

Voice Reversal as an Anatolian Phenomenon

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1. Introduction

This paper is concerned with the morphosyntax of voice in the Anatolian languages, and more specifically, with the possibility that a particular voice alternation previously identified in Hittite, termed “voice reversal” by Yates and Gluckman (2020), may have analogues elsewhere in Anatolian. It is structured as follows. Section 2 provides a brief description of voice reversal in Hittite. With this background in place, Section 3 lays out evidence for a similar voice alternation in Luwian. Section 4 presents an overall assessment of the Luwian evidence and a discussion of its historical and theoretical implications. Section 5 concludes.

2. Voice reversal in Hittite

In Old Hittite precisely two morphosyntactic classes of verbs undergo a contextual voice alternation. The first of these classes, referred to here as *activa tantum* (cf. Grestenberger 2018:501), consists of syntactically intransitive, unaccusative verbs that exhibit only active inflectional endings in their basic stem forms, e.g., *pai-* ‘go’ in (1a).¹ When *activa tantum* form their marked imperfective stem (with the suffix *-ške/a-*), they undergo a “voice reversal,” instead surfacing with only middle inflectional endings, as in (1b).² This pattern — first observed by Watkins (1969:72) and later noted by Neu (1968a:86–9) — is exceptionless in Old and Middle Hittite, as demonstrated by Melchert (2017) (cf. Yates and Gluckman 2020:19–20).

(1) Voice reversal with *activum tantum* Hitt. *pai-* ‘go’:

- a. *kinun=a natta kuwāpikki pāun*
now=TOP NEG anywhere go:1SG.PST.ACT

‘But recently I haven’t gone anywhere.’ (KBo 17.1 iv 13; OS)

- b. *karū=ma [ŠÀ?] É DUMU.MEŠ-an paišgaḫat*
formerly=TOP inside house children:GEN.PL go:IPFV:1SG.1SPST.MID

‘I used to go to the children’s quarters.’ (KBo 17.1 iv 12–13; OS)

¹ Hitt. *pai-* ‘go’ and other motion verbs are unaccusative already in Old Hittite (see Yates 2022, contra Goedegebuure 1999, Luraghi 2010:139–42, Inglese 2020:81).

² I use the conventional term “imperfective” here for functionally equivalent verbal stems formed with the Hittite suffixes *-ške/a-*, *-anna/i-*, and *-šša-* (Hoffner and Melchert 2008:322–3), but see Inglese and Mattioli 2020 for arguments that (at least) *-ške/a-* is better characterized as a pluractional marker.

The converse pattern is observed in the other affected morphosyntactic class, deponents (in the sense of Grestenberger 2014, 2018), which are syntactically transitive, agentive verbs that exhibit only middle inflectional endings in their basic stem forms, e.g., *ḫuett(i)*– ‘pull, drag’ in (2a). When deponents form their marked imperfective stem, they similarly undergo a voice reversal, instead surfacing with only active inflectional endings, as in (2b).

(2) Voice reversal with deponent Hitt. *ḫuett(i)*– ‘pull, drag’:

- a. *kinun=a* 1 UDU LU-*naš* *kāššas=(š)aš* *ḫuettiyanta*
 now=TOP 1 sheep man:GEN.SG in.place.of=his pull:3PL.NPST.MID

‘But now in place of the man they shall drag in one sheep.’ (KBo 6.26 i 41; OH/NS)

- b. *kētt=a* *kētt=a* GI-*an* *hūttiyannai*
 this.side=CONJ this.side=CONJ arrow:ACC.SG.C
tarnai=m=an *natta*
 release:3SG.NPST.ACT=TOP=3SG.ACC.C NEG

‘He keeps drawing his arrow toward this side and that, but he does not let it go.’
 (KBo 17.43 i 10–11; OS)

Significantly, no other verbs undergo voice reversal in their imperfective stems: transitive verbs with basic stems forms that exhibit active inflection in syntactically active contexts form imperfective stems that surface with active inflection in equivalent contexts, e.g., (3a); intransitive, unergative verbs exhibit only active inflection in their basic stem and their imperfective stem, e.g., (3b); and intransitive, unaccusative verbs that exhibit only middle inflection in their basic stem (i.e., *media tantum*) form imperfective stems that likewise exhibit only middle inflection, e.g., (3c).

(3) Absence of voice reversal in other Hittite verbal classes:³

- | | | | |
|----|--|---|---|
| a. | <i>piyer</i> ‘they gave’
(give:3PL.PST.ACT)
(KBo 8.42 rev. 10; OS) | → | <i>pišker</i> ‘they used to give’
(give:IPFV:3PL.PST.ACT)
(KBo 6.2 i 10; OS) |
| b. | <i>palwaizzi</i> ‘cries out’
(shout:3SG.NPST.ACT)
(KBo 25.82 rev. ⁷ 12; OS) | → | <i>palwiškezzi</i> ‘cries out’
(shout:IPFV:3SG.NPST.ACT)
(KBo 25.109 iii 7; OH/MS) |
| c. | <i>ešari</i> ‘sits down’
(sit:3SG.NPST.MID)
(KBo 3.22+ obv. i 79; OS) | | <i>ēškedumat</i> ‘sit down!’
(sit:IPFV:2PL.IMP.MID)
(KUB 12.63+36.70 obv. 5; OH/MS) |

³ Forms cited in (3) are attested in Old and Middle Script manuscripts, i.e., during the period in which voice reversal was obligatory for *activa tantum*. See Yates and Gluckman 2020:16–9 for further discussion of the data.

These properties are also shared by HLuw. *hwihwiya-* (cf. CLuw. *huhuiya-/huhuiya-*), a verbal stem derived from *hwia-* by prefixal partial reduplication; that the reduplicated stem is likewise unaccusative is confirmed by the subject pronoun */-as/* in its single attestation in (6), where it also shows active inflection (*/-ta/*).⁵

(6) Active inflection of reduplicated HLuw. *hwihwiya-*:

(*a=*)*wa/i=sá* | *za-ti* LOCUS-*la/i-ti-ti* | (“PES₂”) *hwa/i-hwa/i-ta-*
 CONN=QUOT=3SG.NOM.C this:LOC.SG place:LOC.SG RED:move:3SG.PST.ACT

‘He used to go to this place.’ (KARKAMIŠ A6 §9)

Different morphosyntactic behavior emerges, however, when the imperfective suffix *-sa-* (cf. CLuw. *-šša-*)⁶ is further added to this reduplicated stem:⁷ in its four occurrences HLuw. *hwihwiyassa-* exhibits only middle inflection, */-tasi/* in (7a–b) and */-antasi/* in (7c–d) (cf. n.13).

(7) Middle inflection of reduplicated imperfective HLuw. *hwihwiyassa-*:

a. | PRAE-*pa=wa/i*||=*mu* | *za-a-sa* | EXERCITUS-*la/i/u-na-si-is*
 before=TOP=QUOT=1SG.DAT this:NOM.SG.C of.army:NOM.SG.C
 (DEUS)TONITRUS-*sa* | *hu-ha-sà-ta-si*
 StG:NOM.SG.C RED:move:IPFV:3SG.PST.MID

‘This Tarhunza of the Army proceeded before me.’ (TELL AHMAR 6 §7)

b. **a=wa/i=m=a-sa* | PRAE-*na* | *hu-ha-sà-ta-si*
 CONN=QUOT=1SG.DAT=3SG.NOM.C before RED:move:IPFV:3SG.PST.MID

‘He (= Tarhunza of the Army) proceeded before me.’ (TELL AHMAR 6 §19)

c. **a-pa-tá-za=pa=wa/i=ta* (TERRA+*LA+LA*)*wa/i-li-li-tà-za* **a-mi-i-zi*
 that:DAT.PL=TOP=QUOT=PTC territory:DAT.PL my:NOM.PL.C
 | *tá-ti-i-zi* AVUS-*ha-ti-zi=ha* | *348.*LA/I/U-tà-li-zi=ha*
 father:NOM.PL.C grandfather:NOM.PL.C=CONJ ancestor:NOM.PL.C=CONJ
 NEG₂-’ (PES₂)*hwa/i-hwa/i-sà-tá-si*
 NEG RED:move:IPFV:3PL.PST.MID

‘Into those territories my fathers and grandfathers and ancestors had not proceeded.’ (KARKAMIŠ A11b+c §8)

⁵ The same reduplicated verbal stem is attested once in Cuneiform Luwian (in an unclear context) and likewise shows active inflection: 3PL.PST.ACT ⟨*hu-u-hu-i-ya-an-da*⟩ (KUB 25.39 iv 2).

⁶ For analysis of Luw. */-s:a-/* (and */-tsa-/*; see §3.2 below) as imperfective (“iterative”) suffixes see Hawkins et al. 1974:185–8 (cf. Melchert 2003:205–6, Yakubovich 2015:§6.5, Sasseville 2020:451, 460, 504, 510).

⁷ The combination of the Luwian verb’s basic stem and imperfective *-sa-* is unattested (i.e., *hwiyassa-**). This situation is common in Hittite, where reduplication and frequently cooccur in the formation of imperfective stems (e.g., *ark-* ‘mount’ ⇒ *ararkiške/a-*, *arkiške/a-**), semantically reinforcing one another (cf. Dempsey 2015:65).

- d. [... ...]-*ti*-[*zi*]=*ha* | NEG₂ (PES₂)*hwa/i-hwa/i-sà-ta-si*
grandfather²:NOM.PL.C=CONJ NEG

‘...and my grandfathers had not proceeded.’ (KARKAMIŠ A12 §2)

The unexpected switch to middle inflection vis-à-vis (*hwi*)*hwiya-* is flagged by Hawkins (2006:21–2) in his discussion of (7a), who points out that there is little functional motivation: the basic stem is found with active inflection in virtually identical contexts, versions of the common trope whereby the gods indicate their favor in battle by “proceeding in front” of the victorious army (e.g., KARKAMIŠ A11*b+c* §11 in (5a) above; YALBURT 10 §3). Morpurgo Davies (apud Hawkins 2006, loc. cit.) therefore suggests that it may be compared with the occasional middle forms of Hitt. *ḫuw(a)i-* ‘move’ (see Neu 1968b:61), attested beside far more numerous active forms. Yet this comparison offers little insight into why the active and middle forms of HLuw. *hwiya-* and its derivatives stand in a complementary distribution: middle in the context of the imperfective suffix *-sa-*, otherwise active (cf. *eDiAna* #2103).

It seems unlikely that this distribution is due to chance; more plausibly, it is somehow to be attributed to the presence of the imperfective suffix *-sa-*. One potential hypothesis along these lines may be quickly excluded — namely, that middle inflection is an idiosyncratic property of this suffix. Examples like (8) show that *-sa-* has no affect on transitive verbs: the imperfective stem in (8b) exhibits active inflection just like the basic stem in (8a).⁸

(8) Active inflection in *marnu(wa)-* ‘destroy’ and imperfective *marnusa-*:

- a. |(*349)*á-la-ta-ha-na-ha-wa/i*(URBS) | ARHA | DELERE-*nú-wa/i-ha*
A.:ACC.SG.C=CONJ=QUOT away destroy:1SG.PST.ACT

‘I destroyed the city of Alataha.’ (KARKAMIŠ A1a §9)

- b. [...]=*wa/i* | (ORIENS)*i-pa-ma-si-zi* | ARHA | DELERE-*nu-sà-ha*
?=QUOT of.west:ACC.PL.C away destroy:IPFV:1SG.PST.ACT
**a-mi-ia-ti* | DOMINUS-*na-ní-ia-ti* | *314-*sa-ta-na-ti*
my:INS of.lord:INS support:INS

‘I was destroying those in the west with my lord’s support.’ (TELL AHMAR 6 §6)

In fact, suffixation of *-sa-* triggers a switch to middle inflection only with *hwiya-*, which is also the only *activa tantum* that is attested in combination with this suffix in the Luwian corpus. Though the evidence is very limited, this distribution invites comparison with Hittite, where *activa tantum* — and only *activa tantum* — exhibit a switch to middle inflection in the context of imperfective suffixes (§2). It is possible, then, that the middle inflection of HLuw. *hwihwiyasa-* seen in (7) should be understood in the same way as in Hittite, i.e., as an *activum tantum* undergoing voice reversal when an imperfective suffix is added.

⁸ The same pattern is seen in pairs like *usamu(wa)-* ‘bless’ (e.g., 1SG.PST.ACT *u-sa-nú-há*; KARATEPE 1 (Hu.) §XIV) vs. imperfective *usanusa-* (e.g., 1SG.PST.ACT *u-sa-nu-sa-ha*; ŞIRZI §2).

However, in order to evaluate the plausibility of this analysis it is necessary to consider whether there is any other evidence for or against voice reversal in Luwian. Some potential counter-evidence is treated in §3.2 below.

3.2. Evidence against voice reversal in Luwian?

The status of voice reversal in Luwian is problematized by at least three verbs. The first is the verb ‘stand’ (HLuw. *ta-*, CLuw. *ta-*). It happens not to be attested in a context in which a subject clitic would be required, but it is in all likelihood unaccusative like its Hittite cognate *tiye/a-* ‘step; take one’s place’ (cf. Garrett 1996:96), and at least in Hieroglyphic Luwian exhibits only active inflection, e.g., /-i/ in (9a). Supposing, then, that it is an *activa tantum*, one might expect it to undergo voice reversal in its marked imperfective stem, in this case formed with the suffix *-za-* (/t̄sa-/; cf. CLuw. *-zza-*). In its single attestation, however, the imperfective stem *taza-* does not switch to middle inflection but instead remains active-inflecting, surfacing with the ending /-atu/ in (9b) (rather than middle /-aru/).

(9) No voice reversal in *activum tantum ta-* ‘stand’:

- a. (DEUS)LUNA+MI-*sa=wa/i* (DEUS)SOL-*ha* REL-*ri+i*
 moon:NOM.SG.C=QUOT sun:NOM.SG.C=CONJ as
á-la/i-ma-z=a “CRUS”-*i*
 name:N.NOM.SG=PTC stand:3SG.NPST.ACT

‘Just as the name (of) the Sun-god and the Moon-god stands.’

(KARATEPE 1 (Hu.) §LXXV)

- b. POST-*na=wa/i* ARHA⁹ (“CRUS«?») *ta-za-tu* | *ara/i-zi*
 after=QUOT away stand:IPFV:3SG.IMP.ACT time:ACC.PL.C
 OMNIS-MI-*zi* (OCULUS) *á-za-ti-wa/i-tà-sa* | *á-lá/i-ma-z=a*
 all:ACC.PL.C A.:NOM.SG.C name:N.NOM.SG=PTC

‘Hereafter let the name (of) Azatiwada continue to stand for all time.’

(KARATEPE 1 (Hu.) §LXXIV)⁹

There is one complication for this verb, however: in addition to active forms, CLuw. *ta-* attests a few middle forms, e.g., e.g., 3SG.NPST.MID ⟨*ta-a-tar*⟩ (KUB 35.67 ii 5), 2PL.NPST.MID ⟨*da-a-ad-du-wa-ar*⟩ (KUB 9.31 ii 26). Such forms may call into question whether the verb ‘stand’ is properly an *activum tantum*, at least in the second millennium BCE.

A second problem is the denominative verb *aluna-**, attested only in its imperfective stem HLuw. *alunaza-* ‘become envious/covetous’, which is hapax in (10) (see Sasseville 2020: 441–2). The presence of the subject clitic (/as/) is consistent with an unaccusative verb. If it is indeed unaccusative, one might expect the verb to exhibit middle inflection in its imperfective forms, as is the case for all unaccusatives in Old Hittite. Yet in (10) it exhibits active inflection (/i/), contrary to what is expected if Luwian had voice reversal as a regular pattern.

⁹ Partially preserved in Ho. (CRUS[...?]-*tu*). This clause is directly followed by (9a).

(10) *ni-pa=wa/i=sá* (VAS) *á-la/i/u-na-za-ia* “CASTRUM«”»-*ní-si za-ti* ||
 or=QUOT=NOM.SG.C be.envious:3SG.NPST.ACT fortress:DAT.SG this:DAT.SG

‘Or if he becomes envious of this fortress.’ (KARATEPE 1 (Hu.) §LXV)

A third apparent counter-example to voice reversal is CLuw. *karmalašša-* ‘become crippled’, standardly analyzed as the imperfective in *-šša-* of an unattested denominative verb (see Sasseville 2020:495). This imperfective stem occurs four times in the Old Hittite *Laws*, always in the 3SG.NPST with active inflection (*/-i/*), as in (11). Again, it is clear that from the subject clitic (=aš) that the verb is unaccusative, but nevertheless it does not exhibit the middle inflection that is consistently observed in the imperfective stem of Old Hittite unaccusatives.

(11) *mān=aš* *ŪL=ma* *karmalaššai*
 if=3SG.NOM.C NEG=TOP be.crippled:IPFV:3SG.NPST.ACT

‘If he does not become crippled’ (KBo 6.4 i 29; OH/NS)

Finally, two more possible but considerably more uncertain examples are CLuw. *ḫalwatnazza-* ‘become excited/angry’ and *arpaša-* ‘suffer misfortune’, the imperfective stems of otherwise unattested denominative verbs (cf. Sasseville 2020:446–7, 490–1; *DCL*, s.vv.). Each is securely attested in a Hittite context with active inflection (*/-i/*), (12) and (13) respectively.¹⁰ The verbs’ semantics suggest unaccusative syntax, although corroborating evidence is lacking thus far. If they are unaccusative and Luwian had obligatory voice reversal, they should exhibit middle inflection, contrary to fact.

(12) [*karazza=š*] *i=kán* *anda ḫalwatnazzai*
 spirit:NOM.SG.C=3SG.DAT=PTC within be.excited:IPFV:3SG.NPST.ACT

‘The spirit inside him becomes excited.’ (KUB 36.89 rev. 39; NH/NS)

(13) *KARAŠ.ḪI.A TA MÈ arpašāi*
 army from battle be.unfortunate:IPFV:3SG.NPST.ACT

‘Will the army suffer misfortune from battle?’ (KUB 5.1 iii 33; NH/NS)

The status of *arpaša-*, in particular, is complicated by the fact that, in its other occurrence (KBo 3.6 i 30), the experiencer appears in the dative-locative case rather than the nominative case expected for standard unaccusative verbs. In this vein it may be noteworthy, too, that the nominative case marking for *ḫalwatnazza-* in (12) is restored in a break and thus entirely conjectural. The diagnostic value of these examples, especially (13), is thus questionable.

¹⁰ One might speculate that the active inflection of CLuw. *karmalaššai* in (11) and *arpašāi* in (13), both attested only in Hittite contexts, is due to the influence of Hittite fientives in *-ešš-*, which have a similar phonological shape and semantics and are *activa tantum*. The difference in conjugational class — *-mi-*inflecting Hitt. *-ešš-* vs. *ḫi-*inflecting CLuw. *-šša-* — is difficult to reconcile on this hypothesis, however.

3.3. Other evidence for voice reversal in Luwian?

There is one additional Luwian verb that exhibits behavior consistent with voice reversal, but it is highly uncertain. Only the verb's imperfective stem, CLuw. *mazzalasa-*, is attested and it is a hapax in (13), where it exhibits middle inflection (/ -tuwari/). Melchert (*DCL*, s.v.) analyzes it as the imperfective in *-šša-* of an unattested denominative verb, just like *karmalašša-* in (11) and *arpaša-* in (13), and glosses it 'be tolerant'. This meaning would suggest that the verb is unaccusative, and in its lone occurrence in (14) can be interpreted in this way.¹¹

(14) *m[ān]* *šumeš=ma* LÚ.MEŠ URU-LIM *mazzalašaduvari* *ku[it]ki*
 if 2PL.NOM=TOP men of.city be.tolerant:IPFV:2PL.NPST.MID in.any.way
šummeš=kan *kuit* *neyari*
 2PL.NOM=PTC INDF:NOM.SG.N turn:3SG.NPST.MID

'If you men of the city are tolerant in any way, what will turn out for you?'
 (KUB 21.29 iv 13; NH/NS)

On the other hand, *CHD*, L–N:215 takes the verb as transitive with the indefinite pronoun *ku[it]ki* as its direct object (followed by Sasseville 2020:497), hence "tolerate something" in (13). On this analysis, however, the middle inflection of the verb is surprising: perhaps even more so than in Hittite, transitive verbs with middle inflection (viz., deponents; cf. §2 above) are very rare in Luwian.¹² It may be more parsimonious, then, to assume that the verb is unaccusative, a syntactic context in which middle morphology is appropriate (see §4.3 below) If it is further the case that the unattested basic stem of the verb was active-inflecting (i.e., an *activum tantum*), then the middle inflection of CLuw. *mazzalasa-* in (13) could be attributed to voice reversal.

3.4. Luwian verbal forms non-diagnostic for voice reversal

To conclude this survey of Luwian verbal forms relevant to the status of voice reversal, I note two Luwian verbs that are non-probative in this respect: CLuw. *kappilazza-* 'become hostile' and CLuw. *tarpanallašša-* 'become a rival'. Both are imperfective stems and diagnostically unaccusative, but are attested only in the 3SG.PST — e.g., *⟨ka-ap-pí-la-az-za-at-ta⟩* (KUB 14.11 ii 17), *⟨[⁴tar-p]a-na-al-la-aš-ša-at-ta⟩* (KUB 6.41 iii 54). Since there is no evidence that active and middle inflection were (yet) differentiated in 3SG.PST (or 3PL) in Cuneiform Luwian as they came to be in Hieroglyphic Luwian (3SG.PST.ACT /-ta/ vs. MID /-tasi/),¹³ it cannot be determined whether these verbal forms are active or middle and thus whether voice reversal has occurred.

¹¹ The exact meaning of the verb is quite uncertain, however (cf. Melchert, *DCL*, s.v.), in part because its context is very obscure. I follow *CHD* (L–N:215) in interpreting the following clause as a question, but compare the divergent attempts of von Schuler (1965:148), González Salazar (1994:168), and Kitchen and Lawrence (2012:1054), as well as that of Sasseville (2020:497) discussed just below.

¹² The only certain example is CLuw. *wašš-* 'wear' (3PL.NPST.MID *⟨wa-aš-ša-an-ta-ri⟩*; KUB 9.31 ii 23), with exact cognates in Hitt. *wešš-anta* and Ved. *vás-ate* (see, e.g., Kloekhorst 2008:1005–6), thus surely inherited as such (whether or not it continues a PIE deponent in the strict sense; see Grestenberger 2016:132–4).

¹³ On the development of *-si* as a marker of middle voice in Hieroglyphic Luwian see Rieken 2004 (building on Oshiro 1993).

4. Voice reversal in Luwian: assessment and implications

In this section I provide a holistic assessment of the Luwian evidence for voice reversal (§4.1). This evaluation prompts a diachronically-oriented discussion of voice reversal in which I situate the Luwian facts in their broader Anatolian and Indo-European context (§4.2). I then briefly touch upon some theoretical implications of the Luwian verb ‘move’ (discussed in §3.1) on the assumption that its voice alternations are to be attributed to voice reversal (§4.3).

4.1. The status of voice reversal in Luwian

The evidence for voice reversal in Luwian was treated comprehensively in section 3. Overall, it is slender and mixed. Two imperfective stems were identified that potentially exhibit voice reversal vis-à-vis their basic stem, HLuw. *hwiyasa-* ‘move’ (§3.1) and CLuw. *mazzalaša-* ‘be tolerant’ (§3.3). Of these only HLuw. *hwiyasa-* securely instantiates the relevant pattern, as its base is diagnostically unaccusative and consistently exhibits active inflection (i.e., it is an *activum tantum*). Neither of these properties are assured for the base of CLuw. *mazzalaša-*, since it is unattested; moreover, both the meaning and the syntax of the single attestation of the imperfective stem are debatable.

On the other hand, three or perhaps as many as five imperfective stems were adduced in §3.2 that do not appear to undergo voice reversal despite having the relevant morphosyntactic properties. Among these the best example is HLuw. *taza-* ‘stand’, since its base is diagnostically unaccusative and at least in Hieroglyphic Luwian exhibits only active inflection. The others — HLuw. *alunaza-* ‘become envious’, CLuw. *karmalašša-* ‘become crippled’, CLuw. *ḫalwatnazza-* ‘become excited, and CLuw. *arpasa-* ‘suffer misfortune’ — all lack attested bases. The former two are unaccusative, so it can be safely inferred that their bases were as well, but for the latter two this property cannot be independently verified. In any case, in the absence of attested bases it cannot be determined whether these imperfectives constitute counter-evidence to voice reversal as a synchronic process; an alternative possibility is that they are traces of an earlier stage at which voice reversal was not yet active, as may be the case for the lexicalized imperfectives Hitt. *iyanna/i-* ‘set out; go’ (3SG.NPST.ACT *iyannai*) and Hitt. *eške/a-* ‘exist’ (3PL *ēškanzi*; see Yates 2023).¹⁴

It is difficult to evaluate the status of voice reversal in Luwian based on this sparse and contradictory evidence, but the available data seems insufficient to support the hypothesis that voice reversal was ever obligatory in Luwian as it is in Old Hittite. Nevertheless, I tentatively propose that Luwian developed voice reversal to a limited extent, and that at least the switch from active inflection in HLuw. *hwiya-* to middle inflection in its imperfective *hwihwiyasa-* is a manifestation of this phenomenon.¹⁵ In §4.2 I develop this proposal more fully and present a comparative-historical argument in support of it. I show that the “limited voice reversal” pattern suggested for Luwian has striking parallels in other ancient Indo-European (IE) languages, then address the diachrony of voice reversal in IE and Anatolian more generally.

¹⁴ Viz., the oral version of this paper. The accompanying slides (available at: <http://www.adyates.com/research/>) include a provisional treatment of the Hittite and non-Anatolian IE data for (limited) voice reversal and a discussion of its diachrony and motivation; I intend to publish a fuller account of this material elsewhere.

¹⁵ It may also account for the middle inflection of CLuw. *mazzalaša-*, but I leave this open in view of the many uncertainties surrounding (13) and this verb more generally (cf. §3.3 above).

4.2. The diachrony of voice reversal in Luwian

It was proposed in §4.1 that Luwian developed voice reversal to a limited extent. By this I mean more precisely that certain *activa tantum* developed innovative middle-inflecting forms in their suffixed imperfective stem, but middle inflection never became grammatically obligatory in this context, and accordingly, was not systematically extended to all *activa tantum*.¹⁶ Such a development may find typological support within the IE language family — in particular, in the (pre)history of at least Ancient Greek and Tocharian, where it appears that the same kind of “limited voice reversal” developed independently. A full treatment of the relevant data is beyond the scope of this paper (see Yates 2023),¹⁴ but a brief discussion is in order.

Ancient Greek has a well-known class of verbs known as “semi-deponents,” which exhibit active inflection in their present (and aorist) stem, but middle in their future (see Rijksbaron 2007:156–7 for a partial list). Verbs with prototypical unaccusative semantics are well-represented in this class — e.g., the verbs in (15), which contrast an active-inflecting present (and aorist) stem with a middle-inflecting future stem derived with the suffix *–se/o–*.¹⁷ This contrast can be understood as a case of voice reversal:¹⁸ the verbs are *activa tantum*, but in the context of a stem-forming suffix switch to middle inflection. Significantly, though, this voice reversal is limited in two senses: (i) voice reversal occurs in the context of future *–se/o–*, but not in all suffixed tense-aspect stems, e.g., in the aorist stems in (15d–e) formed with the suffix *–sa–*; and (ii) not all unaccusative verbs undergo voice reversal in the context of future *–se/o–*, e.g., (15f–g).

(15) Limited voice reversal in Ancient Greek *activa tantum*:

	PRS.ACT	AOR.ACT	FUT.MID [ACT]	
a.	AGk. <i>bainō</i>	<i>ébēn</i>	<i>bésomai</i>	‘walk; go’
b.	AGk. <i>t^héō</i>	—	<i>t^hésomai</i>	‘run’
c.	AGk. <i>eimí</i>	—	<i>és(s)omai</i>	‘be’
d.	AGk. <i>bióō</i>	<i>ebiōsa/ebiōn</i>	<i>biósomai</i>	‘live’
e.	AGk. <i>deídō</i>	<i>édeisa</i>	<i>deísomai</i>	‘fear’
f.	AGk. <i>érrō</i>	<i>ērrésa</i>	[<i>errésō</i>]	‘go away; disappear’
g.	AGk. <i>prépō</i>	<i>éprepsa</i>	[<i>prépsō</i>]	‘be noticeable; resemble’

A diachronic approach is necessary to interpret the Tocharian data. In (16) are listed Tocharian verbs that (i) have prototypical unaccusative semantics and (ii) are derived with the suffix **–ské/o–* from Proto-Indo-European (PIE) roots that have primarily or exclusively active

¹⁶ I would expect deponents to behave similarly in Luwian (just as in Old Hittite), but at present no evidence is available to test this prediction: there are no attested imperfective forms of assured deponents (cf. §3.3 with n.12).

¹⁷ Since Ancient Greek lacks (known) morphosyntactic diagnostics for distinguishing unaccusative from other intransitive (viz., unergative) verbs, unaccusativity can be inferred only indirectly from lexical semantics.

¹⁸ See Fortson (2022) for a discussion and critique of previous accounts of this voice alternation, as well as a possible explanation for some non-accusative verbs that show the same.

reflexes in the IE languages.¹⁹ The six verbs in (16a–f) exhibit only middle inflection, the two verbs in (16g–h) only active. From a historical perspective, the former set can be analyzed as another case of voice reversal: these verbal roots were *activa tantum* in PIE, but specifically in the context of the suffix **-s $\hat{k}e/o-$* — historically the same suffix that triggers voice reversal in Old Hittite *activa tantum*, e.g., in (1b) above — their Tocharian reflexes surface with only middle inflection. As in Greek, though, this voice reversal is limited: it occurs with most *activa tantum*, (16a–f), but as evident in (16g–h), not with all.

The Tocharian verbs in (16a–f) were previously taken by Melchert (2017:482–4) as support for an alternative hypothesis — namely, that already in PIE *activa tantum* underwent (16) Limited voice reversal in Tocharian *activa tantum*:²⁰

		PRS.MID [ACT]		CLASS		PIE
a.	TB	<i>skente</i>	‘they are’	Prs III	<	<i>*h₁s-(s)$\hat{k}e/o-$</i>
b.	TA/B	<i>m\ddot{a}sk-</i>	‘be(come)’	Prs III	<	<i>*mη-s$\hat{k}e/o-$</i>
c.	TA/B	<i>musk-</i>	‘disappear’	Prs XII	<	<i>*m(y)uh_x-s$\hat{k}e/o-$</i>
d.	TA/B	<i>w\ddot{a}sk-</i>	‘move’	Prs III	<	<i>*ug^h-s$\hat{k}e/o-$</i>
e.	TA	<i>yutk-</i>	‘become agitated’	Prs III	<	<i>*h_xyud^h-s$\hat{k}e/o-$</i>
f.	TA/B	<i>s\ddot{a}tk-</i>	‘spread (intr.)’	Prs III	<	<i>*(h₂)sut-s$\hat{k}e/o-$</i>
g.	TA	[<i>k\ddot{a}tk-</i>]	‘arise’	Prs VII	<	<i>*g^had-s$\hat{k}e/o-$</i>
h.	TB	[<i>r\ddot{a}tk-</i>]	‘(a)rise’	Prs VII	<	<i>*h₃rih_x-T-s$\hat{k}e/o-$</i>

voice reversal (ACT → MID) when suffixed with **-s $\hat{k}e/o-$* , and that this pattern is preserved in Old Hittite and in the Tocharian verbs in (16a–f). Yet this analysis faces exceptions in both directions, both within these languages and across IE more broadly. On the one hand, it predicts too much voice reversal. The active inflection of the Tocharian verbs in (16g–h) is unexpected on this analysis, as is that of the lexicalized imperfective Hitt. *eškanzi* (cf. §4.1), which in view of its active-inflecting cognates OLat. *escit* and AGk. *éske* may be reconstructible as such for PIE (cf. n.19). In a similar vein, active inflection is likely to be reconstructible in other **-s $\hat{k}e/o-$* -suffixed derivatives of PIE *activa tantum* — e.g., **g^wm-s $\hat{k}e/o-$* > Ved. *gáčchati* ‘comes, goes’, AGk. *báske* ‘come!’, Alb. *n-gah* ‘goes off’, all with active inflection (see LIV²:209). On the other hand, it does not account for the voice reversal observed in Hittite deponents (§2), nor for the Ancient Greek futures in (14a–e) that show voice reversal in the context of a historically different suffix, i.e., AGk. *-se/o-* (< desiderative PIE **(h₁)se/o-*).

In contrast, voice reversal may allow for a unified account of this data. I have argued that the emergence of voice reversal is a natural development, a response to speakers’ preferences for voice morphology to align with syntactic function (see further §4.3 below), and as such is likely to recur in the history of the IE languages — in particular, in the context of productive suffixes, which prompt speakers to produce novel forms (Yates 2023).¹⁴ The IE verbs in which voice reversal is attested are consistent with this description. Voice reversal in Hittite is associated with imperfective stem-formation which, especially with *-s $\hat{k}e/a-$* (< PIE **-s $\hat{k}e/o-$*), is massively

¹⁹ For the IE reflexes of these roots see generally LIV²: s.vv, and with respect to (15a) specifically see Yates 2023¹⁴ for arguments that **h₁es-(s) $\hat{k}e/o-$* should be reconstructed with active inflection in PIE.

²⁰ Present classes per Malzahn 2010.

productive, e.g., as an obligatory part of the innovative “supine” construction (see Hoffner and Melchert 2008:322, 328). The Tocharian verbs in (15a–f) that are historically derived with PIE **-s $\acute{h}e/o-$* lack word equations anywhere in IE (see *LIV*²: s.vv.), and so were probably created within (the prehistory of) Tocharian, given the established productivity of **-s $\acute{h}e/o-$* in this branch (see Malzahn 2010:460–1 with references). Similarly, in Ancient Greek the suffix *-se/o-* is highly productive as an exponent of the newly grammaticalized future tense (see, e.g., Lundquist and Yates 2018:2141); none of the middle-inflecting futures in (15a–e) have exact morphological correspondents in other IE and thus are in all likelihood innovative.

All of these forms can be explained if voice reversal emerged independently in each of these IE language branches. If voice reversal were not a feature of PIE, then the active-inflecting reflexes of *-s $\acute{h}e/o-$* -suffixed PIE *activa tantum* like Ved. *g $\acute{a}cchati$* and the synchronically exceptional Hitt. *ēškanzi* may be simply inherited as such. In Tocharian and Greek voice reversal developed to a limited extent, affecting some but not all *activa tantum*. It also emerged in Anatolian. Among all the IE languages voice reversal developed to the fullest extent in Hittite, where it was grammaticalized as an obligatory process in both *activa tantum* and deponents. Luwian is rather like Tocharian and Greek in developing voice reversal to a much more limited extent, perhaps only in the imperfective stem of the *activum tantum* verb ‘move’, hence the middle inflection of HLuw. *hwihwiyasa-*.

A final point to be addressed is whether the Hittite and Luwian evidence for voice reversal stems from a single innovation in their proximate common ancestor, Proto-Anatolian (PA). While this possibility cannot be excluded, there is little to recommend it. Reconstructing a Hittite-like obligatory voice reversal process would not directly account for the forms of HLuw. *hwihwiyasa-* that do exhibit voice reversal (viz., the only compelling evidence for this process in Luwian). These forms cannot be simple archaisms, since many have undergone a complete morphological renewal between PA and Luwian. For instance, 3SG.PST.ACT HLuw. *hwiyata* in (5) contains what is from a historical perspective a middle ending, PIE/PA **-to*, which replaced the inherited active ending PIE/PA **-t* in the prehistory of Luwian (Yoshida 1993:33–4); meanwhile, in the 3SG.PST.MID *huhasatasi* in (7a) the inherited middle ending PIE/PA **-to* was recharacterized by a particle (cf. §3.4 and n.13 above). In addition, if voice reversal had emerged in PA one might expect to find agreement between the Anatolian languages as to which suffixes condition voice reversal. Yet there is no Luwian evidence for voice reversal in the context of the imperfective suffix */-tsa-/*, the Luwian cognate of Hitt. *-ške/a-* (< PIE **-s $\acute{h}e/o-$* ; cf. Kloekhorst 2008:767–70, i.a.), which is the most common trigger of voice reversal in Hittite by type and by token. Conversely, the only positive evidence for voice reversal in Luwian comes from the imperfective suffix */-s:a-/*, the Luwian cognate of Hitt. *-šš(a)-* (Melchert 1989:27–29),²¹ which is not attested as a trigger of voice reversal in Hittite.²²

This problem is obviated, however, if voice reversal in Hittite and Luwian were independent developments. In fact, the Anatolian data fits well with this hypothesis. It is clear that the suffix */-s:a-/* was more productive in Luwian than in Hittite: despite its much smaller corpus, Luwian attests eighteen distinct imperfective stems in */-s:a-/* (according to Sasseville 2020:490–504) vs. just four in Hittite (cf. Kloekhorst 2008:689). Luwian imperfectives in */-s:a-/* even outnumber imperfectives in */-tsa-/*, just twelve per Sasseville (2020:441–51). The Hittite situation is very different: *-ške/a-* is highly productive, while *-šš(a)-* is restricted to just a few

²¹ But despite the equation of uncertain IE origin (see, e.g., Kloekhorst 2008:688–90).

²² No Hittite *activa tantum* or deponents form their imperfective with the *-šš(a)-*; there is no reason to suspect that it would fail to condition voice reversal.

verbs. That voice reversal is attested in Luwian with /-s:a-/ and in Hittite with *-ške/a-* is entirely consistent with the idea discussed above that voice reversal tends to emerge diachronically in the context of productive morphemes.

4.3. Some theoretical implications of voice reversal in Luwian

It was argued in §4.1 and §4.2 that Luwian attests at least one case of voice reversal, which is manifest in the alternation between active-inflecting HLuw. *hwiya-* and its middle-inflecting imperfective *hwihwiyasa-*. If correct, this analysis may have implications for how voice reversal should be analyzed.

The starting point for Yates and Gluckman's (2020) analysis of Hittite voice reversal is the observation that voice morphology generally aligns with — or “matches” — syntactic function, both from a cross-linguistic perspective and in the older Indo-European languages specifically (see especially Grestenberger 2018:489–90 with references to previous literature). This is also the case in Old Hittite (Yates and Gluckman 2020:5, 24–5). Most transitive verbs exhibit active inflection in syntactically active contexts, as expected when the subject is an agent; it also has a robust class of unaccusative *media tantum*, i.e., unaccusative verbs that exhibit only middle inflection, as expected when the subject is a patient. On this view, though, Old Hittite also has two verbal classes in which voice morphology and syntax “mismatch:” deponents, which are transitive but exhibit middle inflection in syntactically active contexts; and *activa tantum*, which are unaccusative but exhibit only active inflection. Significantly, it is precisely these two verbal classes that undergo voice reversal, switching from mismatch voice endings in their basic stem forms to the syntactically matching set in the context of imperfective suffixes.

To account for Hittite voice reversal, Yates and Gluckman (2020:28–32) propose that mismatch verbs are morphologically irregular, a property stored on their verbal root: deponents are lexically marked for middle inflection, *activa tantum* for active. This lexical mark triggers mismatch voice morphology, but crucially, only when the inflectional endings that express voice are directly adjacent to the verbal root (viz., morphologically local), as is the case in their basic stem. In their marked imperfective stem, however, an overt suffix, *-ške/a-* or *-anna/i-*, intervenes between these inflectional endings and the lexically marked root, which thus cannot trigger syntactically exceptional voice morphology; the verb therefore reverts to the morphological form expected from syntactic structure (i.e., active for deponents, middle for *activa tantum*), eliminating the voice mismatch.

Yet the Hittite data is in principle open to a different analysis, one in which it is instead “imperfectivity” that conditions voice reversal.²³ The basic problem for distinguishing between these two analyses is that the imperfective suffixes are the only productive Hittite affixes that both (i) attach to verbs and (ii) do not affect the argument structure of the verb (as does, e.g., causative *-nu-*), altering it in such a way that changes in voice morphology are syntactically expected. Yet despite its very limited data for voice reversal, Luwian provides a context in which the differing predictions of these analyses can be tested.

As discussed in §3.1, the HLuw. *hwiya-* ‘move’ forms a partially reduplicated stem *hwihwiyasa-*. Dempsey (2015:331) has demonstrated that verbal reduplication is functionally equivalent to the use of imperfective suffixes in Anatolian (cf. Inglese and Mattioli 2020:291 on

²³ Or more precisely, whatever grammatical property that Hitt. *-ške/a-* and *-anna/i-* express (cf. n.2 above). Note, though, that for such an alternative analysis to be viable it would require a principled explanation for why this grammatical property should induce active inflection in deponents and middle inflection in *activa tantum*.

Hittite). Thus if “imperfectivity” were the trigger of voice reversal, it should occur in the context of reduplicated *hwihwiya-*, but as evident in (6), it does not: *hwihwiya-* exhibits the same active inflection as its basic stem *hwiya-* in (5). Voice reversal does occur, however, when the imperfective suffix *-sa-* is further added to this reduplicated stem: *hwihwiyasa-* exhibits consistent middle inflection in (11). This is precisely what Yates and Gluckman’s (2020) analysis of Hittite voice reversal predicts: no reversal in *hwihwiya-* because the verbal root remains directly adjacent to the inflectional endings that express voice; but reversal in *hwihwiyasa-* because the suffix *-sa-* intervenes between the verbal root and these endings. The Luwian data thus provides an argument in support of their analysis of deponents and *activa tantum* as morphologically irregular.

5. Conclusion

In this paper I have argued that voice reversal is an Anatolian phenomenon, occurring not just in Hittite (§2), but also in Luwian (§3). At present the positive evidence for voice reversal in Luwian is less than robust: it may be the case that only the *activum tantum* verb ‘move’ instantiates voice reversal, which accounts for the alternation between active inflection in forms of its basic stem HLuw. *hwiya-* and middle inflection in forms of its imperfective stem *hwihwiyasa-* (§4.1). Yet while few in number, these forms may be of synchronic and diachronic interest. It was suggested (in §4.1 and §4.2) that voice reversal in Hittite and Luwian was the result of independent innovations, and that its development in Luwian has close parallels in the prehistory of Ancient Greek and Tocharian, both in the sense that it only affects a subset of mismatch verbs and that the affected set are formed by productive morphological process. The Luwian forms exhibiting voice reversal would thus join a growing body of (IE) evidence in support of the hypothesis that voice reversal is a typologically natural development, and furthermore, one associated especially with productive word-formation (as per Yates 2023).¹⁴ These Luwian forms may also offer insight into the analysis of voice reversal, substantiating the claim of Yates and Gluckman (2020) that voice mismatches are attributable to morphological irregularity (§4.3).

These findings should be regarded with caution, however. Given the limited nature of the Luwian data, it is likely that the discovery of just a few more diagnostic verbal forms would significantly impact how the status of voice reversal is evaluated. I expect that with greater awareness of this pattern future research will bring such evidence to light.

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Abstract

I argue (i) that “voice reversal,” a contextual voice alternation previously identified in Hittite (Yates and Gluckman 2020), is also observed in Luwian — in particular, in the middle inflection of the reduplicated verbal stem Hieroglyphic Luwian *hwihwiyasa-* vis-à-vis the active inflection of its basic stem, *hwiya-* ‘move’; and (ii) that the Luwian and Hittite evidence for this phenomenon is the result of independent inner-Anatolian innovations with close diachronic parallels elsewhere in the ancient Indo-European languages. I then assess the implications of these claims for the synchrony and diachrony of “voice reversal” cross-linguistically.

Keywords: Luwian; Anatolian; morphosyntax; voice; language change