

Voice mismatch in Hittite: Locality and emergent alignment

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§1 Introduction

§1.1 The puzzle — voice mismatch

- In Hittite — as in other ancient IE languages — many verbs take both active and middle morphology (with distinct functions; cf. §2.1 below).
- Hittite also has a robust class of verbs known as *media tantum* ('middle only') that take only middle morphology in their basic stem forms.
- Two generalizations about Hittite *media tantum*:
 - i) Most *media tantum* are syntactically unaccusative.
 - ii) Syntactically unaccusative verbs tend to be *media tantum*.
- (1) Canonical *media tantum* in Hittite:
 - (MID) *ki-tta(ri)* 'lies'; *ar-ta(ri)* 'is standing'; *kiš-ta(ri)* 'happens; becomes'.
- In Old Hittite, these generalizations are regularly flouted by two classes of verbs:
 - i) DEONENTS — syntactically agentive, transitive verbs that show only middle inflection in their unaffixed stem, e.g. (2a).
 - ii) *activa tantum* — unaccusative verbs that show only active inflection in their unaffixed stem, e.g. (2b).
- (2) Exceptional voice inflection in Hittite:
 - a. (MID) *ḫuettiy-a* 'pulls; draws'; *paršiy-a* 'breaks (bread)'; *tuḫš-a(ri)* 'cuts off'
 - b. (ACT) *ak-i* 'dies'; *pai-zzi* 'goes'; *ašiwanteš-zi* 'becomes poor'
- However, the imperfective stems of these exceptional verbs show the opposite voice morphology:
 - (3) Voice reversal in deponents/*activa tantum*:
 - a. (ACT) *paršiyanna-i* 'breaks (bread)'; *ḫuittanna-i* 'pulls; draws'
 - b. (MID) *akkiške-ṭtari* 'is dying'; *paišga-ḫat* 'I went'; *ašiwantešk-antari* 'become poor'
- Why does this apparent "voice reversal" occur?
 - > "Voice reversal" is voice ALIGNMENT — syntactically regular voice morphology emerges in syntactically exceptional verbal roots (i.e., deponents, *activa tantum*) when root & voice are non-local.

§1.2 Roadmap

§2 — Overview of distribution of Hittite voice morphology and unaccusativity.

§3 — Hittite imperfectives and their interaction with voice morphology.

§4 — Analyzing Hittite "voice reversal."

§5 — On some exceptions and their diachronic implications.

§2 Hittite voice morphology, unaccusativity, and exceptionality

§2.1 Canonical middles

- Hittite middle morphology is mostly found in the same set of syntactic environment as non-active morphology in other languages with bivalent voice systems (e.g., Vedic Sanskrit, Modern Greek).
- For verbs that alternate between active and middle inflection (“oppositional middles”), canonical functions associated with middle-marked verbs include anticausatives, passives, reciprocals, and reflexives — e.g., (4):

(4) Active transitive vs. middle reflexive:

a. *n=an šuppiyah-ḥun*
 CONN=3SG.ANIM.ACC purify-1SG.PST.ACT
 ‘I purified it.’ (KUB 19.37 ii 17)

b. *[Nar]am-^dSIN-naš suppiyah-ati*
 Naram.Sin.ANIM.NOM.SG purify-3SG.PST.MID
 ‘Naram-Sin purified himself.’ (KBo 3.16 iii 11)

· See Appendix II in §7 below for further examples.

- Hittite also has non-alternating *media tantum*, most of which belong to semantic classes that cross-linguistically tend to appear with non-active morphology in bivalent voice systems (Kemmer 1993, Zombolou and Alexiadou 2014, *i.a*).

· Such canonical *media tantum* include:

- Stative verbs — e.g., *ki-* ‘lie’, *ar-* ‘stand’, *tarra-* ‘be able’.
- Change-of-state verbs — e.g., *kiš-* ‘happen; become’, *ḥuršakniye/a-* ‘burst’, *zeya-* ‘get cooked’.
- Experiencer/psych verbs — *kardim(m)iye/a-* ‘be angry’.
- (Certain) motion verbs — e.g., *iye/a-* ‘walk’.

§2.2 Unaccusativity in Hittite

- In contrast to other ancient IE languages, Hittite has clear diagnostics for syntactic unaccusativity (cf. Hoffner and Melchert 2008:310 n. 7).

· Such diagnostics are important, since in these IE languages and cross-linguistically lexical semantics and syntactic unaccusativity are imperfectly related.

- Whenever canonical *media tantum* occur in a clause without an overt DP subject, a subject clitic is obligatory — e.g., (5) vs. (6):

(5) DP subject ⇒ no subject clitic:

a. *nu=wa kē urkiēš kiš-andati*
 CONN=QUOT this.ANIM.NOM.SG sign.ANIM.NOM.SG become-3PL.PST.MID
 “‘These signs **occurred**.’” (KuT 49: 4–5)

b. *ḥurtiyali=ma [AN.B]AR-aš nēpiš ^{1EN}ki-tta*
 vessel.LOC.SG iron.GEN.SG sky.N.NOM.SG 1 lie-3SG.NPST.MID
 ‘In the *ḥ*-vessel **lies** a “sky of iron”.’ (KBo 17.1 obv 5´–6´)

(6) No DP subject ⇒ subject clitic:

- a. *man=war=aš=mu* LÚ MUTI=YA *kiš-ari*
 IRR=QUOT=3SG.ANIM.NOM=1SG.DAT husband=1SG become-3SG.NPST.MID
 “[If . . .], he would become my husband.” (KBo 5.6 iii 12–13)
- b. [*n=aš=ša*]n *hašši PANI*^dU.GUR *ki-tta*
 CONN=3SG.ANIM.NOM=PTC hearth.LOC before.U.GUR lie-3SG.NPST.MID
 ‘**It lies** on the hearth before the deity U.GUR.’ (KBo 17.15 rev 17’)

- Crucial observation of Watkins (1968–9:93): subject clitics never occur with transitive verbs!

(7) Transitive verb ⇒ no subject clitic:

- a. *nu=za=kan* HUR.SAG *Arinnandan ēpp-er*
 CONN=REFL=PTC Arinnanda.ACC take-3PL.PST.ACT
 ‘**They took** Mt. Arinnanda for themselves.’ (KBo 3.4 ii 34)
- b. *nu=kan* ^m*Zidantan addaš=šan* *kuen-ta*
 CONN=PTC Zidanta.ACC father.ACC=3SG.ANIM.ACC.SG kill-3SG.PST.ACT
 ‘Then **he killed** Zidanta, his father.’ (KBo 3.1+ i 68)

- Watkins’ observation refined by Garrett (1990a,b, 1996), who demonstrated that only unaccusative verbs — in contrast to (7) transitive verbs or (8) unergative verbs — take subject clitics:

(8) Unergative verb ⇒ no subject clitic:

- a. *šēr=pat* *aruwā-nzi*
 upward=FOC bow-3PL.NPST.ACT
 ‘**They** (viz., the king and the queen) **bow** upward.’ (KBo 17.74+ iii 19)
- b. *nu* 3-ŠU *palwai-t*
 CONN thrice make.noise-3SG.PST.ACT
 ‘**He shouted out** three times.’ (KBo 26.65 iv 15–17)

- Per Garrett, unaccusative verbs also pattern differently with respect to auxiliary selection in the periphrastic perfect (Boley 1984, 1992; cf. Hoffner and Melchert 2008:310–12).

• As in (e.g.) Dutch and Italian, only unaccusative verbs employ ‘be’ (*eš/aš-*) rather than ‘have’ (*hark-*) — compare unaccusative (9) with unergative (10a) and transitive (10b):

(9) Unaccusative ⇒ auxiliary ‘be’:

- a. *nu=kan antuḥšātar kuit* INA URU.DIDLI.ĪLA=ŠUNU EGIR-*pa*
 CONN=PTC population because into cities=3PL back
pān *ēš-ta*
 go.PTCP.N.NOM/ACC.SG be.3SG.PST.ACT
 ‘Because the population **had gone** back into their cities. . .’ (KBo 5.6 i 19–20)

(10) Agentive ⇒ auxiliary ‘have’:

- a. *nu* *aruwan* *hark-anzi*
 CONN bow.PTCP.N.NOM/ACC.SG have-3PL.NPST.ACT
 ‘They **have** bowed.’ (IBoT 3.140: 4)
- b. *kiššan=wa=mu* *kuiš iyan* *har-zi*
 thus=QUOT=1SG.DAT who do.N.NOM/ACC.SG have-3SG.NPST.ACT
 ‘. . . who **has done** thusly to me.’ (KUB 54.1 i 20–21)

§2.3 Exceptional type #1 — unaccusative *activa tantum*

- However, not all unaccusative verbs in Hittite are *media tantum*; there is also a substantial class of *activa tantum* that are syntactically unaccusative.
- These *activa tantum* broadly belong to the same semantic classes as unaccusative *media tantum*:
 - i) Stative verbs — e.g., *hūiš-* ‘live’, *karuššiyela-* ‘be silent’, *išstandāi-* ‘linger’.
 - ii) Change-of-state verbs — e.g., *ak(k)-* ‘die’, *m(a)i-* ‘grow’, *papr-e(šš)-* ‘become impure’.
 - iii) Experiencer/psych verbs — *naḥ(h)-* ‘fear’.
 - iv) (Certain) motion verbs — e.g., *pai-* ‘go’, *uwa-* ‘come’, *hūw(a)i-* ‘run’.
- Unaccusative *activa tantum* predictably co-occur with subject clitics, e.g. (11):

- (11) a. *n=aš* *lahḫa* *pai-zzi*
 CONN=3SG.ANIM.NOM campaign.ANIM.ALL.SG go-3SG.NPST.ACT
 ‘Then **he goes** on campaign.’ (KBo 6.3 ii 48)
- b. *takku ŠAḪ(-aš)* UR.GI₇-*aš* *katta kuiški* *wašta-i*
 if pig dog with someone.ANIM.NOM.SG sin-3SG.NPST.ACT
ak-i=aš
 die-3SG.NPST.ACT=3SG.ANIM.NOM
 ‘If someone sins with a pig (or) a dog, **he shall die.**’ (KBo 6.26 iv 16–17)

§2.4 Exceptional type #2 — transitive *media tantum*

- In addition, not all MEDIA TANTUM are unaccusative; Hittite DEPONENT verbs are transitive but take only middle morphology.
- Deponents are small closed class in Hittite — complete list given in (12):

(12) HITTITE DEPONENT VERBS

<i>ark-</i>	‘climb; mount’	<i>paḫš-</i>	‘protect’
<i>hanna-</i>	‘judge; contest-at-law’	<i>parš(i)-</i>	‘break (bread)’
<i>hatta-</i>	‘slit; pierce’	<i>šarra-</i>	‘transgress; break (oath)’
<i>huett(i)-</i>	‘pull; draw’	<i>tuhš-</i>	‘cut off’
<i>iškalla-</i>	‘tear; slit’	<i>wešš-</i>	‘wear’

- Examples of Hittite deponents in (13); predictably no subject clitics with transitive verbs in (13b–c):

- (13) a. *n=ašta* EN.SISKUR ANA NINDA.GUR₄.RA *awan arḫa tepu*
 CONN=PTC ritual.client from.the.thick.loaf away small.N.ACC.SG
paršiy-a
break-3SG.NPST.MID
 ‘The ritual client **breaks** off a little (piece) from the thick loaf.’ (KBo 13.164 iv 6)
- b. 1 UDU LU-*naš* *kāššaš* *hūittiy-a[nta]*
 1 sheep man.ANIM.GEN.SG in.place.of draw-3PL.NPST.MID
 ‘In place of the man **they shall drag in** one sheep.’ (KBo 6.26 iv 21)
- c. *nu* SAG.DU=KA *paḫš-andaru*
 CONN head=2SG protect-3PL.IMP.MID
 ‘**Let them** (viz., the gods) **protect** your person.’ (ABoT 65 obv. 4–5)

§2.5 Local summary — canonical and non-canonical middle inflection in Hittite

- Hittite active and middle inflection mostly occur in syntactic contexts in which active and non-active voice morphology are cross-linguistically expected.
- But there are two verbal classes — unaccusative *activa tantum* and deponents — in which voice morphology appears to mismatch syntax & semantics.

§3 Hittite voice morphology and imperfective verbal stems

- The two verbal classes that exceptionally exhibit voice mismatch also interact in an idiosyncratic way with imperfective suffixes.

§3.1 Hittite imperfectives — form and function

- Hittite has three functionally equivalent imperfective suffixes (cf. Hoffner and Melchert 2008:318):
 - Highly productive *-ške-* (*mi*-verb-forming)
 - Lexically-determined *-annāi-*, *-šša-* (*hi*-verb-forming)

- A range of imperfective meanings are commonly associated with such suffixed verbal stems, including progressive, habitual, pluractional, frequentative, and iterative — e.g., (14):

(14) Hittite marked imperfectives with ITERATIVE function:

- a. ^{LU}SANGA=*ma=kan IŠTU GÌR.GÁN KÙ.BABBAR GEŠTIN*
 priest=TOP=PTC from.a.bowl silver wine
hani-ške-zzi=pat
 draw.liquid=IPFC-3SG.NPST.ACT

‘The priest **keeps dipping up** wine from a silver bowl (and pouring it out into other cups).’
 (KBo 15.37 v 8–11 +)

- b. *kētt=a kētt=a GI-an hūitti-annā-i*
 on.this.side=CONJ on.this.side=CONJ arrow.ANIM.ACC.SG draw-IPFC-3SG.NPST.ACT
tarnā-i=ma=an natta ī halzi-šša-i
 release-3SG.NPST.ACT=TOP=3SG.ANIM.ACC NEG ee.ee cry.aloud-IPFC-3SG.NPST.ACT

‘**He keeps drawing** his arrow toward side and that, but he does not let it go, and **he keeps shouting** “ee ee!”.’
 (KBo 17.43 i 10–11)

- See Appendix III in §8 below for further examples.
- Grammatical equivalence of imperfective suffixes confirmed by “supine construction,” which requires a verbal noun formed to a marked imperfective stem.
 - This requirement is equally satisfied by any of the three imperfective suffixes:

- (15) a. *nu=mu ÉRIN.MEŠ pe-ške-wan dāir*
 CONN=1SG.DAT troops give-IPFC-SUP place.3SG.PST.ACT
 ‘They began **giving** me troops.’ (KBo 3.4 iii 24)

- b. ^{LU.MEŠ}MUḪALDIM *hug-anni-wan [t] ianzi*
 cooks give-IPFC-SUP place.3SG.NPST.ACT
 ‘The cooks began **slaughtering**.’ (KBo 17.74 + KBo 21.25+ i 44)

- c. *nu ēšhar=šummit e-šš-uwan tiyēr*
 CONN blood.ACC=3PL.ACC.SG do-IPFC-SUP step.3PL.PST.ACT
 ‘They began **killing** them (lit. ‘making their blood’).’ (KBo 3.1 i 21–3)

- Imperfective suffixes do not change the basic lexical meaning or the valency of their verbal stem.
- ⇒ Active transitive verbs regularly have active transitive imperfective forms, e.g. (16–17a) vs. (16–17b)
- ⇒ And these imperfectives can be passivized, e.g. (16–17c):

- (16) a. *n=uš=šan* *ḥaḥḥalaš parḥ-er*
 CONN=3PL.ANIM.ACC=PTC in.bushes chase-3PL.NPST.ACT
 ‘**They chased** them into the bushes.’ (KBo 3.67 ii 7)
- b. *nu=tt[(a)]* *NĪŠ DINGIR.MEŠ parḥe-šk-andu*
 CONN=2SG.ACC oath-gods chase-IPFC-3PL.NPST.ACT
 ‘May the oath-gods **pursue** you **continuously**.’ (KBo 4.3 i 34 + KUB 6.41 ii 25)
- c. *n=aš* *KALAG.GA-za parḥe-ška-ntari*
 CONN=3SG.ANIM.NOM frightfully chase-IPFC-3SG.NPST.MID
 ‘And it (viz., mankind, oxen, and sheep) is¹ being pursued frightfully.’ (KUB 17.16 i 4–5; see *CHD* P: 144)
- (17) a. *n=an* *INA UD.3.KAM mūgā-mi*
 CONN=3SG.ANIM.ACC for.3.days invoke-1SG.NPST.ACT
 ‘**I invoke** her for three days.’ (KUB 9.27 + KUB 7.8 i 5)
- b. *nu=tta kāša* *muki-ške-mi* *NINDA ḥaršit DUG išpanduzit*
 CONN right.now invoke-IPFC-1SG.NPST.ACT bread.INSTR libation.INSTR
 ‘I am invoking you right now with bread (and) libations.’ (KUB 24.2 obv. 12)
- c. *nu=za* *^dUTU ^{URU}Ari[nna=y]a zikila muke-ške-ḥhut*
 CONN=REFL Sun-goddess of.Arinna yourself invoke-IPFC.2SG.IMPF.MID
 ‘And you yourself, O Sun-goddess of Arinna, be invoked!’ (KUB 24.3 iii 12–13)

§3.2 Voice reversal #1 — imperfectives to unaccusative *activa tantum*

- First observed by Watkins (1969:72) that frequent unaccusative *pai-* ‘go’ and *uwa-* ‘come’ are inflected only in the active in their basic verbal stem, but almost exclusively in the middle in their *-ške-*imperfectives.
- Neu (1968:86–9) noted the same behavior in *-ešš-* fientives and *ak(k)-* ‘die’.
- Now demonstrated by Melchert (2017a) that in Old Hittite all unaccusative *activa tantum* regularly switch to middle inflection in their imperfective forms — e.g., (18):

- (18)
- | | BASIC STEM/ACTIVE | : | IMPERFECTIVE/MIDDLE | |
|----|-------------------------------------|---|---------------------------|------------------|
| a. | <i>ak-i</i> ‘dies’ | : | <i>akki-ške-ttari</i> | |
| b. | <i>pā-un</i> ‘I went’ | : | <i>pai-šga-ḥat</i> | (cf. (19) below) |
| c. | <i>ašiwant-eš-zi</i> ‘becomes poor’ | ~ | <i>ašiwante-šk-antari</i> | |
| d. | <i>park-iš-ta</i> ‘grew tall’ | ~ | <i>parki-ška-ttari</i> | |
| e. | <i>tepaw-eš-zi</i> ‘becomes little’ | ~ | <i>tepawē-ške-ḥhari</i> | |
- (19) *karū=ma* [ŠĀ²] É DUMU.MEŠ-*an* *pai-šga-ḥat* *kinun=a natta*
 formerly=TOP inside house children.ANIM.GEN.PL go-IPFC-1SG.PST.MID now=TOP NEG
kuwāpikki pā-un
 anywhere go-1SG.PST.ACT
 ‘Formerly **I used to go** to the children’s quarters, but now **I have not gone** anywhere.’ (KBo 17.1 iv 11–13)

- Unergative verbs — such as *palw(a)i-* ‘make noise’ in (8b) — never show this voice reversal: e.g., *palwiškizzi* (KBo 25.109 iii 7); *palweš[kanzi]* (KBo 20.13 rev. 17) (cf. Melchert 2017a:481–2).

§3.3 Voice reversal #2 — imperfectives to deponents

- In Old Hittite the converse pattern is observed in Hittite deponent verbs — anomalous middle inflection in their basic stem forms is replaced by active inflection imperfective forms, e.g. (20):

(20) BASIC STEM/MIDDLE : IMPERFECTIVE/ACTIVE

- a. *paršiy-a* ‘breaks’ : *paršiy-anna-i* (KBo 20.4 iv¹ 6, OH/OS; KUB 32.87 rev.¹ 15, OH/MS) (cf. (21) below)
- b. *ḫuettiy-a* ‘draws’ : *ḫuittiy-annā-i* (KBo 17.43 i 3, 11, OH/OS; KBo 17.18 ii 12, OH/OS)
- c. *tuhš-a(ri)* ‘cuts off’ : *tuhšannai* (KBo 15.10 ii 24, OH/MS; KUB 29.54: 5, MH/MS)

(21) a. *n=ašta* EN.SISKUR ANA NINDA.GUR₄.RA *awan arḫa tepu*
CONN=PTC ritual.client from.the.thick.loaf away small.N.ACC.SG

paršiy-a

break-3SG.NPST.MID

‘The ritual client **breaks** off a little (piece) from the thick loaf.’

(= (13a) above)

b. *ištarna* UD.ḫI.A-*ti=ma* NINDA.KUR₄.RA *damauš* ***paršiy-anna-ḫḫi***
in.middle day.LOC.SG=top loaf other.ANIM.ACC.PL break-1SG.NPST.ACT

‘At mid-day I **break** other loaves (and in the evening I break still other loaves).’ (KUB 7.5 ii 26–30)

- Highly unlikely that voice reversal in (20) is due to any special property of *-anna/i-* (which is functionally equivalent to *-ške-*; cf. §3.1 above); examples like (22) show explicitly that *-anna/i-* is compatible with middle morphology:

(22) LÚ.MEŠ HUB.BÍ=*kan n-anni-anta*[(-)]
dancers lead-IPFC-3PL.NPST.MID

‘The dancers **are driven** (like animals²).’

(KBo 21.75: 10; cf. *CHD* L–N: 393)

- Clear middle-marked imperfectives of deponents appear to be unattested, but this is likely just an accidental gap due to rarity of deponents and small OH corpus.

§3.4 Local summary — mismatch verbs and imperfectives

- Hittite unaccusative *activa tantum* and deponents show a voice mismatch between morphology and syntax-semantics in their basic stem forms.
- The same verbs’ imperfective stems exceptionally undergo voice reversal w.r.t their basic stem.

§4 Toward an analysis of Hittite voice mismatch

- Why do mismatch verbs undergo voice reversal in their imperfective forms?

- Hypothesis — voice reversal is voice ALIGNMENT.

- In the imperfective, deponents/*activa tantum* receive voice morphology that aligns with their function, thus “correcting” the mismatch characteristic of these verbs.

- The core of the proposal — three elements:

- Hittite active and middle morphology is assigned by regular (morpho)syntactic principles:
 - ⇒ Agentive (i.e., transitive, unergative) verbs regularly receive active morphology.
 - ⇒ Unaccusative verbs receive middle morphology.

- ii) Deponent and *activa tantum* verbs are lexically idiosyncratic — they bear a diacritic on the root marking them as middle/active independent of syntactic context (cf. Embick 1998, 2000, 2004; Grestenberger 2014, to appear, *i.a.*).
- iii) The “visibility” of this diacritic depends on LOCALITY (Embick 2010, 2015, *i.a.*) — the root must be linearly adjacent to voice morphology in order to determine its realization.
 - ⇒ When the imperfective suffix intervenes, morphosyntactically regular voice morphology reappears.

- For a formal implementation of this analysis, see Appendix I (§6).

§5 Diachrony of Hittite voice allomorphy

- Two exceptional verbs may offer insight into the diachronic development of the Hittite “voice reversals” treated in §§1–4.
- The two verbs in (23) are unaccusative verbs that — at least historically — contain the imperfective suffixes *-anna/i-* and *-ške-* but nevertheless show only **active** inflection.

- (23) a. Hitt. *iyanna/i-* ‘set out (for); march’ (< **h₁ei-* ‘go’)
 b. Hitt. *ēškanzi* ‘they are/exist’ (< **h₁es-* ‘be’)

- (23a) is attested already in Old Script with consistent active inflection — e.g., (24):

- (24) LUGAL-š=a IŠME š=aš *iyanni-š*
 king=TOP heard CONN=3SG.ANIM.NOM set.out-3SG.NPST.ACT
 ‘The king heard (about it) and he **set out**.’ (KBo 22.2 rev. 7; OH/OS)

- Hapax (23b) — identified by Melchert (1984:31 n. 12; 2017b) — occurs just once in a NS manuscript:

- (25) MUNUS NAPȚIR(TI=KA)=ma=tta āra *ēšk-anzi* (dupl. *ē[šd]u*)
 secondary.wife=2SG=TOP=2SG.DAT rightfully be-3PL.NPST.ACT
 ‘Rightfully **they shall be** yours as secondary wife.’ (KBo 5.3 iii 63–65 w/ dupl. KBo 22.40+19.44 rev. 48–49)

- However, despite its late attestation the usage in (25) is surely an archaism, as it aligns formally and functionally with other “substantive” uses of **-ške-* suffixed copula elsewhere in the ancient IE languages (see esp. Watkins 1993).

- Notable, in particular, is the affinity of such verbal forms for possessive constructions, as in (26) from Old Latin:

- (26) *cui suus heres nec escit*
 ‘He who has no heir of his own’ (Twelve Tables, V.4; Crawford 1996:580)

- It is highly unlikely that either of the verbs in (23) is synchronically derived in Hittite.
 - Despite frequency of *eš/aš-* ‘be’ and massive productivity of *-ške-*, the two are otherwise unattested together in Hittite.
 - The fact that *iyanna/i-* occurs only in the specialized inceptive sense ‘set out’ is indicative of lexicalization (cf. Hoffner and Melchert 2008:322).
 - The verb is better analyzed as the historical imperfective of **h₁ei-* ‘go’ (cf. IMP *it/itten* ‘go/y’ all go!) than the synchronic imperfective of *iya-* ‘walk’ (cf. *HW²* I: 1–4; Kloekhorst 2008:375–6).

- In view of these facts, I propose:
 - “Voice reversal” — which realigns voice morphology and syntax/semantics — is an innovation in Hittite.
 - Hittite “voice reversal” is an emergent phenomenon, applying only in synchronic derivation.
 - This innovation is driven by a dispreference for mismatches between (voice) morphology and syntax/semantics.
- This historical analysis is supported by similar phenomena in the other ancient IE languages — in particular, (semantically) unaccusative PIE *activa tantum* undergoing (synchronic or diachronic) switch to middle inflection under suffixation.
- Ancient Greek verbs with prototypical unaccusative semantics often show active present forms beside middle sigmatic futures — e.g., (27):

(27)	PRS.ACT	FUT.MID	
a.	ἀκούω	ἀκούσομαι	‘hear’
b.	βαίνω	βήσομαι	‘walk; go’
c.	γινώσκω	γνώσομαι	‘recognize; know’
d.	εἰμί	ἔσ(ς)ομαι	‘be’
e.	ἔχω	ἔξομαι	‘have; possess’
f.	ὁράω	[όψομαι]	‘see’
g.	πάσχω	πέσομαι	‘suffer’
h.	πίπτω	πεσέομαι	‘fall’
i.	φεύγω	φεύξομαι	‘flee’

- Tocharian verbs with unaccusative semantics and **-sĕ-*suffix are often *media tantum* despite deriving historically from PIE verbal roots with primarily active forms (Melchert 2017a:482–4) — e.g., (28):

(28)	a.	TA/B	<i>māsk-</i>	‘be(come)’ (Prs III)	< <i>*m_̊n-sĕ-</i>
	b.	TA/B	<i>musk-</i>	‘disappear’ (Prs III)	< <i>*m(y)uh_x-sĕ-</i>
	c.	TA/B	<i>wāsk-</i>	‘move’ (Prs XII)	< <i>*ug^h-sĕ-</i>
	d.	TA	<i>yutk-</i>	‘become agitated’ (Prs III)	< <i>*h_xyud^h-sĕ-</i>
	e.	TA/B	<i>sātĕ-</i>	‘spread (intr.)’ (Prs III)	< <i>*(h₂)sut-sĕ-</i>

- In at least one case, emergence of middle inflection looks inner-Tocharian — cf. ACT TA *lotk-* ‘turn, become’ (Prs VII) vs. MID TB *klautk-* ‘id.’ (Prs IV).
 - Clear IE word equations — which might point instead to direct inheritance — appear to be lacking.
- ⇒ Comparative IE evidence consistent with proposal that “voice reversal” under suffixation is in fact voice alignment, which tends to emerge diachronically in the individual IE languages.

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§6 Appendix I — Hittite voice reversal in Distributed Morphology

- Simple analysis here *à la* Distributed Morphology (Halle and Marantz 1993; Embick and Noyer 2007; *et al.*).

- To capture that Hittite middle morphology occurs in several distinct morphosyntactic contexts (cf. §2.1 above), I assume the spell-out rule in (29) (based on Embick 2004:150; cf. Embick 1998, 2000, *i.a.*):

(29) Voice ↔ Voice[MID] / ___ [–ext.arg]

- (29) applies when VoiceP does not project an external argument as a specifier; elsewhere, active morphology emerges via (30):

(30) Voice ↔ Voice[ACT] / ___

- Two further specific rules target lexically specified exceptional roots (i.e., deponents, *activa tantum*):

(31) Voice ↔ Voice[MID] / ___ {√BREAK, √CUT, √PROTECT, ... }

(32) Voice ↔ Voice[ACT] / ___ {√GO, √COME, √DIE, ... }

- In general, rules apply in order of specificity (in accordance with the Subset Principle; Halle 1997):

(33) a. Voice ↔ Voice[MID] / ___ {√BREAK, √CUT, √PROTECT, ... }

b. Voice ↔ Voice[ACT] / ___ {√GO, √COME, √DIE, ... }

c. Voice ↔ Voice[MID] / ___ [–ext.arg]

d. Voice ↔ Voice[ACT] / ___

- Crucially, (31–32) are subject to LOCALITY (Embick 2010, 2015, *i.a.*) — they apply only when √ROOT is adjacent to Voice.

⇒ When an imperfective suffix intervenes, (31–32) cannot apply and the more general rules apply instead.

§7 Appendix II — Hittite “oppositional middles” & their functions

- Canonical functions associated with Hittite middle-marked verb forms vis-à-vis their active counterparts include:

i) Reciprocals — e.g., (34).

iii) Anticausatives — e.g., (36).

ii) Reflexives — e.g., (35)

(cf. 4 above) iv) Passives — e.g., (37).

(34) Active transitive vs. middle reciprocal:

a. ^dU-*aš* KUR-*e* *zāḫ-i*
Storm.god.ANIM.NOM.SG land.N.ACC.SG fight-3SG.NPST.ACT

‘The Storm-god **shall strike** the land’

(KBo 6.25 + KBo 13.35 iii 5–7)

b. *takku* LU.MEŠ *zāḫ-anda* *ta* *1-aš aki*
if men fight-3PL.NPST.MID CONN one-ANIM.NOM.SG die-3SG.NPST.ACT

‘If men **fight each other** and one dies...’

(KBo 6.26 ii 16)

(35) Active transitive vs. middle reflexive (+ =*za*):

a. *našma=an=kan* ANA ^dUTU-ŠI=*ma* *munna-ši*
or.if=3SG.ANIM.ACC=LOC from.his.majesty=TOP hide-2SG.NPST.ACT

‘... or if **you hide him** from His Majesty...’

(KBo 5.4 obv. 9)

- b. *n=aš=za* *munnai-ttat*
 CONN=3SG.NOM.SG=REFL hide-3SG.PST.MID
 ‘**He hid himself**’ (KUB 33.120 i 38)
- (36) Active transitive vs. middle anticausative:
- a. *mahḫan=ma=za ḫalkueššar ḫandāwanzi zinnā-i*
 when=TOP=refl material.N.ACC.PL prepare.INF finish-3SG.NPST.ACT
 ‘When **he finishes** preparing the (festival) materials...’ (KUB 27.59 i 23–5)
- b. *kuitman^dSIN-aš zinna-ttari*
 while moon.ANIM.NOM.SG finish-3SG.NPST.ACT
 ‘While the moon **is waning** ...’ (KUB 8.1 ii 11–13)
- (37) Active transitive vs. middle passive:
- a. *nu=za mahḫan eni ṬUPPA ŠA KUR^{URU} Mizri peran wemiya-nun*
 CONN=REFL when that tablet about.the.land.of.Egypt in.front find-1SG.PST.ACT
 ‘When I **found** in front of me that tablet about Egypt.’ (KUB 14.8 i 31–2)
- b. *n=at wemiya-ttaru*
 CONN=3SG.N.NOM find-3SG.IMP.MID
 ‘Let it (viz., the cause of the plague) **be discovered!**’ (KUB 14.10 iv 19)

§8 Appendix III — Hittite imperfectives & their functions

- Functions associated with Hittite imperfective-marked verbal stems include:

- (38) PROGRESSIVE:

kuitman=ma=z=(š)an BEL SÍSKUR IŠTU SAG.DU=ŠU tētan laplē[pan] enērann=a
 while=TOP=REFL=PTC ritual.client from head=3SG hair eyelash eyebrow=CONJ
ḫūittiy-anna-i ^{MUNUS}ŠU.GI=*ma luwili kiššan ḫūkk-iške-zzi*
 pull-IPFC-3SG.NPST.ACT woman=TOP in.Luwian as.follows recite-IPFC-3SG.NPST.ACT

‘While the ritual client is pulling the hair, lashes, and brows from his own head, the Old Woman **is reciting** in Luwian as follows.’ (KUB 32.8 iii 6–10)

- (39) DURATIVE:

nu^{URU}[Šanahḫuit]tan INA ITU.5.KAM zahḫe-ške-nun
 CONN Sanahuitta.ANIM.ACC.SG in.5.months fight-IPFC-1SG.NPST.ACT

‘And I **fought** against the land of Sanahuitta for five months.’ (KBo 10.2 i 47)

- (40) HABITUAL:

ANADUMU.NAM.LÚ.U₁₉.LU=pat=kan anda memian kišan mem[i]-ške-anzi
 in mortal.LOC=foc=ptc among word as.follows speak-IPFC-3PL.NPST.ACT

‘Among mortals **they have a saying**: “...”’ (KUB 21. 27 ii 15–16)

- (41) ITERATIVE: (cf. 14 above)

mān=wa=naš [an]zel BELI weki-ške-wen
 IRR=QUOT=1PL.DAT us.GEN lord demand-IPFC-1PL.PST.ACT

‘Would (we have come into a foreign land) and **kept** demanding a lord for ourselves?’ (KBo 14.12 iv 15–17)

(42) FREQUENTATIVE:

- a. *tūriya-nzi=ma=aš* *mašiyanki nu KASKAL-ši*
 hitch.up3SG.NPST.ACT=TOP=3PL.ANIM.ACC as.many.times CONN occasion.LOC.SG
 KASKAL-ši=*pat* *INA 7.IKU.^{HLA} anda **penne-šk-anzi***
 occasion.LOC.SG=FOC for.7.IKUs in drive=IPFC-3PL.NPST.ACT
 ‘But as many times as they hitch them up, each time **they drive** them 7 IKU-*measures*.’
 (KBo 3.5 ii 13–5)
- b. *nu kī [tupp]i ITU-mi ITU-mi peran=tit*
 CONN this.N.ACC.SG tablet.N.ACC.SG month.LOC.SG month.LOC.SG before=2SG
halze-šša-ndu
 cry.aloud-IPFC-3PL.IMP.ACT
 ‘**Let them read aloud** this tablet in your presence every month.’ (KUB 1.16 iii 56–7)

(43) PLURACTIONAL:

- a. *n=ašta EN ÉRIN.MEŠ šarikuwan 1-an 1-an anda*
 CONN=PTC army.commander š-troop.ANIM.ACC.SG 1.ANIM.ACC.SG 1.ANIM.ACC.SG in
tarni-ške-zzi
 let-IPFC-3SG.NPST.ACT
 ‘And the army commander **admits** one š-troop after another.’ (VS 28.30 iii 16–7)
- b. *mān=kan ŠÀ KUR-ti **akk-iške-ttari***
 if=PTC inside land.LOC.SG die-IPFC-3SG.NPST.MID
 ‘If there **is a lot of dying** in the land (viz., during a plague)...’ (HT 1 ii 17–8)