolic pf. mp. ptcp. ϝεϝρημένα) < *we-wr̥h$_1$- to PIE *werh$_1$- (cf. Palaic root pres. *wērti* 'calls, cries out', Hitt. *weriyezzi* 'calls (upon)' < *werh$_1$-y$^{e}/_{o}$-); Schwyzer 1939:257–8 with refs.

[60]) Interpreted as an impf. to the pres. stem *jaγna-* < (virtual) *g^{wh}e-g^{wh}n-$^{e}/_{o}$- (cf. Ved. *jíghna-*) by Hoffmann and Forssman (1996:191).

lished – particularly in Greek, where the formation appears to have enjoyed some productivity in the epic language: as Schwyzer (1939:748–9) observes, reduplicated aorists are an "Archaismus der Dichtung", and aside from εἶπον, εὗρον, and ἔνεγκον, classical prose attests only ἐζόμην (< *se-sd-$^{e}/_{o}$-) and ἤγαγον to ἴζω, ἄγω. Adams (1988:87) states that the reduplicated aorists underlying the Toch. Cl. II pret. "took on causative meaning also in Greek", yet forms such as κέκλετο or πέπιθε* (πεπίθωμεν, etc.), whose meaning recurs in other forms of the same voice (here κέλομαι or πείθω, respectively), are synchronically merely transitive; similarly, δέδαε is the transitive counterpart to intransitive ἐδάην.[61])

Thus in contrast to the *ájījanat*-class of Vedic, Greek reduplicated aorists are not *primarily* causative in meaning.[62]) Particularly disturbing for any attempt to demonstrate original transitive-causative function in this class of aorists is that *none* of the small handful of word-equations adduced above is clearly causative, including the few Indo-Iranian aorists belonging to this category: Ved. *ápaptat* 'flew (off), fell' (vs. causative *apīpatat* 'made/let fly, hurled'), *ávocat*, Av. *vaocaṯ*, *auua-jaynaṯ*, *nąsaṯ*.[63])

[61]) Pres. διδάσκω may have acquired its reduplication from aor. δέδαε (so Rix 1976:213–4). Recently, Bendahman (1993; not available to me) has proposed that reduplicated aorists arose in late PIE and were associated with "komplexiv-iterative Bedeutung"; the causative value of individual Greek forms is an innovation, as argued here. See LIV, p. 21 and the individual entries for *$h_1nek̂$ (under Gr. ἐνεγκεῖν; should be *$h_2nek̂$, see Ringe 1996:15 with refs.), *$peth_1$, *$u̯ek$.

[62]) Cf. *Il.* 15.60–1 (ὄφρα...) *λελάθῃ* δ' ὀδυνάων 'that he (Phoibos Apollon) may cause him (Hektor) to forget his pains' vs. non-causative *Il.* 4.127–8 οὐδὲ σέθεν, Μενέλαε, θεοὶ μάκαρες *λελάθοντο* / ἀθάνατοι 'nor you, Menelaos, did the blessed immortal gods forget' to λανθάνω 'forget'; or *Il.* 7.79–80(=22.342–3) ὄφρα πυρός με / Τρῶες καὶ Τρώων ἄλοχοι *λελάχωσι* θανόντα 'that the Trojans and the wives of the Trojans may let me, in death, have the fire' to λαγχάνω 'obtain by lot' vs. *Il.* 9.111–3 ἀλλ' ἔτι καὶ νῦν / φραζώμεσθ' ὥς κέν μιν ἀρεσσάμενοι *πεπίθωμεν* / δώροισίν τ' ἀγανοῖσιν ἔπεσσί τε μειλιχίοισι 'but let us still now speak thus so that we persuade him, appeasing with kind gifts and gentle words', with the same meaning as pres. πείθω.

[63]) It is at least suggestive that some of the presents to Greek reduplicated aorists are undoubtedly innovative, having replaced earlier characterized presents to root (later thematized) aorists, e.g. πείθω (cf. unredupl. them. aor. mp. ἐπιθόμην 'obeyed' < PIE *$b^{h}éyd^{h}$- ~ *$b^{h}id^{h}$-'), λανθάνω (them. aor. ἔλαθον). If those earlier presents had been reduplicated, the imperfect could have survived and been reinterpreted as an aorist, similarly to Ved. *ájījanat* (see above and fn. 56). Cf. Ved. 3sg. *síṣakti*, 3pl. *sáścati* 'accompany', Av. *ā-hišhaxti* 'attaches to' < *se-sek^{w}- ~ *se-sk^{w}- (Gotō 1987:319–20, fn. 771) to root aor. *sék^{w}- ~ *sk^{w}-' (Ved. mp. ptcp. *sacānā-*, GAv. iptv. 3pl. *sč-aṇtū* 'they are to agree'), whence Gr. redupl. aor. ἕσπετο < thematized *se-sk^{w}-$^{e}/_{o}$- – if this is not merely for *ἔ-σπ-ετο (or σπ-, as metrically possible in many occurrences in Hom.).

These formal and semantic discrepancies have led Harðarson (1997:96 ff.) to reject the comparison with the Greek and Indo-Iranian reduplicated aorist[64]) and consider whether the Tocharian Class II preterite might not originate in a morphological reanalysis similar to that underlying the Indo-Aryan aorist to *-áya-* presents. To be sure, the two languages correspond quite closely, not only in their initial reduplication, but also in the root vowel *e which is probably to be reconstructed as the original ablaut grade of both the Tocharian forms and the metrically conditioned Vedic stem. Yet the idiosyncratic developments underlying the latter are highly unlikely to have occurred independently in pre-PT in all their details;[65]) nor do we have any evidence that the inherited reduplicated present of *ǵenh$_1$- – or any other common verb with suitable transitive or causative meaning, thematized or not – was replaced by a derived *-sḱ$^{é}/_{ó}$- present, a necessary precondition for the grammaticalization of impf. *Ce-Ce(R)C- or *Ci-Ce(R)C- as a preterite specifically associated with the *Kausativ*.[66])

Further investigation of the prehistory of the reduplicated causative preterites and aorists requires serious reconsideration of the question whether a causative may in fact be reconstructed for the protolan-

[64]) Less probative are Harðarson's (1997:96–7) other arguments against the equation of the Tocharian and Greek reduplicated formations, which rest upon his understanding of PIE ablaut; see fn. 65.

[65]) Harðarson's (1997:101) reconstruction of pre-PT *Ci-Ce(R)C-, with *i in the reduplicant, rests solely on the parallel with Indo-Aryan and the author's own views on PIE verbal reduplication, which follow those of the LIV (ibid., pp. 96, 99, fns. 11, 12; see Harðarson 1993:25–37 and fn. 34 above).

[66]) The root *ǵenh$_1$- itself is continued in Tocharian, e.g. in TB pres. *knástär*, 3pl. *knáskentär* /kənɔ́sk-/, subj. *kantär* 'will happen'. Hackstein (1995:239–42) has derived the latter from PT *kəñətər ← PIE aor. subj. *ǵénh$_1$-e-tor (→ pres. Ved. *jánati*, OLat. 3pl. *genunt*?) to the root aorist *ǵénh$_1$- ~ *ǵn̥h$_1$-' (Gr. thematized ἐγένετο, ἐγένοντο; Cardona 1960:128fn.16, 1967:762–71). If this analysis is correct, *kantär* provides a second example in Tocharian of a thematic subj. continuing a PIE root aor. subj., the first being TB *śam-n* (verse, prevocalic), TA *śmäṣ* < PT *śəm^{y}ə(-ṣə) < PIE *g^{w}ém-e-ti to the well-established root aorist *g^{w}ém ~ *g^{w}m-': cf. Ved. *gámat*, 3pl. *gámanti*, *gáman* (for *j-), GAv. *jamaitī*, *jimaitī*, *jimaṯ*, 3pl. *jimən* (Hoffmann 1955), PGmc. pres. *k^{w}imiþi > Goth. *qimiþ*, OHG *quimit* (ibid., 91; on ON *koma*, OE *cuman* see R. Kim 2001:123fn.13, contra Seebold 1970:315–6, LIV:210n.14). On pret. *kyāna* see fn. 31. For other possible examples of Toch. Cl. II subjs. < PIE aor. subjs., see Ringe 2000:132–6. – On the possibility that Tocharian causatives continue reduplicated presents suffixed with *-sḱ$^{é}/_{ó}$-, see fn. 75.

guage. In the past, scholars have ascribed causative value to a number of distinct formations, including *o*-grade thematic presents with suffix *-éy^{e}/$_{o}$-, zero-grade thematic presents with suffix *-sḱ^{é}/$_{ó}$-,[67]) reduplicated presents, and nasal-infixed or -suffixed presents.[68]) Without delving into the extensive scholarly literature on this topic – on which considerable disagreement exists – I note merely that it is far from certain whether any of these served already in PIE to form marked transitives, i.e. true causatives, to transitive roots, as opposed to transitives to intransitive roots. In Indo-Aryan, for instance, the original function of Class X presents in *-áya-* was neither iterative/intensive nor causative, but simply transitive (Thieme 1929:17–30, Jamison 1983:183–9 and passim); the causativity so familiar from classical Sanskrit grammar has developed within the (pre)history of the language.[69])

For its part, Tocharian preserves few recognizable traces of *-éy^{e}/$_{o}$-,[70]) but continues PIE *-sḱ^{é}/$_{ó}$- > PT *-skë- ~ *-ṣṣə- > TB /-ske-/ ~ /-ṣṣə-/, → TA *-s-* ~ *-ṣ-* as an aspectual present-forming suffix for creating (or renewing) a contrast between present and sub-

[67]) Cf. Adams (1988:75), in the context of Tocharian *sk*-presents: "Proto-Indo-European appears to have been prodigious in the number and variety of verbal formations that were iterative-intensive in meaning. The most widespread of these formations were the familiar **Co(C)C-eye/o-* and **C(e)(C)C-ske/o-* types, both of which are represented, at least residually, in most branches of Indo-European."

[68]) On the traditional reconstruction of *R(o)-éy^{e}/$_{o}$- as the productive iterative-causative in PIE, see Brugmann 1916:244ff. and most recently LIV:22–3; for another possible origin of these presents, see the refs. in fn. 53. As a suffix, *-sḱ^{é}/$_{ó}$- forms East Ionic "iterative" imperfects (Schwyzer 1939:710–2, Rix 1976:229), Lat. fientives to statives in *-ē-* (Watkins 1971:66–72), Av. inchoatives in *-sa-* (Hoffmann and Forssman 1996:188), Lith. intransitives in *-sta-* to heavy stems (Tedesco 1948:349, fn. 10, 384–5; replacement for *-y^{e}/$_{o}$-?), Anat. marked imperfectives (Melchert 1998:414–6); and presents to perfective roots in Toch. (see below) and elsewhere in IE, e.g. Ved. *gácchati*, Av. *jasaiti* (for *gasaiti) 'go, come', Gr. βάσκω 'come' < *g^{w}m̥-sḱ^{é}/$_{ó}$- alongside βαίνω, Lat. *veniō* < *g^{w}m̥-y^{e}/$_{ó}$- to *g^{w}em- 'come' (cf. Rix 1976:213–4). On reduplicated presents, cf. Delbrück 1897:16–26 ("iterativ (intensiv)"), Thieme 1929:53–9, Harðarson 1997:100 ("transitive-faktitive Funktion"). On nasal-infix transitives, see Delbrück 1897:4–59 and note Hitt. factitives in *-nu-*, e.g. *tepnu-* 'belittle, decrease' ← *tepu-* 'little, few' < PIE *d^{h}éb^{h}-u- (Oettinger 1979:164–5; cf. Ved. *dabhnóti*, GAv. 2pl. *dəbənaotā* < PInIr. *d^{h}b^{h}-náw- ~ *d^{h}b^{h}-nu-' 'mislead, deceive', Narten 1990:144–7 and passim).

[69]) According to Macdonell (1910:393), "of about 150 causative stems appearing in the RV. at least one-third lack the causative meaning." Cf. Kuryłowicz's suggestion (1964:84–9, with refs.) that the causativity of the various formations cited in fn. 68 is an extension of transitivity and has arisen in connection with the renewal of active-passive voice opposition.

[70]) TB *mely-*, TA *malyw-* 'grind, crush' is cognate with CLuv. *mālḫu-* ~ *malw-* 'break' (< *malḫw-, e.g. pret. 3sg. *mālḫūta*, pres. 3sg. *malwai*) and Goth. *ga-malwjan** 'bruise' (pret. ptcp. masc. acc. pl. *gamalwidans*); all three are *u*-extensions to the well-established PIE root *mólh$_{2}$- ~ *mélh$_{2}$- 'grind' (a "*h$_{2}$e*-conjugation present" as per Jasanoff 1979:83–7, 1992:136ff., 1994:157–8; cf. Melchert 1988:216). PIE *molh$_{2}$wéy^{e}/$_{o}$- developed via laryngeal loss (*CoRH > *CoR; Hackstein 1995:26) to PT *mëlw^{y}-əy^{ë}/$_{ə}$-, then independently in the two languages to *melw^{y}y^{ə}/$_{e}$- > *mel^{y}w^{y}- > *mel^{y}y- > TB /mel^{y}-/ (pres. 3sg. *melyiṃ*, *melyán-*, 3pl. *melyeṃ*), *malw^{y}y^{ä}/$_{a}$- > *mal^{y}w^{y}- > TA *malyw-* (pres. 2sg. *malywät*, act. ptcp. obl. *malywäntāṃ*, mp. ptcp. *malywmāṃ*, impf. 3sg. *malywā*), with syncope of *ə (*ä) and secondary palatalization of *w+y > *w^{y}. Differently Adams 1988:75 ("**Co(C)C-ye/o-*"), Ringe 2000:124–5 (PT *mël^{y}w^{yə}/$_{ë}$- or *m^{y}el^{y}w^{yə}/$_{ë}$-).

The stem-final *-ry-* of TB *kery-*, TA *kary-* 'laugh' probably cannot continue *-r-y^{e}/$_{o}$-, contra Adams 1999:197. Although I am not aware of any secure examples of PIE *ry in Tocharian, the parallel of *ly, *ny > PT *l^{y}l^{y}, *ññ (see § 2 above) implies *ry > PT *r^{y}r^{y}, which should have given TB *-rr-*, TA *-r-*. All examples of TA and TB *ry* with known histories result from the relatively late pre-PT change of liquid metathesis (Ringe 1996:158–60 with refs.): cf. PIE neut. *trih$_{2}$ > *triya > *tr^{y}əya > PT *tər^{y}ya > TB fem./neut. *tarya* 'three' (pre-TA *täry > *täräy > *tri*); PIE *k^{w}rih$_{2}$- > *k^{w}riya- > *k^{w}r^{y}əya- > PT *k^{w}ər^{y}ya- > TB /kərya-/ 'buy' in pret. act. 1pl. *käryām*, mp. *käryāmte*; (post-)PIE v.n. *k^{w}rih$_{2}$-wr̥ > *k^{w}ər^{y}ya-wər > PT *k^{w}ər^{y}yor > TB *karyor*, TA *kuryar* 'trade' (Þórhallsdóttir 1988:193–4; on delabialization of *k^{w} in the TB forms of 'buy' and 'trade', see R. Kim 1999:150–1, 157). Furthermore, the spelling of TB pres. 3pl. *keriyeṃ* (alongside *keryeṃ*), mp. ptcp. *keriyemane* makes it clear that the underlying form of the verb in TB is /kerəy-/, in turn from PT *kër$^{(y)}$əy-^{ə}/$_{ë}$- (so Hilmarsson 1996:135–6); such a preform is also consistent with TA pres. 3pl. *karyeñc*. (On the unexpected stem vowel *e* of TA pres. mp. ptcp. *karemāṃ*, subj. 3sg. *kareṣ* [3pl. *kareñc* could by itself be regular from *karañc ~ *kare** < PT *kërëñcə ~ *kërën], see Hilmarsson 1996:136, Ringe 2000:124fn.10.) – This verb probably continues PIE *ǵ^{h}er- (LIV:176–7, Adams 1999:197; cf. Ved. *háryati* 'finds pleasure in, likes', Gr. χαίρω 'rejoice', OLat. *horitur* 'encourages, incites', Umbr. fut. *heriest* 'volet', OHG *gerōn* 'desire, long for'; see LIV, op. cit. on the conflicting evidence for the root ablaut), but the intransitive meaning of 'laugh' conflicts with the transitivity of *o*-grade presents in *-éy^{e}/$_{o}$- elsewhere in IE; cf. Hilmarsson (1996:136), who suggests "iterative *ǵ^{h}or-ei̯^{e}/$_{o}$-". Are we perhaps rather dealing with a denominative to an old *o*-grade thematic deverbal noun, hence *ǵ^{h}oros 'pleasure, rejoicing' → *ǵ^{h}ore-y^{é}/$_{ó}$-?

A third example of an *o*-grade pres. in *-ey^{e}/$_{o}$- may be TB pres. mp. ptcp. *cepyemane*, ger. I *ceppille* 'tread'. If one assumes that pre-PT *py would have yielded PT *p^{y}p^{y}, whence TB *pp*, the stem-final cluster *py* of the participle must be from underlying /cepəy-/, with syncope of /ə/. But it cannot be ruled out that *py* and *pp* are alternative spellings for /p^{y}p^{y}/ – cf. TB *allek* ~ *alyek* or ger. *-lle* ~ *-lye* for /l^{y}l^{y}/ (§ 2, fn. 28) – and the palatalization of stem-initial *c* points to PT *e < *ē rather than *ë < *o as the stem vowel. Whatever the case, the existence of 'crush' indicates that Tocharian did inherit at least some *o*-grade presents in *-éy^{e}/$_{o}$-, although in what function is not clear. – Note that *y has been preserved in this suffix; see Ringe 1996:51–5 on the evidence for and against loss of intervocalic *y.

junctive/preterite, i.e. imperfective and perfective stems. Numerous verbs in both TA and TB contrast an unsuffixed subj. stem with a pres. stem in *-sk-*, or a Class X pres. with both nasal suffix and *-sk-*:[71])

TB *aiṣṣäṃ*, TA *eṣ*, *eṣṣ-äṃ* (< *eṣäṣ) 'gives' vs. subj. Cl. I TB *aiṃ*, TA *eṣ*;
TB *yamáṣṣäṃ* 'does, makes' vs. subj. Cl. I *yāmäṃ*;
TA *läntäṣ* (< *läntäṣäṣ) 'goes out' vs. subj. Cl. II *läñcäṣ*;
TB *känmáṣṣäṃ* 'comes', TA *kumnäṣ* 'comes' vs. subj. Cl. II TB *śamn* (for *śamäṃ**), TA *śmäṣ*;
TB *yänmáṣṣäṃ* 'enters' vs. subj. Cl. I *yopäṃ*, inf. *yaptsi*;
TA *klyosnäṣ*, mp. *klyosnäṣtär* 'hears' (alongside Cl. II *klyoṣtär*) vs. subj. Cl. II *klyoṣäṣ*;

That the productivity of *-sk-* survived beyond the breakup of PT is evident from divergences in verbal paradigms between the two languages, e.g. TB pres. /kəlpásk-/, subj. /kəllá-/ (pret. /kəlpá-/, pret. ptcp. *kälpau*) vs. TA pres. *kälpnā-*, subj./pret. *kälpā-* (pret. ptcp. *kälpo*) 'attain': here the clearly innovative TB pres. /kəlpá-sk-/ (to PT subj./pret. *kəlpá-) has relegated the inherited PT nasal pres. *kəllá- < *kəlná- < *kəlpná- < (post-)PIE *g$_{\underline{o}}$lb^{h}-nh$_2$- (cf. Ved. *gṛbh-nā-ti* 'takes', Ringe 1996:164–5; TA *kälpnā-* remade to *kälpā-*) to subj., i.e. perfective function.[72]) Cf. also TB *lkāṣṣäṃ* 'sees'[73]) vs. TA *lkāṣ* to subj.

[71]) See already Sieg, Siegling, and Schulze 1931:417–8. For a parallel to Cl. X presents, cf. Armenian *hasanem* 'arrive' (nasal pres.) vs. *hasuc'anem* 'make arrive, transport', with *-c'-* < *-sḱ- and connecting vowel *u* (Solta 1963:118–9; cf. Couvreur 1938:96, 101).

In original *-sḱ^{e}/$_{o}$- presents to monosyllabic roots, the /-sk-/ has been reanalyzed as part of the root: cf. simple thematic, i.e. Cl. II pres./subj. TB /pask-/, TA *pās-* 'protect' (3sg. *pāṣtär*) < PT *pask- < *ph$_2$-sḱ^{e}/$_{o}$- (Hitt. *paḫ(ḫas)s-* 'protect', OCS *pasetĭ* 'watches over, tends', Lat. *pāstor* 'shepherd' < *peh$_2$-s-, *pāscō* 'feed, graze (tr.)' < *peh$_2$-sḱ^{e}/$_{o}$- with analogical full-grade), TB /nask-/ 'bathe' (3pl. *nāskeṃ*) < PT *nask- ← *nh$_2$-sḱ^{e}/$_{o}$- (Ved. *snáti* 'bathes', Lat. *nāre* 'swim' < *(s)neh$_2$-) and see Hackstein 1995:167 ff., Ringe 2000:121–2.

[72]) Recall that the "subjunctive" in Tocharian is merely the non-past of the perfective (punctual) stem (Winter 1984:228, 1994:286). Cf. the perfective future of East and West Slavic, e.g. Russ. *čitáju* 'I am reading', *búdu čitát'* 'I will be reading, I will read (imperfective)' vs. *pročitáju* 'I will read (perfective)', formally pres. to perfective *pročitát'*.

[73]) Interestingly, the mediopassive retains *sk*-less forms: pres. mp. 3pl. *lkāntär-c* (vs. ptcp. *lkāskemane*), impf. mp. 3pl. *lkoyentär* (alongside act. *lkāṣyeṃ*), ger. *lkälle*, the last two identical to the corresponding forms of the subj./opt. stem. Was *-sk-

/ləka-/ (TB inf. *lkātsi*; TA subj. mp. 1sg. *pälkāmār* to suppletive stem), and TA *klyosnäṣ*, *klyosnäṣtär* vs. *klyoṣtär* above.

Among present-subjunctive stems in *-sḱ^{e}/$_{o}$-, initial stress has become grammaticalized as the distinctive marker of transitive-causatives (Winter 1980:440, Hackstein 1995:3), which form transitives to intransitive roots and often – although not always – marked or double transitives to transitive roots.[74]) To these *Kausative* (to retain Krause and Thomas's familiar and still useful term), pre-Proto-Tocharian, independently of Indo-Iranian, developed reduplicated preterites of the form *Ce-Ce(R)C- (or *Ci-Ce(R)C-), as argued above. How this paradigmatic association of two historically unrelated formations took place remains unclear, although the parallel of Indo-Aryan – if Leumann and Jamison are correct in viewing the unique prehistory of *jánáyati* ~ *ájījanat* as the catalyst for the causative reduplicated aorist there – suggests that it began with one or a small number of verbs which for some reason replaced their reduplicated presents with new presents in *-sḱ^{e}/$_{o}$-.[75]) In any case, I hope to have demonstrated that

perhaps first introduced into the active, and only later spread to the rest of the imperfective paradigm??

[74]) For example, whereas TB caus. pres./subj. *śärsäṣṣäṃ* /śärs-/ 'lets know, informs', *lákäṣṣäṃ* /lək-/ 'shows' contrast with noncaus. pres. *kärsanaṃ* /kərs-á-n-a-/ 'knows', *lkāṣṣäṃ* /ləká-ṣṣ-/ 'sees', both pres. *tallaṃ* and caus. *taläṣṣäṃ* to the root /təla-/ mean 's/he endures, bears', and pret. mp. 1sg. *klāmai*, caus. *śälamai* to /kəla-/ translate equally as 'I brought' (Krause and Thomas 1960:174, Pinault 1989:125).

In an unpublished term paper of 1997, Kobayashi, observing the close functional parallels between Tocharian causatives and Indo-Aryan Cl. X presents (see above; Couvreur 1938:96–8, 1947:69), suggested that Tocharian also inherited *o*-grade transitive(-causative)s in *-éy^{e}/$_{o}$- from PIE, but later replaced this suffix with the reflex of *-sḱ^{e}/$_{o}$-. Similarly, Pinault (1989:126) suggests that *-ey^{e}/$_{o}$- > pre-PT *-əyë- ~ *-əyə- contracted and so "perdait toute identité formelle", thus presumably clearing the way for the rise of the causative in *-skë- ~ *-ṣṣə-. Unfortunately for this hypothesis, *-ey^{e}/$_{o}$- appears to survive, uncontracted and with *y preserved, in at least one or two verbs (fn. 70); furthermore, there is no evidence that this suffix ever acquired causative value in pre-Tocharian.

[75]) Or perhaps merely added *-sḱ^{e}/$_{o}$- to reduplicated presents, with specialization to transitive-causative meaning? In a lecture given at the University of Pennsylvania on 15 Jan 1998, Werner Winter suggested that the initial stress of TB causatives, e.g. pres. *tälāṣṣäṃ* 'endures, bears' (fn. 2), may have resulted from syncope of *ə in a former reduplicant: PT *tətálə- > *ttálə- > TB /tálə-ske-/ ~ /tálə-ṣṣə-/. This hypothesis is not without its obstacles, however: note that TB preterite participles of seṭ-verbs with root vowel /ə/, whose lack of reduplication may have arisen similarly (e.g. PT *kəkəlpowə > *kkəlpowə > *kəlpowə > TB *kälpau*, TA *kälpo* '(having) attained' to /kəlpa-/, vs. PT *tatakawə > TB *tatākau* 'having been' to

the seemingly dissimilar Class II preterites of the two Tocharian languages, and in particular those of TB, continue a single reduplicated Proto-Tocharian ancestor – whatever the ultimate (post-)PIE origins of the latter may be.

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/taka-/), nevertheless stress the second syllable in TB (cf. van Windekens 1982:114–6).

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