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## Clause alignment in Proto-Indo-European

### 1. INTRODUCTION

Late PIE was certainly a language with nominative/accusative clause alignment both in terms of case marking and person marking.<sup>1</sup> Nouns and pronouns were in the nominative when they were subjects of both transitive and intransitive verbs, and in the accusative when they were the objects of transitive verbs. The verbs, both transitive and intransitive, indexed the subject (the single argument of intransitive verbs and the actor argument of transitive verbs), never the object argument. This means that PIE was a language very much like Latin, Sanskrit, Greek, or any other early IE dialect where we find only nominative/accusative clause alignment for masculine and feminine nouns, and neutral clause alignment for neuters.

There is nothing wrong, or inherently improbable, with the hypothesis that PIE was a nominative/accusative language since time immemorial, i.e. that the alignment pattern of Late PIE (LPIE) can be projected into Early PIE (EPIE). Moreover, the probably nearest relative of PIE, Proto-Uralic, was also a nominative/accusative language, so positing a nominative/accusative clause alignment for Indo-Uralic, as well as for EPIE certainly makes sense. The burden of proof is definitely on those linguists who claim that EPIE was anything but a nominative/accusative language.

In this paper we shall examine two hypotheses claiming that Early PIE was in fact not a nominative-accusative language. After looking at pros and cons for each of these hypotheses we shall present a hopefully coherent account of the development of LPIE nominative-accusative clause alignment from an earlier ergative system.<sup>2</sup>

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<sup>1</sup> We will distinguish between three main types of clause alignment: a) the nominative/accusative type, in which the single argument of intransitives is treated morphosyntactically as the agent (first argument) of transitive verbs, b) the ergative type, in which the single argument of intransitives is treated morphosyntactically as the patient (second argument) of transitive verbs, and c) the active type, in which there are two types of intransitive verbs: the stative verbs treat their single argument as the object/patient of transitives, while the active verbs treat their single argument as the subject/agent of transitives. The third type is sometimes referred to as “split intransitive”, and several sub-types have been proposed, in particular “Split-S” (in which each intransitive verb is inherently either active or stative), and “Fluid-S”, in which intransitive lexical bases become active or stative through appropriate derivation or inflexion. These need not concern us here, but it must be noted that the concept of active clause alignment presupposes the existence of a *systematic* opposition of two classes of intransitives, and not just the existence of a few verbs having “quirky case”.

<sup>2</sup> In what follows, Early PIE (EPIE) will be a cover term for the stages of PIE not directly obtainable by comparative reconstruction. That stage, representing the proto-language immediately before its break-up into historically attested dialects, will be called Late PIE (LPIE). Since the Anatolian branch was the first to separate from the others, we shall refer to the stage immediately before the separation of Anatolian as “Common PIE”, while retaining the term “Core PIE” for all the Indo-European dialects to the exclusion of Anatolian.

## 2. THE ACTIVE HYPOTHESIS

The claim that PIE was a language with active clause alignment has been proposed by a number of linguists, and it still has many adherents, e.g. Lehmann 1974, 1993, Klimov 1977, Gamkrelidze & Ivanov 1984, Stempel 1998, Drinka 1999, Bauer 2000, Piccini 2008, Barðdal & Eythórsson 2009.

The hypothesis has two sets of arguments supporting it. Firstly, it is based on G. Klimov's concept of "active language type". Klimov claimed that there is a cluster of features that tend to co-occur in an "active language", and that PIE had most, if not all of those features:

1. the absence of the verb meaning "to have"
2. non-elaborated case system (especially in the plural)
3. nominal classification based on animateness
4. the presence of the opposition of alienable/inalienable possession
5. the presence of the opposition of inclusive/exclusive pronouns
6. the lack of infinitives
7. the lack of the opposition singular/plural.

However, recent typological research has shown that the alleged correlations between these features do not hold cross-linguistically (Matasović 2000). There are certainly many non-active languages that do not have the verb meaning "to have" (e. g. Hungarian), or lacking a case system (e.g. Welsh), or having a nominal classification based on animateness (e.g. the Dravidian languages), or having the opposition of alienable/inalienable possession (e.g. Adyghe), or the opposition of inclusive/exclusive pronouns (e.g. Mandarin Chinese). Moreover, the presence of some of these features in PIE is either very uncertain (e.g. the inclusive/exclusive opposition), or downright improbable (the opposition of alienable/inalienable possession).

The one feature that does seem to be implied by active clause alignment, namely the head-marking structure of the verbal complex (Nichols 1992), is conspicuously absent in PIE. As far as we can reconstruct, PIE had a verbal system of agreement with only one argument and case-marking, i.e. it had dependent-marking verbal complex.

The second set of arguments in favor of active hypothesis relies on morphosyntactic properties of LPIE which are more easily explicable if the clause alignment of PIE were active:

1. The presence of pairs of synonymous intransitive verbs, one of which is stative, while the other is active;
2. Quirky case marking of some stative verbs.

Let us look at each of these claims in turn. PIE has indeed a handful of intransitive verbs that appear synonymous at first sight:

\*h<sub>1</sub>es- : \*b<sup>h</sup>uh<sub>2</sub>- "be"

\*ses- : \*swep- "sleep"  
 \*k'ey- : \*leg<sup>h</sup>- "lie"  
 \*h<sub>1</sub>eh<sub>1</sub>s- : \*sed- "sit"

According to the active hypothesis, one set of these verbs would represent the verbal concept as action, and be compatible only with animate arguments, while the other set would represent it as a state, and it would be compatible with inanimate arguments (this is, of course, impossible with the verb meaning 'to sleep', since inanimate beings do not sleep).

However, a closer look at these verbal roots will show that they are not completely synonymous. Their characterization as states vs. actions is the result of a very non-refined classification of Aktionsarten. In fact, the correct interpretation seems to be that the athematic verbs are indeed purely stative, while the thematic verbs in the right-hand column represent accomplishments (change-of-state verbs) rather than activities.

Thus, the actual meaning of \*b<sup>h</sup>uh<sub>2</sub>- is 'to become' (Lat. *fiō*, Gr. *phýō*), \*swep- means 'to fall asleep' and also 'to dream' (cf. Gr. *hýpnos* 'dream'), and \*leg<sup>h</sup>- is 'to lie down' rather than simply 'lie'. Finally, while \*h<sub>1</sub>eh<sub>1</sub>s- is a purely stative verb meaning 'to sit, to be in a sitting position', \*sed- is actually 'to sit down', i.e. it is an accomplishment verb by virtue of its meaning; its lexical meaning is expressed in its underived, root aorist (e.g. Ved. subjunctive 2pl. *sádathas*), and the stative meaning can be derived in the present by adding the stative suffix \*-eh<sub>1</sub>- (Lat. *sedeō*), while the reduplicated present (Lat. *sīdō*, Gr. *hízō*, Ved. *sídati*) originally had iterative/intensive meaning.

Moreover, there is no evidence whatsoever that the thematic verbs in the right-hand column were ever limited to animate arguments, and the fact that they all build thematic present stems brings us to the discussion of the origin of the thematic inflexion (see below).

Secondly, quirky case should not be taken at face value as evidence for non-nominative syntax in EPIE. When it does appear in IE languages, it can be shown to be secondary.

Let us look at the evidence for quirky case marking in different branches of IE.

In Hittite, some verbs of sickness (*ištark-*, *irmaliya-*) and emotional states (*nahh-* 'fear') take the experiencer argument in the accusative:

- (1) [(*nu*)] <sup>m</sup>LUGAL <sup>d</sup>SIN- *uḫ-un* [šeš-y]a [ . . . *ištar (kiyattat n=as)*] BA.UŠ  
 and Šarri-kušuh-ACC.SG brother-my became.ill and-he died  
 „And Šarri-kušuh, my brother, became ill, and he died“ KBo 4.4 i 5–6.

However, Hoffner and Melchert (2008: 250) note that all known examples of this construction are from the New Hittite period,<sup>3</sup> and all of these verbs also occur with experiencer arguments in the nominative.

<sup>3</sup> Silvia Luraghi (p.c.) claims that there are also occurrences of this construction in the Middle Hittite period, notably in Kantuzzili's prayers.

Vedic (Dahl & Fedriani 2010).

- (2) *striyam dr̥ṣṭvāya kitavam tatāpa*  
woman.ACC.SG see.ABS player.ACC.SG burn-PERF.3SG.  
“Having seen the wife, the gambler is in pain” (RV X 34.11)

However, we do find a number of examples in the early books:

- (3) *na mā taman na śraman na tandrat*  
not me.ACC stiffen.3SG.AOR not tire.3SG.AOR not be weary.3SG.AOR  
“I am neither lazy, tired nor insolent” (RV II 30.7)

In Greek, as far as I know, the accusative marking of experiencers is unattested.

In Latin, structures with quirky case marking are attested chiefly in the verbs of the second conjugation (*piget, pudet, paenitet, miseret, veretur*):

- (4) *Me tamen meorum factorum atque consiliorum numquam, patres conscripti, paenitebit* (C. Catil. 4.20) “I will never regret, fellow senators, my deeds and counsels”

- (5) *Suae quemque fortunae paenitet* (C. Fam. 6.1.1) “Each man is discontent with his lot”

- (6) *Me non solum piget stultitiae meae, sed etiam pudet* (C. Dom. 11.29) “I am not only fretted at my folly, but actually ashamed of it”

- (7) *Cyrenaiçi, quos non est veritum in voluptate summum bonum ponere* (C. Fin. 2.13.39) “Cyrenaeans, who were not afraid to put the highest good in pleasure”

As shown elsewhere (Matasović 2011), these verbs took over the accusative marking of the experiencer argument from the causative verbs like *moneō, timeō, doceō*, which also belong to the second conjugation. Originally stative verbs (like *taceō*) and original causatives (like *moneō*) were grouped together in the Latin second conjugation because their stem formants fell together as a consequence of the sound changes *\*eh<sub>1</sub> > ē* (*\*takeh<sub>1</sub> > tacē-*) and *\*eye > ē* (*\*moneye- > monē-*). This then caused the analogy by which the case frame of the causatives influenced the case frame of bivalent statives like *pudet, piget, miseret*, etc.

In Celtic, verbs with quirky case are unattested.

Icelandic (and other early Germanic dialects, cf. Barðdal & Eythórsson 2009)

- (8) *hana þyrstir*  
her.ACC thirsts  
“She is thirsty”

- (9) *hana vantaði peninga*  
her.ACC lacked money.ACC

"She lacked money"

In Balto-Slavic, we find quirky case in most modern dialects, but they are generally absent in the early varieties.

(10) Russ. *èto raduet menja* „it pleases me“

Croat. *to me raduje*

However, in OCS we find only *radujq sę* „I am pleased“ (SSJa s.v. *radovati sę*)

(11) Croat. *boli me glava* „I have a headache“ (lit. „head aches me“)

Cz. *boli mě hlava*,

Pol. *boli mnie głowa*

However, in OCS we have only intransitive *onъ bolitъ* „He is sick“ is attested (SSJa, s.v. *bolěti*).

(12) Pol. *cieszy mnie*

Cz. *těší mě*

Note that in OCS we only have the verb *těšiti* in the meaning „show the way, direct someone“ (SSJa, s.v. *těšiti*).

In OCS the accusative-marked experiencers do not seem to occur.<sup>4</sup>

In Lithuanian, we find a number of verbs expressing feelings that take experiencer arguments in the accusative. They are attested already in Old Lithuanian documents (Piccini 2008: 442-3), e.g. in Bretkūnas:

(13) *skaust manę* “I ache”

ache.3SG.PRES I.ACC

Note that these verbs are not etymologically cognate with Slavic verbs showing quirky case-frames, and that such verbs do not occur in Latvian. The fact that the accusative marking of experiencers is attested in Baltic and Germanic could be the result of a specific areal development in the peripheral Northern dialects of Indo-European.

Accusative case marking of experiencers in the examples discussed above has been claimed to be archaic because it is aberrant in Indo-European languages, in which experiencers tend to be coded in the nominative. Aberrant patterns are indeed often archaic, while productive patterns tend to be innovative. However, we find accusative experiencers in other languages with nominative/accusative clause alignment. These include Imbabura Quechua and Finnish, both from families (Quechuan and Uralic) for which nominative/accusative clause alignment is generally reconstructed.

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<sup>4</sup> It appears that the “experiencer-as-accusative” construction develops in Slavic languages as a causative counterpart to the decausative reflexive construction, which is inherited from Proto-Slavic (Matasović 2010). Thus, OCS reflexive *radovati sę* “to rejoice, be glad” is older than Croat. *radovati* “make someone glad, please someone”, which coexists with *radovati se*; likewise, in Polish, non-reflexive causative *cieszy mnie* co-exists with the earlier construction *cieszę się z* “I am glad about”, cf. also Cz. *těším se ze*.

Imbabura Quechua (Quechuan):

(14) *Juzi-ta rupa-n*  
José-ACC be.hot-3  
"José is hot"

(15) *Juzi-ta puffu-naya-n*  
José-ACC sleep-DESIDERATIVE-3  
"José wants to sleep"  
(Cole 19282: 107-8)

Finnish (Uralic):

(16) *minua palelee*  
I-PART is.cold  
"I am cold"<sup>5</sup>

Moreover, the thesis that EPIE had active clause alignment is rather improbable from the point of view of areal typology. In the WALS database (Map 1), there are only two languages with active clause alignment of full NPs in the whole of Northern Eurasia: these are the isolate Basque and Bats (a NE Caucasian language spoken in Northern Georgia).



MAP 1: Clause alignment of full NPs in Eurasia (adapted from WALS)

Georgian shows some active patterns, e.g. the use of the Ergative case to express the subject of intransitive verbs denoting actions in the perfective aspect (in the imperfective, the clause alignment in Georgian is nominative-accusative):

(17) *mamal-ma iq'ivla*  
cock-ERG crowed  
"The cock crowed"

<sup>5</sup> Note that partitive, besides the accusative, can be used to mark objects - usually of atelic verbs: *luen kirjaa* "I'm reading a book", *rakastan tätä taloa* "I love this house" (Bossong 1998: 279).

However, Alice Harris has shown that this construction is recent in Georgian (1990: 78); in Old Georgian, the verbs of this class took their subjects in the absolutive (called "nominative" in the tradition of Georgian linguistics), as expected of intransitive verbs in an ergative language:

- (18) *katam-i q'iva* (Mt 26:74)  
chicken-ABS crowed  
"The cock crowed"

According to Harris (loc. cit.), Proto-Kartvelian was an ergative language just as Old Georgian, not active as assumed by, e.g., Klimov (1977) or Gamkrelidze & Ivanov (1984). This is just another illustration how case-frames of verbs, and alignment patterns found in certain constructions, can change over time. And although the present areal distribution of alignment types cannot be simply projected to the time when PIE was spoken (some 5000-6000 years ago), it is important to note that active clause alignment is generally not posited for any of the protolanguages of the language families with which PIE could have been in contact: Proto-Uralic, Proto-Semitic, and Proto-Altaic were nominative-accusative, Proto-NE-Caucasian was probably ergative, just like Proto-NW Caucasian, Proto-Kartvelian, and the languages of the ancient Near East (Sumerian, Hattic, and Hurrian).

To conclude, the active hypothesis is not actually supported by any evidence. In itself, it does not help us to better understand the development of the morphosyntactic structures reconstructed in LPIE, and thus it remains a pure construct. Now we shall examine an alternative hypothesis - that EPIE had ergative clause alignment - and see if it fares any better.

### 3. THE ERGATIVE HYPOTHESIS

The idea that PIE was an ergative language is not new. It was first proposed by C. C. Uhlenbeck early in the 20th century (Kortlandt 2009), and subsequently defended, in various incarnations, by Vaillant (1936), Rasmussen 1974, Savčenko 1974, Schmalstieg (1981), Beekes (1985, 1995), Luraghi (1987), Kortlandt (2001), and others.<sup>6</sup>

In contrast to the active hypothesis, the claim that PIE was ergative at some stage of its development does not rely on any putative typological universals. Rather, it is meant to explain the following, apparently unconnected facts about PIE, all of which are reconstructed independently:

1. That PIE has a special marker for the nominative case (almost all Eurasian languages have unmarked nominatives)<sup>7</sup>.

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<sup>6</sup> For criticism of the ergative hypothesis see, e.g., Kurzová 1986, Rumsey 1987, Villar 1983.

<sup>7</sup> Marked nominatives are generally not found in any language families of Eurasia, the notable exception to this claim being early Semitic, where both Nominative and Accusative are marked (cf. Akkadian Nom. sg. *šarr-um*, Acc. sg. *šarr-am*). Outside Eurasia, marked nominatives are attested in some Afro-Asiatic languages of East Africa (notably Kushitic and Omotic), in some Nilo-Saharan languages of that area, as well as in some Yuman languages in North America.

2. That there is a special form of the vocative (very few Eurasian languages have it; in Georgian, the form is clearly agglutinated from the absolutive and the vocative particle *-o*).
3. That there is an unusual system of gender assignment with many inanimate nouns belonging to the common (m. or f.) gender. This type of gender assignment is not found in any language family of Eurasia except in Yeniseic (Matasović 2004).
4. That the ending of the nominative singular is similar to the ending of the genitive singular.
5. That there is an unusual syncretism of the genitive singular and the ablative singular in all declensional classes except for the thematic stems. This type of case syncretism is extremely rare in Eurasia (except in Indo-European languages), cf. Noonan and Mihas 2007<sup>8</sup>.
6. That only the *o*-stems and the static stems in PIE have a natural gender assignment, whereby the common gender is composed exclusively of animates, and the neuter exclusively of inanimates.
7. That personal pronouns have very different case endings than nouns.
8. That there are two different sets of personal markers in the PIE verbal categories.
9. That the 3rd person singular personal marker in one class of verbal categories is similar to the accusative common / nominative-accusative neuter demonstrative pronoun.
10. That perfect and thematic present endings appear to go back to a single EPIE prototype.

In what follows, we will present a scenario of the development of PIE in four stages, the last of which will be the period immediately preceding the separation of the Anatolian branch. We will see that accepting this scenario explains in a natural way how PIE acquired the ten features above. In this sense, these features are the evidence on which the ergative hypothesis is based. Of course, the hypothesis itself cannot be refuted, except in the very unlikely case that texts in the Early PIE language are discovered by archaeologists.

### 3.1. THE CASE MARKING

#### STAGE I.

In the earliest stage, animate nouns and inanimates were inflected alike, except that the inanimates did not distinguish plural from the singular (as in most languages in Northern Eurasia). There was a collective ending *\*-h<sub>2</sub>* added chiefly to the inanimates. This is the origin of the later Nom-Acc. pl. ending of the neuters (Lat. *iuga* 'yokes', Gr. *zygá*, etc.).

There were two grammatical cases, the Ergative (which was also used as the genitive/ablative) and the unmarked Absolutive, which is the usual situation in languages with ergative case marking. The syncretism of the ergative with an oblique case - in particular with the genitive and ablative, is also quite common cross-linguistically; the ergative is identical with the genitive, e.g., in Eskimo-Aleut

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<sup>8</sup> Except in IE (in Eurasia), this pattern is found only in Uralic (Komi and Udmurt), where it is perhaps attributable to the influence of Russian.



languages, such as Yup'ik<sup>9</sup>, and in the NE Caucasian language Lak (van den Berg 2005: 162). The syncretism of the ergative and the ablative is very common in Sino-Tibetan (Tamang, Darma, Hakha Lai, Akha, Dulong, Tangbe, Gurung, Lepcha), but it is also found in the NEC language Dargwa (Noonan and Mihas 2007).

There were two accent-related declensional classes: in Class A, the Ergative/Ablative form was derived from the unmarked (Absolutive form) without the accent shift, while in Class B there was the forward accent shift:

- A. \*ph<sub>2</sub>tér/\*ph<sub>2</sub>térs ‘father’, \*swéSOR/\*swéSORs ‘sister’, /\*méh<sub>2</sub>tr/\*méh<sub>2</sub>trs ‘mother’, \*h<sub>2</sub>éwi/\*h<sub>2</sub>éwis ‘bird’ --> no accent shift in the Erg.
- B. B \*h<sub>3</sub>nómn/ \*h<sub>3</sub>nméns ‘name’, \*ménS/ \*mnéSS ‘spirit’, \*péh<sub>2</sub>wr / \*ph<sub>2</sub>wéns ‘fire’ --> accent shift derives the Erg./Abl. form.

It has long been noted that, in LPIE, there is a correlation between the end-stressed genitive and common gender (Beekes 1985, cf. also Viti 2015). Beekes (1985 and 1995) argued that it was actually the correlation between end stress in the genitive (his so-called „hysterodynamic type“) and animacy, but as we shall see below, things are not so clear-cut. There were, in LPIE at least, many „hysterodynamic“ inanimates, but the crucial thing is that they all belonged to the common gender (the gender which later developed into masculine and feminine genders). Here is a table giving an outline of the distribution of accentual types in LPIE:

	genitive in –os (hysterodynamic)	genitive in –os (amphdynamic)	genitive in –s (static)	genitive in –s (proterodynamic)
common gender	r-stems (*ph <sub>2</sub> tēr) n-stems (*h <sub>2</sub> uk <sup>w</sup> sēn 'ox') i-stems (*h <sub>2</sub> owis) r-stems (*h <sub>2</sub> stēr)	r-stems (*swesōr), men-stems (*h <sub>2</sub> ek'mōn), s-stems (*h <sub>2</sub> ewsōs), *pentoh <sub>2</sub> s , *d <sup>h</sup> eg <sup>h</sup> ōm	r-stems (*meh <sub>2</sub> tēr) r-stems (*deh <sub>3</sub> tōr) n-stems (*h <sub>3</sub> reh <sub>1</sub> g'ōn)	ti-stems (*mntis) ?i-stems (*h <sub>2</sub> ewis) u-stems (*nek'us) ?*suHnus
neuter gender	?	?	?	r/n stems (*peh <sub>2</sub> wr), n-stems (*h <sub>3</sub> nomn) s-stems (*h <sub>1</sub> oh <sub>3</sub> s, *mens) ?u-stems (*g'onu)

TABLE 1: The distribution of accent/ablaut classes in PIE

As we see in the Table 1, the distribution of LPIE common gender nouns is unpredictable. It may be that they are reducible to just two types (“hysterodynamic”

<sup>9</sup> The Ergative case is traditionally called the Relative in Yup'ik. It is also the case of the possessor in the possessive NP.

and “static”) as Beekes attempted to show, but this is not important for our argument. What needs to be explained is why all neuters belong to the proterodynamic type, and why not all inanimates are neuter.

Note also that:

- There were no static neuters: \*wodr / \*uden-s ‘water’, \*g'onu / \*g'new-s ‘knee’, and \*yek<sup>w</sup>r / \*yok<sup>w</sup>en-s ‘liver’ were proterodynamic (Kloekhorst 2013). PIE \*\*b<sup>h</sup>ērmēn ‘burden’ did not exist.
- Neuters with the genitive in \*-os include the root-noun \*k'ērd ‘heart’ and perhaps the u-stem \*med<sup>h</sup>u ‘mead’ (because of Skr. *mádhu*, *madhvás*; however, this word may have been influenced by the proterodynamic adjective *mádhu*- ‘sweet’ (Beekes 1985).
- \*pek'u- ‘flock of sheep’ is mostly masculine in Skr. (*paśú*-); it probably belonged to common gender in PIE.
- \*g<sup>w</sup>enh<sub>2</sub> ‘woman’ was proterodynamic, but neuter in PIE (cf. OIr. *bé*), Matasović 2004; see below.

There was no gender, and, probably, no case/number agreement, just as in the majority of languages in Northern Eurasia, e.g. in Altaic, Uralic, and Yukaghir. In the plural, there is no indication that the alignment was ergative – it may have been Nominative/Accusative or zero-marking. It is assumed here that the latter was the case, and that the system was thus similar to Proto-Uralic, where there was only a plural marker (\*-t), but no case marking.

PARADIGMS I (\*wiHros ‘man’ > Lat. *vir*, \*h<sub>2</sub>ners ‘man’ > Gr. *anēr*, \*meh<sub>2</sub>t(e)rs ‘mother’ > Lat. *mātēr*, \*pods ‘foot’ > Gr. *poús*, \*mentis ‘thought’ > Lat. *mens*, \*med<sup>h</sup>u ‘mead’ > Skr. *mádhu*, \*h<sub>3</sub>nomn ‘name’ > Gr. *ónoma*)

Singular:

ERG/ABL -s	*h <sub>2</sub> ner-s	*meh <sub>2</sub> t(e)r-s	*pod-s	*menti-s	*med <sup>h</sup> u-s	*h <sub>3</sub> nmen-s
ABS -0	*h <sub>2</sub> ner	*meh <sub>2</sub> ter	*pod	*menti	*med <sup>h</sup> u	*h <sub>3</sub> nomn

Plural:

NOM/Acc. -es	*h <sub>2</sub> ner-es	*meh <sub>2</sub> ter-es	*pod(h <sub>2</sub> )	*menti(h <sub>2</sub> )	*med <sup>h</sup> u(h <sub>2</sub> )	*h <sub>3</sub> nomn(h <sub>2</sub> )
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There may have been other case/number endings already at this stage, e.g. the dative in \*-ey (limited to animates?) and the locative in \*-i (limited to inanimates?), or the dual ending \*-h<sub>1</sub> (probably originally the same ending as the instrumental/comitative singular). This is irrelevant to the argument that follows, so these endings will simply be disregarded in our discussion. They could have been included in the inflectional paradigm at any stage.

The original ablative sg. of the pronominal stem \*to- is preserved as the suffix \*-tos in Lat. *fundi-tus* ‘from the bottom’, Gr. *ek-tós* ‘from within’, etc.

The demonstrative pronouns were probably uninflected - the stems of demonstratives are preserved as uninflected particles in Hittite (-*šu*, -*ta*, etc.) and also in other IE

languages (e.g. in Lat. *ho-c*, with the particle *-c* serving as the stem of the demonstrative pronouns in Lith. *šis*, OE *hēo*, etc.). At some stage, however, at least one demonstrative adopted the ergative pattern, with suppletive case forms. The stem *\*so* was used for the Ergative, and the stem *\*to-* for the Absolutive. In the plural, the form was probably *\*so-y*, and there were no case distinctions. It is unclear whether there was any nominal agreement at this stage (see Matasović 2014). If there was, the demonstrative pronouns agreed with the head nouns in the NP according to the Ergative pattern:

*\*so* pods / *\*to* pod : *\*so* med<sup>h</sup>us / *\*to* med<sup>h</sup>u

Personal pronouns had a very different set of case endings in comparison to nouns and demonstratives. They probably had nominative/accusative case system. Such splits are very common cross-linguistically and, if a language has different clause alignment for nouns and personal pronouns, then personal pronouns follow the nominative/accusative pattern, while nouns have the ergative pattern.<sup>10</sup> The converse system is apparently unattested. Besides, personal pronouns had number suppletion (the plurals were formed from different stems than the singulars). Besides that, the personal pronouns had a genitive form already different from the nominative.

1 sg. Nom. <i>*eg'</i>	pl. Nom. <i>*wey-s</i> <sup>11</sup>
Acc. <i>*h<sub>1</sub>me</i>	Acc. <i>*ns-me</i>
Gen. <i>*mene</i>	

2 sg. Nom. <i>*tuH</i>	pl. Nom. <i>*yuH-s</i>
Acc. <i>*twe, *twē</i>	pl. Acc. <i>*us-me, *us-we</i>
Gen. <i>*tewe</i>	

It would, in principle, also be possible to reconstruct the stems *\*eg'*, *\*tuH*, *\*wey-* and *\*yuH-* as original Absolutes, and the genitive stems (*\*mene*, *\*tewe* in the singular; the genitive plurals of personal pronouns are obscure) as original Ergatives, in parallel to the Ergative/Ablative case syncretism in the singular. There is, however, no evidence to prefer such a reconstruction to the traditional one.

## STAGE II.

In the second stage, a new (possessive) Genitive ending was created by adding the ending *\*-s* to the base (Absolutive) form (if it was accented, the ending took the shape *\*-ós* and the preceding unaccented syllable was lost). The primary function of the new ending was the expression of possession, hence it was limited to animates (who may be possessors); later it spread analogically to some inanimates with the same accentual pattern (i.e. to those with no accent shift in the Ergative/Ablative). Perhaps different tones on the stem caused the ablaut alternations (Pronk 2010); the end-stressed forms became associated with agentivity and animacy, hence all animates

<sup>10</sup> Such a system is attested, e.g. in Dyirbal (Pama-Nyungan), Sumerian, and a similar pattern occurs in Kabardian (NW Caucasian), where personal pronouns are uninflected, while nouns (and demonstratives) follow the ergative pattern.

<sup>11</sup> Possibly, there was also the pronoun *\*noh<sub>1</sub>s* (> Lat. *nōs*), which may have been exclusive, in contrast to the inclusive pronoun *\*weys*.

became end-stressed in some case forms (this is the origin of the hysterodynamic type).

This change produced the forms \*ph<sub>2</sub>trós, \*swesrós, \*podós and, perhaps, \*h<sub>2</sub>wéy-s, the “new” (possessive) Genitives.

The change did not affect the static nouns and those inanimates in which the accent was followed by two consonants (ie. \*-CC- blocked the accent shift), hence we do not have \*\*meh<sub>2</sub>trós, \*\*h<sub>3</sub>nomnós. The Erg. (>Nom.) sg. of the static type (\*meh<sub>2</sub>ters > \*meh<sub>2</sub>tēr) is analogical after the proterodynamic (and amphodynamic) type (the original Ergative/Ablative was \*meh<sub>2</sub>tr-s).

The Genitive sg. ending \*-es, attested in Italic (Lat. *nōmin-is* ‘of the name’, besides OLat. *nomin-us*) and Balto-Slavic (OCS *imen-e* ‘of the name’) was probably dialectal, not Common IE (in Anatolian only reflexes of \*-os are attested). This ending is probably analogical after the case endings of the consonant stems with the vowel \*-e- (e.g. D sg. \*-ey, I sg. \*-eh<sub>1</sub>, N pl. \*-es). In the consonantal stems, the Gen. sg. in \*-os would have been the *only* ending with the vowel \*-o-, so it would not be surprising if \*-o- was analogically changed to \*-e- (at least in part of IE languages) under the influence of those case endings where \*-e- was original.

At this stage, a separate class of thematic nouns was created. In thematic nouns, the Genitive = the Ergative (homophonous ending in \*-os), cf. Beekes 1985. These nouns are originally adjectival formations, with the basic meaning ‘he of the X, where X is the nominal root’. Thus it is still in Hittite (the type *waštul-aš* ‘he of the sin = sinner’ (the *genitivus absolutus* construction, Hoffner & Melchert 2008: 256). Unlike in the other noun classes, there are no inanimates with the ending \*-os (in the thematic inflexion). The other cases of the thematic inflection were re-built on the basis of the Ergative = Genitive > Nominative = Genitive in \*-os. The thematic nouns are the only class with the new Ablative sg. ending \*-ed, which is different from the Genitive.

## PARADIGMS II

sg.

ERG -s	*wiHro-s	*h <sub>2</sub> ner-s	*meh <sub>2</sub> ter-s	*pod-s	*menti-s	*medhu-s	*h <sub>3</sub> nmen-s
GEN -(o)s	*wiHr-os	*h <sub>2</sub> nr-os	*meh <sub>2</sub> tr-s	*pod-os	(*mntey-s)	-	-
ABS -0	*wiHr(o)	*h <sub>2</sub> ner	*meh <sub>2</sub> ter	*pod	*menti	*medhu	*h <sub>3</sub> nomn

pl.

N/Acc	*wiHro-es	*h <sub>2</sub> ner-es	*meh <sub>2</sub> ter-es	*pod-es	*mnteyes	*medhu(h <sub>2</sub> )	*h <sub>3</sub> nomn(h <sub>2</sub> )
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The personal pronouns were not affected by the changes during Stage II.

The separation of the Ergative and the Genitive and the correlation of end-stress and agentivity brought about the following distribution of the accentual types:

Animates: static, amphydinamic and hysterdynamic; thematic. Proterodynamic animates may have existed, but they were rare, e.g. \*h<sub>2</sub>ewis ‘bird’ (> Skr. *veh*). PIE \*suHnus ‘son’ is proterodynamic (Skr. *sūnús*, Gen. sg. *sūnóh*, OCS *synъ*, Gen. sg. *synu*), but it has reflexes only in Indo-Iranian, Balto-Slavic, and Germanic (OHG *sunu*), which means it is a late, dialectal formation. In other languages we find different derivations from the root \*sewH- ‘give birth to’, cf. Toch B *soy*, Gr. *hyiós*. For some reason, this word is lacking in NIL (under \*sewH- ‘gebären’). On PIE \*g<sup>w</sup>enh<sub>2</sub> ‘woman’ see below.

Inanimates: static, proterodynamic, and hysterdynamic; thematic.

Since the final accent was correlated with agentivity at this stage, there was also correlation of the animate class (which can only denote agents) and the hysterdynamic inflection. In LPIE, this pattern was still preserved in the o-stems as the opposition between the nomina actionis (Gr. *tómos*) and nomina agentis (Gr. *tomós*).

### STAGE III.

During the third stage, which may be due to the influence of some substrate/adstrate, the Nominative/Accusative pattern was introduced for the nouns and demonstratives. It may have simply spread from the personal pronouns which, as we saw, probably had it from the beginning. At this stage the inanimates lost the distinction between the Ergative and the Absolutive; in the singular, some generalized the Ergative form, and others the Absolutive form. The crucial fact is that, in the athematic class, there were no proterodynamic animates. All animates were hysterdynamic, apart from some (residual) static nouns (and maybe an exception or two, like \*h<sub>2</sub>ewis ‘bird’). This is why hysterdynamic inanimates patterned with the animates with respect to agreement.<sup>12</sup> In this way, gender agreement (parasitic on case/number agreement) was introduced. In the plural, the old Nominative in \*-es became the new Nominative for the animate class. The inanimates, which did not have the plural, could not generalize it, so they used the inherited collective formant \*-h<sub>2</sub>. The old endingless Absolutive was still preserved at this stage, but it became restricted to marking the patient of transitive verbs, hence it should be called “Accusative”. The endingless form of the accusative singular of the common gender nouns would later become the vocative.

The ending \*-s in inanimates now became restricted to the Ablative function; because this ending was identical to the Genitive ending \*-s in many animates, the syncretism (Gen. = Abl.) spread through most of the lexicon (only the thematic nouns were not affected, perhaps because they did not exist as a class at the time of this change).

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<sup>12</sup> It is not true, as claimed by Beekes (1985), that all animates were originally hysterdynamic, while the inanimates were proterodynamic. Clear counter-examples include PIE \*med<sup>h</sup>u ‘mead’ (Gen. sg. \*med<sup>h</sup>w-os > Skr. *madhvás*), PIE \*k<sup>ʷ</sup>erd ‘heart’ (Gen. sg. \*k<sup>ʷ</sup>rd-os > Lat. *cordis*), etc. Also, many inanimates that later became either masculines or feminines also belonged to the hysterdynamic type, e.g. \*neh<sub>2</sub>us ‘boat’ (Gen. sg. \*neh<sub>2</sub>w-os > Skr. *nāvás*), \*pods ‘foot’ (Gen. sg. \*pod-os > Gr. *podós*), etc. Beekes unfortunately confused the animate nouns with the common gender in Early PIE, but the correlation between animacy and declensional type does indeed exist, contrary to the claim I made in Matasović 2004.

Thus, the analogical proportion was: \*meh<sub>2</sub>tr-s (Gen): \*h<sub>3</sub>nmen-s (Abl) >> \*meh<sub>2</sub>tr-s (Gen/Abl) : \*h<sub>3</sub>nmen-s (Gen/Abl).

### PARADIGMS III

sg.

NOM -s	*wiHro-s	*h <sub>2</sub> ner-s	*meh <sub>2</sub> ter-s	*pod-s	*mentis	*medhu	*h <sub>3</sub> nomn
GEN -os	*wiHro-s	*h <sub>2</sub> nr-os	*meh <sub>2</sub> tr-s	*pod-os	*mntey-s	*medhw-os	*h <sub>3</sub> nmen-s
ACC -0	*wiHro	*h <sub>2</sub> ner	*meh <sub>2</sub> ter	*pod	*menti	*medhu	*h <sub>3</sub> nomn

pl.

NOM -es	*wiHro-es	*h <sub>2</sub> ner-es	*meh <sub>2</sub> ter-es	*pod-es	*mentey-es	(*medhuh <sub>2</sub> )	(*h <sub>3</sub> nomnh <sub>2</sub> )
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The pronominal stem \*so was generalized in the Nominative function, and the stem \*to in the Accusative function. Since there was case agreement in PIE at this stage, the animates started agreeing with \*so in the Nominative, and with \*to in the Accusative case. Those inanimates which generalized the Absolutive ending in as the new Nominative/Accusative continued to agree with the old Absolutive pronominal stem \*to (reduplicated as \*to-t > \*tod > Skr. *tad*); those which generalized the old Ergative stem agreed with the ergative stem \*so.

\*so wiHros / \*to wiHro \*so pods / \*to pod : \*tod medhu / \*tod medhu

In personal pronouns, which originally had the nominative/accusative pattern, there were few changes. It is possible that their clause alignment simply spread to the nouns. Note that personal pronouns do not distinguish the Vocative from the Nominative, since their Nominative/Vocative form is original (while in the animate nouns, the Nominative is the old Ergative, and the Vocative the original Absolutive, as we have seen).

The changes in Stage III brought about the following distribution of declensional types:

Neuters: all inanimate; they could be proterodynamic (\*h<sub>3</sub>nomn ‘name’, \*g’onu ‘knee’ > Gr. *góny*, Goth. *kniu*), or thematic (\*(H)yugo ‘yoke’). The thematic class consisted mostly of substantivized adjectives. Most hysterdynamic inanimates became common gender nouns in Late PIE by the generalization of the Ergative ending as the new nominative. There may have been a residue of inanimate hysterdynamic nouns which for some reason acquired the Genitive in \*-os, e.g. \*k’ērd / \*k’rd-os ‘heart’ (Hitt. *kīr*, *kardiyas*, Lat. *cor*, *cordis*), PIE \*Hsth<sub>2</sub> / \*Hsth<sub>2</sub>-os ‘bone’ > Skr. *ásthi*, Av. Gen. sg. *astō*. These may have acquired the hysterdynamic Genitive ending at a later stage, when the initial distribution was blurred.

Common gender nouns: animate and inanimate.

Animates could be static (\*meh<sub>2</sub>ters ‘mother’), amphydynamic (\*peh<sub>2</sub>imon ‘shepherd’ > Gr. *poimén*, Lith. *piemuō*), hysterdynamic (\*h<sub>2</sub>ners ‘man’ > Gr. *anér*), and thematic (\*wiHros).

Inanimates could be proterodynamic (\*mntis ‘thought’), static (\*nok<sup>w</sup>ts ‘night’ > Lat. *nox*, Gen. sg. \*nek<sup>w</sup>t-s > Hitt. *nekuz* (*mehur*))<sup>13</sup>, and hysterodynamic (\*g<sup>h</sup>esrs ‘hand’ > Hitt. *keššar*, Gr. *kheír*, Acc. *kheír-a*). These are the inanimates for which the Ergative case was generalized in the new, nominative function. There are no inanimate thematic nouns belonging to the common gender, which preserves the original distribution.

#### STAGE IV.

The final \*-s was lost after resonants and the preceding vowel was lengthened (Szemerényi's law); thus, EPIE \*ph<sub>2</sub>ters > \*ph<sub>2</sub>tēr (> Gr. *patēr* ‘father’), EPIE \*h<sub>2</sub>ek'mons > \*h<sub>2</sub>ek'mōn (> Gr. *ákmōn* ‘anvil’), etc. The lengthened grade was introduced analogically in cases where final \*-s is retained (\*pods > \*pōds). It is also likely that the final \*-s in the Gen. sg. was first assimilated, and then re-introduced analogically in static nouns of the type of \*meh<sub>2</sub>tr-s, and in the proterodynamic nouns ending in a resonant, e.g. \*h<sub>3</sub>nmen-s.

The origin of the heteroclitic neuters is a difficult problem.<sup>14</sup> Their earliest pattern of inflection would have been as follows: Erg./Abl. sg. \*uden-s / Abs. sg. \*wod-r ‘water’ (Gr. *hýdōr*, *hýdatos*, Hitt. *watar*, *wetenaš*). Later, the absolute ending became the Nom./Acc. form, the Ergative was lost, and the Ablative is preserved as the new Genitive/Ablative, cf. \*yēk<sup>w</sup>r ‘liver’, Gen. sg. \*yok<sup>w</sup>en-s mentioned above). If this is correct, the heteroclitics were the only class of nouns in (Early) PIE with an Absolute marker (\*-r). Originally, it may have been a topic marker, rather than a case suffix, perhaps related to Gr. *ára*, Lith. *iř* ‘and’.

The introduction of the new accusative case ending (\*-m) to common gender nouns presupposes the stage III, in which the gender classes came into being, since it spread only to the common gender nouns. It could have been originally a marker of definiteness, or a postposition indicating direction (a "directive" case). That its use in indicating grammatical relations is secondary can be deduced from its residual use as the "accusative of goal" (Lat. *eō Rōmam* "I go to Rome") and "accusative of time" (Lat. *trēs mensēs* "for three months"). Another fact pointing to the relatively late extension of the use of \*-m in the accusative is the lack of this ending in the declension of the personal pronouns: the old accusative ending in pronouns appears to have been simply \*-e (e.g. \*h<sub>1</sub>me > Gr. *emé*, \*twe > Gr. *sé*).

After the creation of the new common gender accusative sg. in \*-m, the original endingless Absolute (> Accusative) sg. was reduced to the peripheral function of the vocative sg. (in the thematic class, a vocative particle \*-e was added to the old form at

<sup>13</sup> The static type is quite rare, though. Even in the case of \*nek<sup>w</sup>t- ‘night’, where the only piece of evidence for static inflection comes from Hitt. *nekuz*, it is possible that the e-grade in Hittite is due to the analogy with the verb *nekuzzi* ‘it gets dark’

<sup>14</sup> One is tempted to explain the word-final \*-r in the Nom./Acc. sg. as the result of the change of \*-n > \*-r (a typologically similar change occurred in the history of Tosk dialects of Albanian). However, it is difficult to see why this change affected only the neuters and not the common gender nouns (i.e. why, e.g., \*peh<sub>2</sub>imōn ‘shepherd’ did not become \*\*peh<sub>2</sub>imōr, or why we do not have \*h<sub>3</sub>nomn > \*h<sub>3</sub>nomr). The answer may lie in the fact that the common gender nouns still had the final \*-s when this sound law operated.

some stage, cf. Beekes 1985: 99-100). The accusative plural ending \*-ns is apparently assimilated from \*-m-s, which represents an agglutination of the acc. sg. ending \*-m and the zero-grade variant of the plural marker \*-s (the same zero-grade plural marker is found in the pronominal nom. pl. \*wey-s ‘we’ and \*yuH-s ‘you’, and perhaps also in such agglutinated forms as Gen. pl. of the demonstrative \*to-s-om). The original zero-ending of the absolutive in the thematic class may be preserved in the 3 sg. middle ending \*-o, which is, in our opinion, of participial origin (see below).

Finally, the origin of the thematic neuters needs to be addressed. The thematic inflection consists predominantly of substantivized adjectives (e.g. \*h<sub>1</sub>ek’wo- ‘horse’ < ‘the swift one’). Therefore, I assume that the neuters (\*(H)yugom ‘yoke’, \*d<sup>h</sup>worom ‘door’) are simply neuter forms of adjectives with the generalized accusative sg. ending. This means that we originally had the opposition \*(H)yugos (Nom. sg.) ‘the yoking one’ vs. \*yugom (Acc. sg.) ‘the yoked one’, from which the form \*(H)yugom ‘the yoked one’ = ‘the yoke’ was substantivized. Since athematic neuters (e.g. \*medhu ‘mead’) could not distinguish the Nominative from the Accusative, this pattern was just generalized to the new thematic neuter class.

The exceptional proterodynamic neuter \*g<sup>w</sup>enh<sub>2</sub> (Gen. sg. \*g<sup>w</sup>neh<sub>2</sub>-s) ‘woman’, which was animate, triggered the development of the new sub-gender (feminine) in the common gender nouns. This happened after the separation of the Anatolian branch (Matasović 2004), i.e. in Core PIE.

### 3.2. THE VERBAL SYSTEM

There are many languages with an ergative case system, but a nominative-accusative person marking, e.g. Shina (Iranian), Sumerian, Kewa (Papuan), Wemba Wemba (Australian), etc. (see Nichols 1992: 91). PIE could easily have been one of them. However, there is some evidence that the EPIE person marking system also functioned on an ergative basis, i.e. that there was a single set of person markers expressing the subject of an intransitive verb and the object of the transitive verb. This conclusion is chiefly based on three arguments:

1. There are two distinct sets of personal markers in PIE; languages seldom have distinct person markers depending on tense/aspect oppositions, but distinct sets of person markers based on different diatheses are more common.
2. The 3rd person sg. marker of one of the sets (\*-t) is similar to the absolutive stem of the demonstrative pronouns (\*to).
3. When languages change from ergative to nominative-absolutive clause alignment, or vice versa, it is often the case that the marked diathesis (passive or antipassive) becomes unmarked.
4. The oldest marker of the middle (\*-o) is identical with the stem-final thematic vowel in nouns (zero-marked for case).

PIE is characterized by two distinct sets of endings: one set, found in the thematic present and the perfect, and another, found in the aorist and the athematic present. The middle endings seem like a mixture of the two just mentioned.

PERFECT	THEMATIC PRES.	MIDDLE	AORIST	ATHEM. PRES.
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1 *-h <sub>2</sub> e	*-o-h <sub>2</sub>	*-h <sub>2</sub> o	*-m	*-mi
2 *-th <sub>2</sub> e	*-e-h <sub>1</sub> i	*-so, *-th <sub>1</sub> e	*-s	*-si
3 *-e	*-e	*-to, *-or	*-t	*-ti
1 *-me(H)	*-o-mes	*-mes-d <sup>h</sup> h <sub>2</sub>	*-me	*-mes
2 *-(H)e	*-e-tes	*-sd <sup>h</sup> we	*-te	*-tes
3 *-r	*-o-nti	*-nto, *-ro	*-nt	*-nti

The athematic present endings are obviously derived from the aorist endings by the addition of the particle \*-i, or (in the 1st and 2nd pl.) the plural marker \*-(e)s, which appears to be the same as the Absolutive > Nominative plural in the nominal inflection. The thematic present endings seem to be basically derived from the perfect endings, but they were also subject to the influence of the aorist/thematic present endings in the 2nd and 3rd person pl. The reconstruction of the perfect endings in the plural is not certain. In the 1pl., I tentatively follow Jasanoff (2003: 32) in reconstructing \*-me(H) on the basis of Vedic *-mā*, which is more common in the perfect than in the other tenses, and cannot be explained by metrical lengthening. With respect to the 2nd person pl. I believe that Vedic *-a* must be an archaism, compared to younger *-te* found in Greek.<sup>15</sup> In the 3rd person pl. we find several variants, including \*-rs (Gatha-Avestan *-arəš*, Ved. *-uṣ*), \*-ēr (Lat. *-ēre*, Hitt. pret. 3pl. *-er, -ir*), and \*-r (Young Avestan *-arə*). This last ending appears to be underived, so it may be the oldest. From the comparison of all these endings, I reconstruct the EPIE two basic sets as follows:

	ANTIPASSIVE	ACTIVE
1	*-h <sub>2</sub> (e)	*-m
2	*-h <sub>1</sub> (e)	*-s
3	*-e	*-t
1	*-me	*-mes
2	*-(t)e	*-tes
3	*-r	*-nt

I assume that the 2sg. perfect ending has \*-h<sub>2</sub> by analogy with the 1sg. \*-h<sub>2</sub>e, and that the original \*-h<sub>1</sub> is preserved in the 2sg. thematic present.

The active endings contain the same elements as the stems of the personal pronouns. The 3rd sg. ending of the active class \*-t contains the same stem as the *absolute* form of demonstrative (\*to-). The first person sg. ending \*-m may be related to the oblique (< absolute) stem of the 1<sup>st</sup> sg. personal pronoun (\*me or \*h<sub>1</sub>me), and the 2<sup>nd</sup> person sg. ending \*-s may be related to the oblique (< absolute) stem of the 2<sup>nd</sup> sg. personal pronoun \*t(w)ē (which may have developed to \*s(w)e by Čop's law). This means that at the earliest reconstructable stage the active verbs agreed with the absolute argument.<sup>16</sup>

It is possible that the present tense was opposed to the past tense already at this stage by the addition of the *hic et nunc* particle \*-i in the active. If so, the present active endings would be reconstructed as \*-mi, \*-si, \*-ti, \*-mes(i), \*-tes(i), \*-nti, while the

<sup>15</sup> Jasanoff (2003: 32) compares also Paelignic *lexe* 'legistis', but this is clearly just a guess.

<sup>16</sup> Thus already Szemerényi 1989: 357.

past tense endings would have been as on the table above. There is no evidence that the antipassive endings originally distinguished present and preterite.

The connection of the endings reconstructed here as “antipassive” and the traditional perfect endings is obvious. Verbs which form the perfect in Core PIE are, according to LIV, overwhelmingly stative and/or intransitive. However, I follow Cowgill (1974) and Jasanoff (2003) in assuming that a full perfect paradigm never developed in the Anatolian branch. Rather, the Hittite hi-conjugation corresponds formally (though not functionally and lexically) to the perfect in non-Anatolian branches of IE. As is well known, there are no perfects in other IE languages corresponding to Hittite hi-conjugation presents or preterites (with a possible exception of *šākk-i* ‘he knows’ < \*sok-e, cf. Lat. *sciō*). On the other hand, Hittite verbs of the mi-conjugation have plenty of lexical correspondences in PIE presents: e.g. Hitt. *ed-* ‘eat’ corresponds to Skt. *ád-mi*, *wek-* ‘want’ to Skt. *vás-mi*, *eš-* ‘be’ to Skt. *ás-mi*, *kuen-* ‘hit’ to Skt. *hán-mi*, etc.). Both the hi-conjugation and the perfect of non-Anatolian IE developed from the Common PIE stative, which is, in turn, derived from EPIE antipassive.<sup>17</sup>

The formal correspondence between the Core PIE perfect and the Anatolian hi-conjugation is best seen in the stem Ablaut. Basically all types of verbs belonging to the hi-conjugation in Hittite can be shown to have, or to originally have had the Ablaut pattern with \*o in the singular and the zero-grade in the plural (Kloekhorst 2008), exactly the pattern of the Core PIE perfect (e.g. Gr. *oīda/ídmen* ‘know’). Moreover, hi-verbs belong to virtually all Aktionsarten and include both transitives and intransitives, e.g. *harra-* ‘grind’ (< PIE \*h<sub>2</sub>orh<sub>3</sub>-, cf. Gr. *aróō* ‘grind’), *malla-* ‘mill’ (< PIE \*melh<sub>2</sub>-, cf. Lat. *molō*), *padda-* ‘dig’ (< PIE \*b<sup>h</sup>od<sup>h</sup>-, cf. Lat. *fodiō*), *au-* ‘see’ (< PIE \*h<sub>1</sub>ow-, cf. Ved. *uvé*), *ār-* ‘come’ (< PIE \*h<sub>1</sub>or-, cf. Gr. *érkhomai* ‘go’), *hāt-* (< PIE \*h<sub>2</sub>od-, cf. Gr. *ázō*), *nahh-* ‘fear’ (< \*neh<sub>2</sub>-, cf. OIr. *nár* ‘shame’), *išpant-* ‘libate’ (< PIE \*spend-, cf. Gr. *spéndō*), *māld-* ‘recite’ (< \*mold<sup>h</sup>-, cf. Croat. *moliti* ‘pray’), *kānk-* ‘hang’ (< \*k'onk-, cf. Eng. *hang*), etc. Hence, this Anatolian conjugation must be original, in the sense that it cannot be derived from Common PIE perfect. Rather, it encompasses the core of EPIE transitive verbs which formed the antipassive, and a number of intransitives that analogically extended the original antipassive Ablaut pattern and personal endings.

Those statives/intransitives for which no PIE perfect is attested are usually *media tantum* (\*k'ey- ‘lie’, \*h<sub>1</sub>eh<sub>1</sub>s- ‘sit’, \*wes- ‘get dressed’). They have clear lexical parallels in Hittite, where they are also medio-passive (Hitt. *kittari* ‘lies’, *ēšari* ‘lies’, *wēšta* ‘gets dressed’). This means that the middle paradigm is certainly as old as Common PIE.

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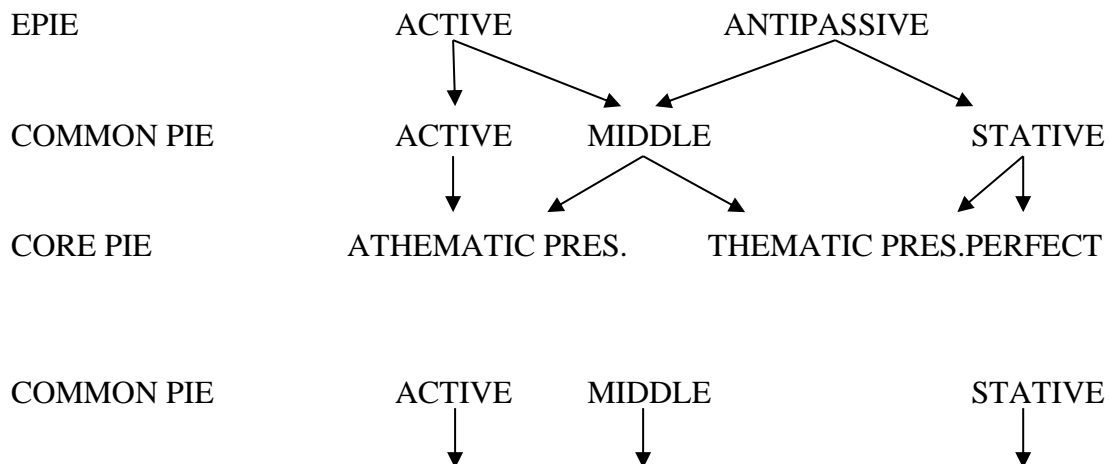
<sup>17</sup> The idea that the PIE perfect and the Hittite hi-conjugation developed from an antipassive was anticipated by Cowgill (1974: 560): “What the perfect and the mediopassive share formally is an identity of the basic, person and number marking components of some of their endings... This partial similarity may reflect a time when a remote ancestor of our language family had, say, a transitive *m*-conjugation, made by appending pronouns in ergative case to verb stems, and an intransitive *H*<sub>2</sub>-conjugation, made by appending pronouns in nominative case (in the third singular however, no pronoun at all). But such a system is too remote to be more than dimly glimpsed from the data available to us”. Well, maybe we can do a bit more than dimly glimpse at it. What Cowgill calls an intransitive *H*<sub>2</sub>-conjugation in this passage was, I would claim, the antipassive, which is intransitive *per definitionem*.

The 3sg. middle ending \*-o may be identical with the original absolutive case of thematic stems; if this is so, the old athematic *media tantum* such as \*k'ey-o (Skr. *śáye* 'is lying' < \*k'ey-o-i) are actually participles in the absolutive case. Thus we may posit a structure like \*wiHro k'ey-o 'the man is lying'. This participle-building suffix may be one of the sources of the thematic vowel in nouns. The younger 3 sg. middle ending \*-to is a blend of the athematic active ending (\*-t) and the old middle ending (\*-o).

The middle paradigm is essentially incompatible with the perfect in Core PIE; there are no inherited middle perfects, but middles are easily formed from both thematic and athematic presents and from all types of Core PIE aorists. This basically means that middles have originally nothing to do with the EPIE antipassive > Common PIE stative. This is because the middle paradigm came into being as a means of deriving intransitive verbs from transitives, i.e. from the EPIE > Core PIE actives, or simply as a means of indicating intransitivity. Once the original antipassive was extended to intransitives and the transitive active verbs started agreeing with the agent (the "subject"), a need arose for deriving intransitive verbs from transitives. This is, essentially, how the middle came into being. Middles are detransitized Core PIE active verbs, formed by combining the intransitive participle suffix (\*-o) with the stative (< antipassive) endings. That the middles were derived from old active verbs, rather than from statives, is clearly shown by the fact that the middle paradigm agrees with the active paradigm (rather than with the stative > perfect) with respect to Ablaut. The oldest stratum of middles, the athematic *media tantum*, regularly has the e-vocalism in the root throughout the paradigm (\*k'ey-o > Ved. *śáye*). There are also middles with the zero-grade throughout the paradigm (Ved. *uvé* < \*h<sub>1</sub>u-), but those with o-vocalism in the root (corresponding to PIE perfects) are not found.

As to the Ablaut patterns of verbs in PIE, we have to assume two original types: the type with e-grade in the singular, and the zero-grade in the plural, which characterized the original actives, e.g. \*h<sub>1</sub>ésmi / \*h<sub>1</sub>smés (Skr. *ásmi: smás*), and the type with o-grade in the singular, and the zero-grade in the plural, which characterized the original antipassives, e.g. \*woydh<sub>2</sub> / \*widmé (Gr. *oīda: idmén*).<sup>18</sup>

The development of various PIE verbal paradigms can be represented as follows:



<sup>18</sup> The static (or Narten) type may also have existed both in the Active (with ē-vocalism in the sg.) and in the Antipassive (with ō-vocalism), but this is not crucial for our argument here.

As can be seen, the Anatolian languages basically preserved the structure of the Common PIE verbal system, with only one important innovation. The stative broadened its meaning and became a simple present tense, opposed only lexically, but not functionally, to the inherited active (the mi-conjugation). The evolution of meaning and function of the antipassive was from ‘is driving (intrans.)’ to ‘is in the state of driving/has driven’ (perf.) in Core PIE, and to ‘is driving (trans.)’ in Anatolian.

Thus, Common PIE had three paradigms:

1. stative: EPIE antipassive extended to a number of intransitive verbs, e.g. \*h<sub>2</sub>og'h<sub>2</sub> ‘drive’, \*log<sup>h</sup>h<sub>2</sub> ‘lie’;
2. athematic (active): EPIE active, e.g. \*h<sub>1</sub>esmi ‘am’, \*g<sup>wh</sup>enmi ‘strike’;
3. middle: EPIE participle extended to a full paradigm by adding stative endings to the non-stative stem (together with the old participle suffix > middle marker \*o); this was composed of chiefly intransitive verbs, e.g. \*k'ey-h<sub>2</sub>o ‘lie’, or it could be used as an intransitivizing device for transitive verbal roots.

Another very difficult issue is the problem of the origin of the Core PIE thematic inflexion. Although the thematic endings, as we reconstruct them, have more in common with the Core PIE perfect / Anatolian hi-conjugation endings, actual etymological cognates of thematic presents are few among the verbs belonging to the Anatolian hi-conjugation (e.g. Gr. *spéndō* : Hitt. *išpant-*). Most verbs belonging to the hi-conjugation actually have lexical cognates that inflect as *athematic* verbs in Core PIE, e.g. Hitt. *dā-* ‘take’ vs. Core PIE \*di-deh<sub>3</sub>-mi ‘give’ (Gr. *dídōmi*), Hitt. *titta-* ‘install, assign’ vs. Core PIE \*d<sup>h</sup>i-d<sup>h</sup>eh<sub>1</sub>-mi ‘make’ (Gr. *títhēmi*), etc.

The thematic presents in Core PIE do not have quantitative Ablaut, which shows their relatively recent origin. The qualitative Ablaut characterizes only the thematic suffix \*e/o, cf. the contrast between 1 sg. \*-o-h<sub>2</sub> and 3 sg. \*-e-. The original form of the suffix is \*-o-, taken from the stative > perfect, while the e-grade may be from the secondary suffixes such as the iterative \*-sk'e- (PIE \*prk'-sk'-e ‘asks’ > Lat. *poscit*). The resulting paradigm with qualitative Ablaut is unpredictable on the basis of phonetic environment or the position of accent.

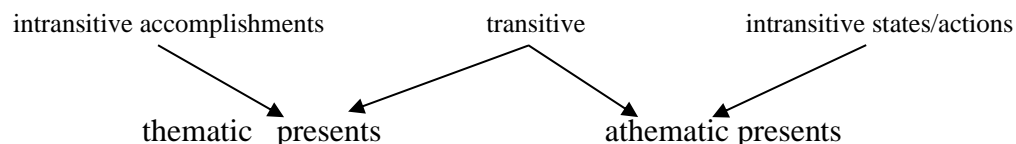
Verbs forming (underived) thematic presents are overwhelmingly bivalent/transitive; those which are not form intransitive accomplishments (change-of-state verbs) parallel to intransitive statives (see above).<sup>19</sup> Verbs with athematic presents are both

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<sup>19</sup> This refutes the idea, first proposed by Knobloch (1953) and taken up by Kortlandt (2009) that the thematic vowel was an object marker in EPIE; were that the case, we would not expect any old transitive underived thematic presents. It would, in principle, be possible to argue that the thematic marker was used only to mark *definite* objects (as in the case of the objective conjugation in Hungarian), but this supposition is quite ad hoc, and is strictly unverifiable.

intransitive and transitive, but underived athematic root-presents are usually intransitive.

EPIE verb roots:



Transitive underived thematic presents include (from the LIV database): \*b<sup>h</sup>ag- ‘take’, \*b<sup>h</sup>er- ‘carry’, \*b<sup>h</sup>eyd<sup>h</sup>- ‘bind, persuade’, \*der- ‘tear, cut’, \*demh<sub>2</sub>- ‘build’, \*g<sup>w</sup>et- ‘say’, \*g<sup>w</sup>erH- ‘praise’, \*delh<sub>1</sub>- ‘hew’, \*drep- ‘cut off’, \*g<sup>h</sup>eb<sup>h</sup>- ‘take’, \*h<sub>1</sub>ewH- ‘help’, \*h<sub>1</sub>ews- ‘burn’, \*h<sub>1</sub>em- ‘take’, \*g<sup>w</sup>erh<sub>3</sub>- ‘devour’, \*Hyag- ‘worship’, \*h<sub>2</sub>eg<sup>h</sup>- ‘drive’, \*h<sub>2</sub>el- ‘rear’, \*h<sub>2</sub>eyd<sup>h</sup>- ‘light up’, \*lemH- ‘break’, \*lep- ‘peel’, \*lewg- ‘break’, \*lewH- ‘cut off’, \*seg<sup>h</sup>- ‘win, conquer’, \*sek<sup>w</sup>- ‘follow’, \*sek<sup>w</sup>- ‘say’, \*h<sub>2</sub>melg<sup>h</sup>- ‘milk’, \*Hlew- ‘keep away’, \*h<sub>2</sub>leg<sup>h</sup>- ‘take care of’, \*sterg- ‘take care of’, \*steng<sup>w</sup>- ‘hit’, \*tem- ‘reach’, \*telk- ‘beat’, \*wed<sup>h</sup>- ‘lead’. These are, essentially, antipassives of bivalent verbs which became statives in Common PIE, and subsequently imperfectives (presents) in Core PIE.

Intransitive accomplishment (change-of-state) thematic presents include \*g<sup>wh</sup>er- ‘become warm’, \*h<sub>1</sub>rem- ‘become quiet’ (Ved. *rámate*), \*h<sub>2</sub>ewg- ‘becomes strong’, \*sweyd- ‘get sweaty’, \*sweh<sub>2</sub>d- ‘become sweet’, \*lewk- ‘become light’. These are basically those Common PIE statives that changed semantically from denoting a state to denoting a change of state, so they did not develop as perfects, unlike the remaining monovalent Common PIE statives.

There are no statives in the thematic inflexion; for \*tep- LIV assumes the meaning ‘be warm (*warm sein, heiss sein*)’, but Ved. *tápati* also means ‘gets warm’, which is an accomplishment. Other underived thematic presents for which LIV assumes a stative meaning are all limited to only one or two IE dialects, e.g. \*b<sup>h</sup>erw- ‘boil’ (only Italo-Celtic), \*dek’s- ‘be useful’ (only Vedic), \*swel- ‘burn’ (only Baltic and Germanic). All the original EPIE statives either remained athematic presents (often they are *media tantum*), or they became Core PIE perfects.

Likewise, there do not appear to be any old activity verbs that have only underived thematic presents. LIV notes \*drew- ‘run’ (but it is attested only in Vedic), \*g<sup>h</sup>rem- ‘rage’ (but it is attested only in Avestan), \*steyg<sup>h</sup>- ‘step, walk’ (but this verb also forms a nasal present, preserved in OIr. *téit*, which may be original). Activity verbs such as \*tek<sup>w</sup>- ‘run’ (Skr. *tákti*), \*h<sub>1</sub>ed- ‘eat’ (Skr. *ádmi*), or \*g<sup>wh</sup>en- ‘strike’ (Skr. *hánti*), tend to form underived athematic presents. As a class, they are inherited from EPIE with very little subsequent modification.

Thus, it appears that the original antipassive split into a stative (later the perfect in Core PIE) and an imperfective present, characteristic of accomplishment verbs. Note that in many languages, antipassives are typically imperfective (according to WALS). This imperfective present was then opposed to perfective (aorist), depending on the basic lexically determined Aktionsart of the verb (Hoffmann 1970). Verbs denoting activities (which are durative) formed underived presents, and their aorists (expressing momentaneous action) were derived by means of the suffix \*-s- (e.g. \*weg<sup>h</sup>- ‘drive’, pres. \*weg<sup>h</sup>oh<sub>2</sub> > Skr. *vahāmi* vs. aorist \*wēg<sup>h</sup>s-m > Skr. *a-vākṣam*, \*dewk- ‘pull’, pres. \*dewkoh<sub>2</sub> > Lat. *dūcō*, Goth. *tiuhan* vs. aor. \*d-ēwk-s- > Lat. *dūxī*, ToB *tsauksā*, PIE \*d<sup>h</sup>eg<sup>wh</sup>- ‘burn’, pres. \*d<sup>h</sup>eg<sup>wh</sup>oh<sub>2</sub> > Ved. *dāhati* vs. aor. \*d<sup>h</sup>ēg<sup>wh</sup>-s- > Ved. *adhāk*, OCS 3 pl. *-žšę*). On the other hand, verbs denoting momentaneous activities formed derived presents and root aorists (e.g. \*peh<sub>3</sub>- ‘take a sip’, pres. \*pi-ph<sub>3</sub>-oh<sub>2</sub> > Lat. *bibō*, with originally iterative reduplication, vs. aorist \*peh<sub>3</sub>-m > Skr. *ápām*, \*k<sup>l</sup>ew- ‘hear’, pres. \*k<sup>l</sup>ew-ti > Ved. *śrṇoti* vs. aor. \*k<sup>l</sup>ew-t > Ved. *ásrot*). This aspectual system cannot be posited for Anatolian, so it must have developed after the separation of that branch, in Core PIE. Both the new thematic class and the inherited athematic class participated in the development of this system.

The rules for the distribution of presents in the thematic and athematic conjugation in Core PIE can be stated as follows:

I. Bivalent (semantically “transitive”) verbs belonging to the Common PIE stative became Core PIE thematic verbs, e.g. \*b<sup>h</sup>er-e ‘carries’ (Ved. *bhárati*, Gr. *phérei*), \*der-e ‘tears’ (Gr. *dérei*, OCS *deretb*).

II. Change-of-state (accomplishment) monovalent (semantically “intransitive”) Common PIE verbs became Core PIE thematic verbs, e.g. \*sweyd-e ‘get sweaty’ (Ved. *svedate*), \*lewk-e ‘become light’ (Ved. *rócate*).

III. Verbs derived with suffixes ending in a vowel became thematic, e.g. \*-ye- (PIE \*h<sub>2</sub>erh<sub>3</sub>-ye- ‘plow’ > OCS *orja*, OIr. *airid*, \*mr-ye- ‘die’ > Lat. *morior*, OCS *umbrjetb*), \*-sk<sup>l</sup>e- (PIE \*h<sub>2</sub>is-sk<sup>l</sup>e- ‘seek, ask’ > Skr. *iccháti*, OCS *iskq, iskatī*), causatives formed with the suffix \*-eye- (PIE \*skoyd-eye- ‘split, sieve’ > Skr. *chedayati* ‘makes cut off’, OCS *cěditi* ‘sieve’), etc.

IV. It is probable that some middle verbs also became thematic in the Core PIE period, since they lack middle correspondences in Anatolian, e.g. \*sek<sup>w</sup>etor ‘follows’ > Lat. *sequitur*, Skr. *sácate*, \*mryetor ‘dies’ > Lat. *moritur*, Skr. *mríyate*.

With very few exceptions, thematic verbs do not have the o-vocalism in the root, unlike the perfects and their Common PIE stative antecedents. Rather, in the formation of the (suffixless) thematic stems one of the two stems of the Common PIE actives (> Core PIE athematics) was generalized: either the full grade from the singular (\*b<sup>h</sup>er-e, \*der-e above), or the zero grade from the plural (\*(s)tud-e ‘strikes’ > Skr. *tudáti*), \*g<sup>w</sup>rh<sub>3</sub>e ‘devours’ (Skr. *giráti*, OCS *žbrēt*). These latter verbs are the core of the Sanskrit 6th class of present stems.

The 3rd person sg. thematic ending \*-e (taken from the stative > perfect) was, at some stage, reinterpreted as the stem-forming element, to which the same endings were

added. This is the reason why, e.g., the 2nd person pl. of thematic present is not \*b<sup>h</sup>er-tes, but rather \*b<sup>h</sup>er-e-tes. In origin, the thematic/perfect ending \*-e was probably just the bare stem of a participle in the absolutive case. This means that, e.g., \*mone actually meant ‘remembering’ rather than ‘he remembered’ or ‘he has remembered’. This form apparently also served as the derivational basis for Core PIE causative, hence from \*mone we have \*mone-ye- ‘causes to remember’ > Lat. *moneō*, *monēre* ‘admonish’. From such cases the causative suffix \*-eye- was abstracted.

The origin of the Hittite 3sg. ending *-(i)š* of the preterite of the hi-conjugation is still disputed (cf., e.g., Hitt. *dāš* ‘he took’ from *dāhhi* ‘take’). It is traditionally connected with the formant of the s-aorist (thus still Jasanoff 2003), but it cannot be directly *derived* from this suffix since there is no evidence that Anatolian ever developed the aspectual opposition between the present (imperfective) and the aorist, or that it ever had a full-fledged category of the sigmatic aorist. Rather, this \*-s may be identical with the old Ergative (> Nominative) ending of the participle, just as the ending \*-e was (as argued in the preceding paragraph) the original Absolutive ending of the bare participial stem. All of this is, of course, just a speculation in the absence of a simple solution to this difficult problem.

Thus, as we have seen, the thematic present inflexion of the Core PIE combined the Ablaut patterns of the active (> athematic) presents with the endings of the stative (> perfect). The sequence of events leading to the creation of the thematic present such as \*b<sup>h</sup>ere can be represented like this:

1. ACTIVE \*b<sup>h</sup>er-mi, \*b<sup>h</sup>er-si, \*b<sup>h</sup>er-ti : STATIVE \*b<sup>h</sup>orh<sub>2</sub>,<sup>20</sup> \*b<sup>h</sup>orh<sub>1</sub>, \*b<sup>h</sup>or-e
2. ATHEM. \*b<sup>h</sup>er-mi, \*b<sup>h</sup>er-si, \*b<sup>h</sup>er-ti : THEMATIC \*b<sup>h</sup>erh<sub>2</sub>, \*b<sup>h</sup>erh<sub>1</sub>, \*b<sup>h</sup>er-e
3. ATHEM. \*b<sup>h</sup>er-mi, \*b<sup>h</sup>er-si, \*b<sup>h</sup>er-ti: THEMATIC \*b<sup>h</sup>er-oh<sub>2</sub>, \*b<sup>h</sup>er-e-h<sub>1</sub>, \*b<sup>h</sup>er-e

While the class of thematic presents developed in Core PIE, the athematic presents (from original actives) remained quite unaffected since EPIE. However, since the thematic class is in a large measure, as we saw, derived from the antipassives of EPIE active verbs, it is only expected that many verbs could form their present stems in two (or even more) different manners. One of those (the athematic pattern) is descended from EPIE active, and the other pattern (the thematic one) is from the EPIE antipassive, cf. e.g. PIE \*b<sup>h</sup>érti ‘carries’ (Ved. *bhárti*) besides \*b<sup>h</sup>ereti (Ved. *bhárati*), or \*(s)tu-ne-d-ti ‘strikes’ > Lat. *tundit* vs. \*tud-e (> Skr. *tudáti*). Besides, many present stems are formed with suffixes, and derived and underived present stems co-existed in PIE side by side.

The development of the PIE verbal system can therefore be divided into the following stages:

## STAGE I.

<sup>20</sup> The ending could also have been \*-h<sub>2</sub>e, as in the Core PIE perfect, with a subsequent apocope of the final \*-e in thematic presents (a similar development is suggested in Jasanoff 2003).

In stage I, we have two different diatheses, the active and the antipassive, as in many ergative languages. The active diathesis was characterized by a special set of personal endings, which agreed with the absolutive argument (the object/patient of the transitive verb and the only argument of the intransitive verb). The antipassive person endings agreed with the single argument of the derived verb, which was the actor of the transitive verb in the absolutive case (the nominative case for personal pronouns).

ACTIVE       transitive: \*so wiHros g<sup>w</sup>ow h<sub>2</sub>eg't “The man is driving the cow”  
   \*eg' g<sup>w</sup>ow h<sub>2</sub>eg't “I’m driving the cow”  
   intransitive: \*to g<sup>w</sup>ow h<sub>1</sub>eyt “The cow is going”

ANTIPASSIVE       \*to wiHro h<sub>2</sub>og'e “The man is driving (it)”  
   \*eg' h<sub>2</sub>og'h<sub>2</sub> “I’m driving (it)”

Note the following oppositions: \*weg<sup>h</sup>e ‘is driving’ : \*wog<sup>h</sup>os ‘he who is driving’ : \*weg<sup>h</sup>t ‘is driving it’ : \*ug<sup>h</sup>to ‘driven’

Now the antipassive form is extended to monovalent (intransitive) verbs and becomes, effectively, a stative.

## STAGE II.

ACTIVE       \*so wiHros g<sup>w</sup>ow h<sub>2</sub>eg't(i) “The man is driving the cow”  
   \*eg<sup>h</sup> g<sup>w</sup>ow h<sub>2</sub>eg't(i) “I’m driving the cow”

ANTIPASSIVE \*to wiHro h<sub>2</sub>og'e “The man is (in the state of) driving (it)”  
   \*eg' h<sub>2</sub>og'h<sub>2</sub> “I’m (in the state of) driving (it)”  
   \*to g<sup>w</sup>ow log<sup>h</sup>e “The cow is lying”  
   \*eg' log<sup>h</sup>h<sub>2</sub> “I’m lying”

The antipassive thus evolved from being the marked diathesis, limited to transitive verbs and probably having a pragmatic function only (suppression of the Undergoer argument) to being the unmarked category, without any special pragmatic function.

With bivalent stative and accomplishment verbs, we now have a nominative-accusative pattern, with verb agreeing with the subject (usually the experiencer argument):

\*eg' to woydh<sub>2</sub> “I know this” - this pattern is preserved as such in the inherited perfects. It was subsequently extended to prototypical transitives, which became the PIE thematic presents and the *hi*-conjugation verbs in Anatolian:

\*wiHros g<sup>w</sup>ow h<sub>2</sub>eg'e “The man is driving the cow” : \*eg' g<sup>w</sup>ow h<sub>2</sub>eg'oh<sub>2</sub> “I'm driving the cow”.<sup>21</sup>

The original active included many intransitive presents, which, as in EPIE, continued agreeing with their single argument (\*h<sub>2</sub>weh<sub>1</sub>nts \*h<sub>2</sub>weh<sub>1</sub>t(i) “The wind is blowing”).

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<sup>21</sup> The addition of the new accusative ending \*-m may have been accomplished at this stage, but we cannot know.



The original transitive construction with athematic verbs (\*so wiHros g<sup>w</sup>ow h<sub>2</sub>eg't(i), \*eg<sup>h</sup> g<sup>w</sup>ow h<sub>2</sub>eg't(i)) simply fell out of use, or adjusted to the new pattern, agreeing with the subject, rather than the object (\*h<sub>2</sub>ners domh<sub>2</sub> d<sup>h</sup>i-d<sup>h</sup>eh<sub>1</sub>-t(i)) “The man is making the house”/ \*eg' domh<sub>2</sub> d<sup>h</sup>i-d<sup>h</sup>eh<sub>1</sub>-m(i) “I'm making the house”). Transitive athematic verbs are often marked by reduplication in the present (in Core PIE). Anatolian languages never developed the perfect tense and the split of the original stative endings into two different sets (the perfect and the thematic present). Rather, as suggested long ago by Cowgill (1974), the stative simply became the new general present and spread analogically.

Finally, the distribution between transitive and intransitive verbs was blurred, and the stative flexion became productive, encroaching into intransitive verbs. This is the situation we find in Common PIE. This is probably the reason why many PIE verbs can function both as transitives and as intransitives, a fact noted long ago by Meillet (1937). Transitivity is a syntactic feature that plays an important role in languages with a developed category of diathesis, and in Common PIE was very poorly developed: the antipassive no longer existed (because it became a stative, characterizing both monovalent and bivalent verbs), and the passive did not develop: indeed, most early IE dialects do not have a clearly defined passive.

The development of the nominative-accusative pattern from earlier antipassive has clear typological parallels in the Austronesian languages. Proto-Austronesian was an ergative language, but several of its descendants, like Indonesian, are nominative-accusative. It can be shown that the Indonesian verbal prefix *meN-* in transitive clauses corresponds to the antipassive marker *maN-* in Tagalog (Aldridge 2011).

(19) *Ali mem-beli buku*  
 A. trans.-read book  
 “Ali bought a book”

(20) *Ali bekerja*  
 A. work  
 “Ali is working”

This speculative account of the development of the nominative-accusative verbal syntax in PIE is typologically possible. It is the precise opposite of the development of ergative alignment in languages where the passive construction is re-interpreted as the ergative (e.g. in some Iranian languages spoken in Pamir).<sup>22</sup> Note that, however speculative this account may seem, it is logically independent of our theory of the development of case marking and gender in PIE. As stated above, PIE could have had ergative case marking and nominative-accusative verbal agreement at the same time; languages are often inconsistent in their syntactic treatment of case and agreement, and there is no reason why our reconstructions should strive to typological consistency.

From the areal point of view, the hypothesis that EPIE was an ergative language at some point of its development makes better sense than the hypothesis that its clause

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<sup>22</sup> On the development of ergative alignment in Iranian from the earlier passive see Harris & Campbell 1995: 255f.

alignment was active. Most languages of the Caucasus are ergative, and most of the languages of the ancient Near East (including Sumerian, Hattic, Hurrian, and Elamite) were ergative as well.<sup>23</sup> The hypothesis that EPIE also had ergative clause alignment fits well with the recent findings of other areal-typological features shared by PIE and other languages of the SW Eurasia in general, and the Caucasus in particular (Matasović 2012). However, the language family that is most probably Proto-Indo-European's closest genetic relative, the Uralic family, is consistently nominative-accusative, and there is no indication that their ancestor had ever been ergative. It remains to be seen how the hypothesis of Indo-European ergativity is to be squared with the Indo-Uralic hypothesis.

### 3. ERGATIVITY IN INDO-URALIC?

It is usually assumed that Proto-Uralic was a nominative-accusative language. The reconstructed verbal personal endings (\*-mi, \*-ti, \*-0) certainly indexed the subject of both transitive and intransitive verbs, as is expected in a nominative-accusative language.

These are the Uralic case endings: Nom. -0, Acc. \*-m (only for definite objects?), Gen. \*-n, which probably also could mark objects in some constructions. The proto-language may also have had a number of local cases (including the “Separative” in \*-tV).

The Uralic languages are overwhelmingly nominative-accusative. However, Ostyak (Eastern Khanty) has an ergative construction in which the agent of the transitive verb is in the Locative case (rather than the default Nominative). This construction is possible with both the subjective and the objective conjugation (the objective conjugation occurs only with verbs having definite objects):

- (21) *Ap̄i-m-n̄*                      *mān-t̄* *äl̄əŋ*      *təx* *tu-w-ə̄l̄*  
 father-1sg.poss.-loc. I-acc. morning here bring-pres.-3sg.  
 “My father brings me here this morning” (Perrot 2005: 177)

Although it has been stated that this construction is an archaism in Ostyak (Havas 2008), there is no particular reason to consider it as such.

The agent-participle construction in Fennic seems like a better candidate for an inherited ergative trait, since it is not limited to as single language (Katz 1980: 396). It can be exemplified by Finnish:

- (22) *isännä-n*                      *kutsu-ma vieras*  
 landlord-Gen invite-part. guest(Nom)  
 “The guest invited by the landlord”

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<sup>23</sup> Note that these languages are „ergative“ only in the sense that they have constructions in which the single argument of intransitive verbs is treated as the object/patient of transitives. Actually, they are quite different: for example, while a NW Caucasian language like Abkhaz has ergative verb agreement but no grammatical case, most NE Caucasian languages (e.g. Chechen) have an ergative case system and verb agreeing in case (but not person) with the subject of intransitive / object of transitive clause.

The Finnish suffix *-ma* in this example goes back to PUr. \*-mA, and it has reflexes in most Fennic and several other Uralic languages (Saami, Mari, Mordvin, Permic, De Smit 2014: 7). In Fennic, this construction occurs with transitive verbs, only, but in other Uralic languages there is no such restriction. De Smit (2014: 9) believes that \*-mA was originally a marker of perfectivity and reconstructs the PUr. construction as:

- (23) \**kala icä-n amta-ma*  
 fish(Abs) father-Gen give-perf.  
 “Father has given the fish”

More speculatively, De Smit (2014: 27) posits a finite construction with the 3<sup>rd</sup> person sg. suffix agreeing with the patient:

- (24) \**kala icä-n amta-se*  
 fish(Abs) father-Gen give-3sg.pat.  
 “Father has given the fish”

De Smit acknowledges the annoying fact that the reflex of this particular construction is unattested in Uralic languages, but he claims that it can nevertheless be posited, provided that \*-se was originally a possessive suffix.

In order for the hypothesis that Uralic was ergative to work, one must abandon the reconstruction of Common PUr. Accusative marker \*-m, and rather assume that it developed in individual languages from a lative marker (similarly as in PIE). However, the Accusative marker \*-m is preserved in most Uralic languages (with the exception of Khanty, Hungarian, Enets, and some dialects of Mansi).

Thus, the case for ergativity of Proto-Uralic seems rather weak. It is true that participial constructions we discussed in Uralic have some parallels in Indo-European languages:

In Armenian, the participle in *-eal* (the only participle in the language) takes nominative subjects with intransitive verbs and genitive subjects with transitive verbs (Kölligan):

- (25) *noc<sup>a</sup> toleal valvalaki z-gorci-s-n gnac<sup>c</sup>in zhet*  
 3pl.Gen leave.ptcp immediately Acc-tool-Acc.pl.-art. walk.3pl.aor after  
  
*nora*  
 3sg.Gen  
 “They immediately left their tools and followed him” (Mt. 4.20).

- (26) *owrax leal êr jer*  
 glad be.ptcp be.3sg.ipf. 2pl.Gen  
 “You would be glad” (John. 14.28).

In Lithuanian, there is a construction in which the passive participle in *-ta-* is construed with the actor in the genitive case (Stefański 1993: 53):

(27) *Piemen-s duon-os duota*  
 shepherd-Gen bread-Gen given  
 “The shepherd gave some bread”

In Indo-Iranian, there is the so-called *taya manā kartam* construction, found in Old Persian, but with clear parallels in Avestan and Vedic:

(28) *ima taya manā kartam Pārsaiy*  
 this what I(Gen.) done Persia.Loc.  
 “This is what I have done in Persia” (Darius, Behistun III 52-3).

In Vedic, cf. the construction *patyuh krītā* ‘bought by the husband’, while in Greek we find compounds where the first element is a noun in the genitive expressing the agent, and the second element the to-participle, e.g. Gr. *diósdotos* ‘god-given’. In Hittite we find “ablative of agency” (in post OH texts), e.g. <sup>URU</sup>*Hattušaš utne hingan-az tamaštat* (H. land plague-Abl. has.been.oppressed) “The land of Hattuša has been oppressed by a plague” (Hoffner & Melchert 2008:267).

The problem with those constructions in Indo-European is twofold. Firstly, they can all be independent developments; the Armenian construction has been claimed to be modelled on Parthian (or even Kartvelian) sources, and the Old Persian construction has also been interpreted as a recent development, parallel to certain Middle Indic constructions that eventually led to ergative patterns in some Modern Indo-Aryan languages. The Lithuanian construction has been ascribed to Uralic adstratum/substratum, and this idea gains some plausibility if we also compare the North Russian dialectal constructions in which the possessor/agent is expressed with a prepositional phrase and the predicate is the neuter form of the passive participle:

(29) *U menja bylo telenk-a zarez-a-n-o*  
 at I(Gen.) be.pret. calf-acc slaughter-pass.part.-neut.sg.nom.  
 “I slaughtered a calf”

This construction does not occur in the South Russian dialects, nor, as far as I know, anywhere else in Slavic.

Secondly, these constructions all involve the participle formed with the PIE suffix \*-to-, which built verbal adjectives in the proto-language. These participles were not, by themselves, either active or passive (cf. PIE \*mrto- ‘dead’ from the intransitive root \*mer- ‘die’). This suffix obviously cannot correspond the suffix \*-m- which was involved in the possible ergative construction in Proto-Uralic.

Therefore, apparent correspondences in syntactic structures exhibited between Indo-European languages and the putative ergative constructions in Proto-Uralic do not permit us to conclude that Indo-Uralic was ergative.

However, there are certain facts about Proto-Uralic that lead us to believe that our reconstruction of EPIE as an ergative language is essentially correct:

1. The PIE Ergative/Ablative ending \*-s may be related to PUr. “separative” \*-tI/-tA by Čop’s law (\*tV<sup>front</sup> >PIE \*sV<sup>front</sup>)<sup>24</sup>, cf. Moksha Mordva -dʹə, (Abl.), Estonian -d (Partitive), Finnish -s-ta in *talosta* ‘(coming) out of the house’ (elative), Tundra Nenets *mya-kø-d* “from the tent” (Abl.) (Abondolo 1998: 20, Raun 1988: 557).
2. The PIE Gen. sg. ending \*-os (Early PIE Genitive/Ergative) is perhaps related to the PUr. 3. sg. possessive suffix \*-sV (Udmurt -ez, Komi -ës, Finn. -n-sa, Raun 1989: 559). It may have been created by reanalysis: \*‘man it-3sg.poss. house’ > \*‘man’s house’, i.e. \*h<sub>2</sub>ner o-s domh<sub>2</sub> > \*h<sub>2</sub>nr-ós domh<sub>2</sub>. If this is correct, Early PIE head-marking possessive construction became a dependent-marking construction in Late PIE.

To conclude: the case for ergativity in Uralic is rather weak, and the case for the ergativity of the putative Proto-Indo-Uralic language is even weaker. Should we conclude that ergativity developed in PIE after the separation from Uralic, during intensive language contacts with speakers of a language typologically similar to NW Caucasian languages (Matasović 2013)? This, however, involves a rather complex historical scenario, so the lack of solid evidence for ergativity in Uralic remains a problem for both the hypothesis that PIE was ergative and for the Indo-Uralic hypothesis.

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<sup>24</sup> Cf., e.g., PIE 2sg. ending \*-si which may be related to PUr. \*-ti if Čop’s law is accepted. Moreover, this is in accordance with the fact that both in PIE and in PUr. the 2nd person sg. pronoun begins with \*-t-.

## 5. CONCLUSION

All the early Indo-European languages have nominative-accusative clause alignment, with the single exception of Hittite, which has a split ergative system, which is (by general consent) of recent origin (Garrett 1990). For many linguists, this is in itself sufficient reason to conclude that PIE was also a consistently nominative-accusative language, and that no further questions need be asked. However, if we do ask some questions about the prehistory of the PIE clause alignment, we have to admit that, *a priori*, a change from an EPIE ergative or active system is not any more or less probable than the hypothesis that the EPIE clause alignment was nominative-accusative. Moreover, both hypotheses are, strictly speaking, irrefutable, and the only way to measure their respectable probabilities is by the way in which they help us understand the mutual relationships between reconstructed structures in LPIE and their prehistoric development. It has been argued here that the ergative hypothesis does a better job in that respect than either the nominative-accusative or the active hypothesis. This does not mean that we think we have *proved* that EPIE was an ergative language. Such a proof will, in our opinion, always remain beyond the reach of science.

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