

### The disintegration of the Indo-European language family

The Indo-European language family can be represented as follows (cf. Kortlandt 2010: 37-50, 2016b, 2016c, 2016d):

- o. Proto-Indo-European,
1. Anatolian vs. other Indo-European,
2. Tocharian vs. Classic Indo-European,
3. Italo-Celtic vs. Central Indo-European,
4. Germanic vs. Nuclear Indo-European,
5. Graeco-Phrygian vs. Satəm Indo-European,
6. Thraco-Armenian vs. North Satəm Indo-European,
7. Daco-Albanian vs. East Satəm Indo-European,
8. Balto-Slavic vs. Indo-Iranian.

All branches except Balto-Slavic, Indo-Iranian and Tocharian left the Indo-European homeland in the Russian steppe via the lower Danube. The chronology can be further specified in a number of ways. The speakers of Venetic were Italic speakers who lagged behind and settled in the Veneto and the upper Sava region. A part of them known as Venedi moved north to Silesia and the Baltic Sea shore and became part of the Corded Ware horizon (cf. Kortlandt 2016b). Georg Holzer's "Temematic" (1989) can be positioned between Germanic and Greek: "Bedeutend scheint mir auch die Tatsache, daß alle hier identifizierten tm. Wurzeln (oft auch Stämme oder ganze Wörter) etymologische Entsprechungen im Germanischen oder im Griechischen oder in beiden aufweisen, wobei das Germanische weitaus die meisten Anschlüsse bietet, das Griechische die zweitmeisten, gefolgt vom Slavischen und den anderen idg. Sprachen" (Holzer 1989: 165). Their speakers apparently moved from Pannonia to Galicia, where they came into contact with the Slavs at a later stage. Nuclear Indo-European was divided by two major isoglosses, viz. the satəmization of the palatovelars that separated Graeco-Phrygian from the *satəm* languages and the devoicing of the glottalic stops that divided Thraco-Armenian and Phrygian from Greek, Albanian and the other *satəm* languages (cf. Kortlandt 2016d). I have suggested that the devoicing of the glottalic stops may have been due to a Proto-Anatolian substratum. Another early isogloss separated Indo-Iranian from the other *satəm* languages, where the palatovelars were depalatalized before resonants under certain conditions before the satəmization (cf. Kortlandt 2013). Thus, it appears that Nuclear Indo-European (or Graeco-Aryan) was the last homogeneous subgroup in the development of the language family.

#### PHONOLOGY

Proto-Indo-European had two vowels, \**e* and \**o*, which had long variants \**ē* and \**ō* in monosyllabic word forms and before word-final resonants (cf. Wackernagel 1896: 66-68). The vowel \**a* is widespread in borrowings from European substratum languages, e.g. Latin *albus* 'white', Greek *ἄλφος*, Hittite *alpa-* 'cloud' (rejected by Kloekhorst 2008a: 169). The vowel \**e* was colored by a contiguous laryngeal but did not merge with \**a* and \**o* at an early stage because in Indo-Iranian the vowel \**a*

originated from  $*eH_2$  [aʃ] by the absorption of  $*H_2$  by a following cluster-initial glottalic consonant (Lubotsky 1981, 1989) and the lengthening of  $*o$  [å] to  $*ā$  in open syllables (Brugmann's law) did not affect  $*o < *H_3e$  [ʃ<sup>w</sup>ö] (Lubotsky 1990, Kortlandt 2017a). The merger of  $*e$  with  $*a$  and  $*o$  after being colored by a contiguous laryngeal was evidently conditioned by the consecutive adoption of loanwords in Anatolian, Italo-Celtic, Germanic, the Balkan languages, and Balto-Slavic when these came into contact with local European languages. There is no reason to assume that  $*ē$  and  $*ō$  behaved differently from  $*e$  and  $*o$  with respect to laryngeal coloring (cf. Kortlandt 2010: 365-368). The PIE resonants  $*i$ ,  $*u$ ,  $*r$ ,  $*l$ ,  $*n$ ,  $*m$  had syllabic and nonsyllabic variants. Long  $*ī$  and  $*ū$  developed in Central Indo-European (cf. Kortlandt 2017b). Thus, we arrive at the following vowel systems:

- I. Proto-Indo-European, non-Anatolian IE, Classic IE:  $*e$ ,  $*ē$ ,  $*o$ ,  $*ō$ , syllabic  $*i$ ,  $*u$ ,  $*r$ ,  $*l$ ,  $*n$ ,  $*m$ .  
 II. Central IE, Nuclear IE, Satəm IE, early Indo-Iranian:  $*i$ ,  $*ī$ ,  $*e$ ,  $*ē$ ,  $*o$ ,  $*ō$ ,  $*u$ ,  $*ū$ , syllabic  $*r$ ,  $*l$ ,  $*n$ ,  $*m$ .  
 III. Anatolian, Tocharian, Italo-Celtic:  $*e$ ,  $*ē$ ,  $*a$ ,  $*ā$ ,  $*o$ ,  $*ō$ , syllabic  $*i$ ,  $*u$ ,  $*r$ ,  $*l$ ,  $*n$ ,  $*m$ .  
 IV. Germanic, Balkan languages, Balto-Slavic, Indo-Iranian after Lubotsky's and Brugmann's laws:  $*i$ ,  $*ī$ ,  $*e$ ,  $*ē$ ,  $*a$ ,  $*ā$ ,  $*o$ ,  $*ō$ ,  $*u$ ,  $*ū$ , syllabic  $*r$ ,  $*l$ ,  $*n$ ,  $*m$ .

Proto-Indo-European had twelve stops, one fricative  $*s$ , and three "laryngeals"  $*H_1$ ,  $*H_2$ ,  $*H_3$ , which I would prefer to write  $*q_1$  [ʔ],  $*q_2$  [q],  $*q_3$  [q<sup>w</sup>] (cf. Kortlandt 2010: 38, 373-386). The distinction between the laryngeals was neutralized as [ʔ] before and after  $*o$  (cf. Kortlandt 2003: 54-56, 2010: 365-368). The stops were the following:

	fortis	glottalic	lenis
labials	$*p$ [p:]	$*b$ [pʰ]	$*b^h$ [p]
dentals	$*t$ [t:]	$*d$ [tʰ]	$*d^h$ [t]
palatovelars	$*k$ [k:]	$*g$ [kʰ]	$*g^h$ [k]
labiovelars	$*k^w$ [k <sup>w</sup> :]	$*g^w$ [k <sup>w</sup> ʰ]	$*g^{wh}$ [k <sup>w</sup> ]

Word-initial  $*b-$  had already become  $*p-$ , e.g. Vedic *píbatī* 'drinks', Old Irish *ibid*, Armenian *əmpem* 'I drink' (with a nasal infix, Kortlandt 2003: 80), Luwian *pappaš-* 'to swallow' (Kloekhorst 2008a: 628) with analogical fortis  $*-p-$  and Latin *bibō* with restoration of initial  $*b-$ . A similar rule may account for the absence of PIE roots with two glottalic stops such as  $*deḡ-$  or  $*g^weid-$  because the fortes were almost as frequent as the lenes and the glottalics together. The opposition between palatovelars and labiovelars was neutralized after  $*u$  and  $*s$  and the palatovelars were depalatalized before  $*r$  and laryngeal consonants (cf. Meillet 1894, Steensland 1973, Villanueva Svensson 2009), e.g. Luwian *k-* <  $*k-$  in *karš-* 'cut' <  $*krs-$ , Vedic *cyávate* 'moves' <  $*kʔieu-$ , Greek *σεύομαι*, Prussian *etskī-* 'rise' <  $*kʔiei-$ , Latin *cieō* (Kortlandt 2009: 176), also Vedic *kṣáyati* 'rules' <  $*tkʔei-$ , Avestan *xš-*, as opposed to Vedic *kṣéti* 'dwells' <  $*tkei-$ , Avestan *š-* (Beekes 2010: 789, 791).

The PIE stops  $*t$  [t:],  $*d$  [tʰ],  $*d^h$  [t] appear as [t:], [tʰ], [t] in Anatolian (cf. Kloekhorst 2014, 2015) and Tocharian,  $*t$ ,  $*d$ ,  $*p/ð$  in Italic,  $*p$ ,  $*t$ ,  $*t$  in Germanic (Kortlandt 2010: 165-199, 293-318), *t*, *d*, *tʰ* in Greek, *tʰ*, *tʰ*, *d* in Armenian (Kortlandt 2003: 20-25, 126-128),  $*t$ ,  $*ʔd$ ,  $*d$  in Balto-Slavic (Kortlandt 2009: 51-88),  $*t$ ,  $*ʔd$ ,  $*d$  in Indo-Iranian (Kortlandt 2010: 61, 121-124). This leads to the following chronology:

- I. Anatolian and Tocharian:  $*t$ ,  $*'t$ ,  $*t$ .  
 II. Classic IE, Italo-Celtic, Central IE, Nuclear IE, Graeco-Phrygian, Satəm IE, Balto-Slavic, Indo-Iranian:  $*t$ ,  $*'d$ ,  $*d$ .  
 III. Italic:  $*t$ ,  $*d$ ,  $*\delta$  (Kortlandt 2007: 150).  
 IV. Germanic:  $*þ$ ,  $*'t$ ,  $*t$ .  
 V. Greek:  $t$ ,  $d$ ,  $t^h$ .  
 VI. Phrygian and Thracio-Armenian:  $*t$ ,  $*t'$ ,  $*d$  (Kortlandt 2016d: 250).  
 VII. Armenian:  $t^h$ ,  $t'$ ,  $d$ .  
 VIII. Indic (except Sindhi, Panjabi, Kashmiri and Nuristani, cf. Kortlandt 2017c):  $t$ ,  $t^h$ ,  $d$ ,  $d^h$ .

The PIE laryngeals have syllabic and nonsyllabic reflexes in the separate languages, the former representing an epenthetic vowel that sometimes preserves the color of the laryngeal in Italo-Celtic (Schrijver 1991: 56-73), Graeco-Phrygian (Kortlandt 2016d: 250f.), and Armenian (Kortlandt 2003: 75-78). The consonantal reflexes are a glottal stop in Anatolian, Graeco-Phrygian (circumflex from hiatus in Greek), Balto-Slavic and Indo-Iranian, under special conditions reflected as a velar stop in Germanic [ $k$ ] and Armenian [ $k'$ ] (Kortlandt 2010: 167f., 2003: 57), also aspiration word-initially in Armenian and Albanian (Kortlandt 2003: 73-78) and after a voiceless stop in Armenian, Balto-Slavic (Kortlandt 2011: 176) and Indo-Iranian, and postvelar stops and fricatives in Anatolian (cf. Kloekhorst 2008b: 144f.). I therefore reconstruct the following consonants:

- I. Proto-Indo-European, Anatolian:  $*ʔ$ ,  $*q$ ,  $*q^w$ .  
 II. Other Indo-European:  $*ʔ$ ,  $*ʕ$ ,  $*ʕ^w$ . The pharyngeals were devoiced by a preceding voiceless stop in the *satəm* languages.

#### NOMINAL MORPHOLOGY

Indo-European inherited a number of case endings from Indo-Uralic, viz. accusative  $-m$ , locative  $-i$ , instrumental  $-t$ , ablative  $-s < *t-i$ , nominal nom.sg.  $-s < \text{animate ergative} < \text{ablative}$ , pronominal nom.sg.  $-t < \text{neuter ergative} < \text{instrumental}$ , nominal nom.pl.  $-es < *et-i$ , pronominal nom.pl.  $-i$ , dual animate  $*-ʔ$ , neuter  $*-i$  (cf. Kortlandt 2010: 40f., 155, 397f.). The paradigm of the nominal  $o$ -stems was built on the original ergative in  $*-os$  (cf. Beekes 1985: 191-195). The new acc.sg. ending  $*-om$  became the nom.sg. ending of neuter  $o$ -stem nouns, first as a predicate and later as a subject, e.g. Iliad 2.204 *οὐκ ἀγαθὸν πολυκοιρανίη* ‘the rule of many is not a good thing’. This is also the origin of the gen.pl. ending  $*-om$ , e.g. Old Persian *hayā amāxam taumā* ‘the family which is ours’ (Kortlandt 1978: 295, 2014b). The corresponding gen.sg. ending appears to have been  $*-iʃ$ , which is reflected in Tocharian (Kortlandt 2017d), in the Italo-Celtic  $o$ - and  $\bar{a}$ -stems, in the Armenian  $\bar{a}$ -stems (Kortlandt 2003: 47, also in Indo-Iranian, as Alexander Lubotsky suggests to me), and in the Slavic possessive suffix  $-bj-$ . The form in  $*-iʃ$  evidently coexisted with the abl.sg. form in  $*(e/o)s$  that replaced the genitive in the same way as English *of* and German *von* in modern times. It had replaced the Indo-Uralic genitive ending  $*-n$  that is preserved in the Indo-European  $n$ -stems. In Anatolian, the gen.pl. in  $*-om$  was not yet a plural form, but rather had a collective meaning (cf. Laroche 1965: 40, Kloekhorst 2017). The gen.sg. ending was partly replaced by pronominal endings in Italo-Celtic, Germanic, the

Balkan languages and Indo-Iranian. The feminine gender developed partly in non-Anatolian IE and partly in Classic IE (cf. Kortlandt 2017d). The neuter nom.pl. ending \*-ŷ was supplied by a collective formation. We thus arrive at the following Proto-Indo-European and non-Anatolian IE paradigms:

	athematic	animate them.	neuter them.
SINGULAR			
nom.	*-(s)	*-os	*-om
acc.	*-(m)	*-om	*-om
gen.	*-iŷ, *(e/o)s	*-os	*-om
abl.	*-(e/o)s	*-os	*-os
inst.	*-(e/o)t	*-ot	*-ot
dat.-loc.	*-(i)	*-o	*-o
PLURAL			
nom.	*-es, *(ŷ)	*-ōs	*-ŷ
acc.	*-ms, *(ŷ)	*-oms	*-ŷ
gen.	*-om	*-om	*-om
abl.	*-(e/o)s	*-os	*-os
inst.	*-(e/o)t	*-os	*-os
dat.-loc.	*-(i)	*-os	*-os
DUAL			
nom.-acc.	*-ŷ, *-i	*-oŷ	*-oi

When the ablative adopted the function of the genitive, Anatolian created a new ablative ending \*-ti on the basis of the instrumental \*-t and the locative \*-i, as the IE parent language had done earlier. In the thematic paradigm, the final \*-s of the basic form was eliminated in the locative on the analogy of the proterodynamic zero ending. The new case form was limited to the function of an allative when the hysterodynamic locative ending \*-i was introduced in the thematic paradigm, replacing \*-o in Anatolian and added to \*-o in the Classic IE languages. The nom.pl. ending \*-ōs < \*-o-es merged with \*-os in Anatolian and was therefore replaced by the i-stem ending \*-eies (cf. Kloekhorst 2008a: 249). In the Classic IE languages, final \*-t became \*-d [ʔ] (Latin -d, Old High German -z, Avestan -t), which was lost after obstruents and reduced to [ʔ] after resonants (cf. Kortlandt 2010: 40). As a result, the instrumental ending obtained two nonzero variants, \*-d and \*-ŷ, which spread in the ablative and the instrumental, respectively. The differentiation between dative and locative, the addition of new oblique singular endings in the thematic flexion, and the creation of new oblique plural endings resulted in the following Classic IE paradigms:

	athematic	masc. them.	neuter them.
SINGULAR			
nom.	*-(s)	*-os	*-om
acc.	*-(m)	*-om	*-om
gen.	*-iŷ, *(e/o)s	*-iŷ	*-iŷ
dat.	*-(e)i	*-oŷei	*-oŷei
loc.	*-(i)	*-oŷi	*-oŷi
abl.	*-(o)s	*-oŷed	*-oŷed
inst.	*-(e)ŷ	*-oŷ	*-oŷ

PLURAL			
nom.	*-es, *-(ſ)	*-ōs	*-ſ
acc.	*-ns, *-(ſ)	*-ons	*-ſ
gen.	*-om	*-om	*-om
dat.	*-mus	*-omus	*-omus
loc.	*-su	*-oisu	*-oisu
abl.	*-ios	*-oios	*-oios
inst.	*-b <sup>h</sup> i	*-oʔois	*-oʔois
DUAL			
nom.-acc.	*-ʔ, *-i	*-oʔ	*-oi

The plural endings \*-mus and \*-su probably originated from distributive usage (cf. Kortlandt 2010: 42). The endings \*-ios and \*-ois were taken from the pronoun, like the nom.pl. ending \*-oi that replaced \*-ōs in Italo-Celtic, Graeco-Phrygian and Balto-Slavic. The ending \*-b<sup>h</sup>i was still an adessive particle at this stage, corresponding to Greek -φι and English *by*. In Italo-Celtic, the abl.pl. ending \*-ios was replaced by \*-b<sup>h</sup>os, which spread to the dative. In Germanic, the dat.pl. ending \*-mus was preserved (cf. van Helten 1891: 460-462), but the ending \*-b<sup>h</sup>i appears to have spread to the ablative, where it is reflected e.g. in the Gothic adverb *sunjaba* ‘truly’ < \*-b<sup>h</sup>oʔ beside *piubjo* ‘secretly’ < \*-ōd. In the *satəm* languages, \*-b<sup>h</sup>i became an inst.sg. ending and was extended to \*-b<sup>h</sup>is as an inst.pl. ending, preserved in Armenian sg. -b, pl. -b<sup>k</sup>. In Balto-Slavic, \*-b<sup>h</sup>- was replaced by \*-m- on the analogy of the dat.pl. ending \*-mus, preserved in Old Lithuanian -mus, and pronominal case forms such as Lith. dat.sg. *tāmui*, loc.sg. *tamè*, Slavic *tomu*, *tomь* (Kortlandt 2016a: 93). In Indo-Iranian, the abl.pl. ending \*-ios was replaced by \*-b<sup>h</sup>ios, which spread to the dative. The original abl.pl. ending \*-ios was preserved in the Armenian pronouns *mēnj* ‘us’ and *jēnj* ‘you’ (Kortlandt 2003: 50). The thematic abl.sg. ending \*-ōd replaced the gen.sg. ending in Balto-Slavic, where it is reflected as Lith. -o because it was unstressed (Kortlandt 2009: 6, 46).

#### VERBAL MORPHOLOGY

My reconstruction of the Proto-Indo-European primary (present) and secondary (injunctive) athematic and thematic verbal endings is the following (cf. Kortlandt 2009: 163-165):

	pr. athem.	sec. athem.	sec. them.	pr. them.
1st sg.	*-mi	*-m	*-om	*-oʔ
2nd sg.	*-si	*-s	*-es	*-eʔi
3rd sg.	*-ti	*-t	*-et	*-e
1st pl.	*-mes	*-me	*-omo	*-omʔom
2nd pl.	*-tʔe	*-te	*-ete	*-etʔe
3rd pl.	*-(e)nti	*-(e)nt	*-ont	*-o

In my view, the thematic present was originally an impersonal verb form with a dative subject (Kortlandt 2010: 101-103). When the ergative (with an ending \*-s) and the absolutive (with a zero ending) merged into a new nominative case, the old syntactic system broke down and the original construction of the thematic present survived

only in such instances as English *me dreamed a strange dream* and German *mir träumt*, which were eventually replaced by *I dreamed* and *ich träume*. The idea that the thematic vowel was coreferential with an additional object in the thematic injunctive is now supported by Eugen Hill’s analysis of the Indo-Iranian “aorist presents” (2007). This “instrumental” object (cf. Hill 2007: 293-300) was distinct from the regular direct object (goal of the action) in the accusative in *\*-m*, which was a directive case (e.g. Latin *ire Romam* ‘to go to Rome’). The construction may be reflected in Russian *lodku uneslo vetrom* ‘the boat (acc.) was carried away by the wind (inst.)’, *ego ubilo svin’ej* ‘he (acc.) was killed by a pig (inst.)’, viz. when it fell on him from a balcony, where the verb is impersonal and the additional object is in the instrumental case. In this conception, the original meaning of the thematic present *\*tude* was ‘it (e.g. lightning) strikes (me)’ or ‘it is a blow (to me)’, with the affected person in the dative, and the meaning of the derived thematic injunctive *\*tudet* was ‘he strikes (me)’ or ‘he causes a blow (to me)’, with the agent in the ergative case. The original syntax was apparently preserved in Greek *δοκεῖ μοι* ‘it seems to me’. After the separation from Anatolian, the thematic present formation supplied new presents to athematic injunctives in the other Indo-European languages (cf. Peyrot 2013: 458 and Kortlandt 2015). When Tocharian had split off, the thematic and athematic injunctives yielded imperfects and aorists, respectively, in the Classic Indo-European languages, and the addition of secondary endings to present stems supplied new imperfects. The thematic present became a subjunctive when there was a competing athematic present in Nuclear Indo-European. The thematic optative and the perfect presents (“Präterito-Präsentia”) were innovations of Central Indo-European.

Writing *\*q* for the postvelar stop *\*H<sub>2</sub>* that developed to *\*ʃ* in the non-Anatolian languages, my reconstruction of the Proto-Indo-European perfect, stative (intransitive middle, e.g. Vedic *śáye* ‘lies’) and (transitive) middle endings is the following (cf. Kortlandt 2010: 392f.):

	perfect	stative	middle
1sg.	<i>*-qe</i>	<i>*-q</i>	<i>*-mq</i>
2sg.	<i>*-tqe</i>	<i>*-tqo</i>	<i>*-stqo</i>
3sg.	<i>*-e</i>	<i>*-o</i>	<i>*-to</i>
1pl.	<i>*-me</i>	<i>*-med<sup>h</sup>q</i>	<i>*-med<sup>h</sup>q</i>
2pl.	<i>*-e</i>	<i>*-d<sup>h</sup>que</i>	<i>*-td<sup>h</sup>que</i>
3pl.	<i>*-(ē)r</i>	<i>*-ro</i>	<i>*-ntro</i>

In my view, the Hittite *hi*-verbs represent a merger of the original perfect and the original thematic flexion with zero grade in the root, e.g. Vedic *tudáti* (cf. Kortlandt 2010: 373-382, where “*q-*” has unfortunately been printed as “*-q*” throughout the chapter). It is probable that the PIE perfect became a past tense in Anatolian at a relatively early stage, supplying a preterit to athematic injunctives in the same way as happened in Tocharian (cf. Kortlandt 2015) and in Latin (e.g. *dīxī* ‘I said’, *lēgī* ‘I read’). On the other hand, the thematic derivations in *\*-ie/o-* and *\*-ske/o-* joined the *mi*-conjugation in Anatolian (cf. Kloekhorst 2008a: 129-136). The endings of the *hi*-present were evidently created on the analogy of the *mi*-present on the basis of the original perfect. Among the *hi*-presents we expect to find underived thematic presents and derived presents from athematic formations, and this is what we find. There are no *e*-grade thematic presents in the Anatolian branch of Indo-European because these

had not yet developed when it split off from the other languages. The development of primary and secondary middle endings belongs to the separate branches of the Indo-European language family (cf. Kortlandt 1981, 2007: 144-146, 156f., 2014a: 83-85, 2016d: 252f.).

Elsewhere I have proposed to identify the Indo-European present stem formatives  $^{*-(e)i-}$ ,  $^{*-(e)m-}$ ,  $^{*-(e)s-}$ ,  $^{*-n-}$ ,  $^{*-t/d^h-}$ ,  $^{*-sk(e/o)-}$  with the roots of the verbs ‘to go’, ‘to take’, ‘to be’, ‘to lead’, ‘to put’, ‘to try’ (Kortlandt 2010: 382), also injunctive  $^{*-i(e)ʔ-}$  ‘let’, which provided the optative. The *s*-present became a future in Classic Indo-European (cf. Pedersen 1921, Kortlandt 2007: 65-74, 2010: 139-142) while the *s*-injunctive became an aorist. The *sk*-present is reflected in the Tocharian B present, e.g. *mlutketär* ‘escapes’, Greek *βλώσκω* ‘go, come’ (Malzahn 2010: 782), while the *sk*-injunctive is found in the Toch. B subjunctive and underlies the causative paradigm. The latter has been preserved in the Greek *sk*-preterit, e.g. *ἔσκε* ‘was’, *στάσκε* ‘stood’. In Tocharian A, the *sk*-present and the *sk*-subjunctive were replaced by the *s*-present and the *ās*-subjunctive, respectively (cf. Peyrot 2013: 488). The rise of the *sk*-causative from an intransitive formation can be understood on the basis of the original syntax (cf. Kortlandt 2015: 55). One may also compare the rise of the Greek transitive perfect, e.g. *πέπεικα* ‘I have persuaded’, *πέπραχα* ‘I have achieved’ beside the older intransitive perfect *πέποιθα* ‘I trust’, (*εἶ*) *πέπραγα* ‘I have fared (well)’. It is clear from the verbal system that Tocharian developed from an earlier stage of Proto-Indo-European than the other non-Anatolian languages. At that time, such categories as imperfect, aorist and subjunctive had not yet emerged: these originated after the ancestors of the Tocharians left the Indo-European homeland.

## References

- Beekes, Robert S.P. 1985. *The origins of the Indo-European nominal inflection* (Innsbruck: Institut für Sprachwissenschaft).
- Beekes, Robert S.P. 2010. *Etymological dictionary of Greek* (Leiden: Brill).
- van Helten, Willem L. 1891. Grammatisches. *Beiträge zur Geschichte der deutschen Sprache und Literatur* 15, 455-488.
- Hill, Eugen. 2007. *Die Aorist-Präsentien des Indoiranischen* (Bremen: Hempen).
- Holzer, Georg. 1989. *Entlehnungen aus einer bisher unbekanntem indogermanischen Sprache im Urslavischen und Urbaltischen* (Wien: Akademie der Wissenschaften).
- Kloekhorst, Alwin. 2008a. *Etymological Dictionary of the Hittite Inherited Lexicon* (Leiden: Brill).
- Kloekhorst, Alwin. 2008b. Studies in Lycian and Carian phonology and morphology. *Kadmos* 47, 117-146.
- Kloekhorst, Alwin. 2014. *Accent in Hittite* (Wiesbaden: Harrassowitz).
- Kloekhorst, Alwin. 2015. Proto-Indo-European “thorn”-clusters. *Historische Sprachforschung* 127, 43-67.
- Kloekhorst, Alwin. 2017. The Hittite genitive ending *-an*. *Usque ad Radices* (Copenhagen: Museum Tusulanum), 385-400.
- Kortlandt, Frederik. 1978. On the history of the genitive plural in Slavic, Baltic, Germanic, and Indo-European. *Lingua* 45, 281-300.
- Kortlandt, Frederik. 1981. 1st sg. middle  $^{*-H_2}$ . *Indogermanische Forschungen* 86, 123-136.

- Kortlandt, Frederik. 2003. *Armeniaca: Comparative notes* (Ann Arbor: Caravan Books).
- Kortlandt, Frederik. 2007. *Italo-Celtic origins and prehistoric development of the Irish language* (Amsterdam: Rodopi).
- Kortlandt, Frederik. 2009. *Baltica & Balto-Slavica* (Amsterdam: Rodopi).
- Kortlandt, Frederik. 2010. *Studies in Germanic, Indo-European and Indo-Uralic* (Amsterdam: Rodopi).
- Kortlandt, Frederik. 2011. *Selected writings on Slavic and general linguistics* (Amsterdam: Rodopi).
- Kortlandt, Frederik. 2013. Palatovelars before syllabic resonants: another look. *Baltistica* 48/1, 13-17.
- Kortlandt, Frederik. 2014a. The Tocharian personal endings. *Tocharian and Indo-European Studies* 15, 79-86.
- Kortlandt, Frederik. 2014b. Reconstructing Balto-Slavic and Indo-European. *Baltistica* 49/1, 5-13.
- Kortlandt, Frederik. 2015. Tocharian  $\bar{e}$ -grade verb forms. *Tocharian and Indo-European Studies* 16, 51-59.
- Kortlandt, Frederik. 2016a. The inflexion of the Indo-European *o*-stems in Balto-Slavic. *Baltistica* 51/1, 87-96.
- Kortlandt, Frederik. 2016b. Baltic, Slavic, Germanic. *Baltistica* 51/1, 81-86.
- Kortlandt, Frederik. 2016c. Balto-Slavic and Indo-Iranian. *Baltistica* 51/2, 355-364.
- Kortlandt, Frederik. 2016d. Phrygian between Greek and Armenian. *Linguistique Balkanique / Balkansko Ezikoznanie* 55/2, 249-255.
- Kortlandt, Frederik. 2017a. The Indo-European *k*-aorist. *Farnah* [Fs. Lubotsky] (Ann Arbor: Beech Stave), 137-142. <<http://www.kortlandt.nl/publications/art302e.pdf>>
- Kortlandt, Frederik. 2017b. What is Stang's law? *Baltistica* 52/1, 73-80.
- Kortlandt, Frederik. 2017c. Proto-Indo-European glottalic consonants. *Münchener Studien zur Sprachwissenschaft* 71/1, 147-160.
- Kortlandt, Frederik. 2017d. On the origin of grammatical gender. *Tocharian and Indo-European Studies* 18, 95-104.
- Laroche, Emmanuel. 1965. Études de linguistique anatolienne. *Revue Hittite et Asiatique* 23, 33-54.
- Lubotsky, Alexander. 1981. Gr.  $\pi\acute{\eta}\gamma\nu\nu\mu$  : Skt. *pajrá-* and the loss of laryngeals before mediae in Indo-Iranian. *Münchener Studien zur Sprachwissenschaft* 40, 133-138.
- Lubotsky, Alexander. 1989. Against a Proto-Indo-European phoneme *\*a*. *The new sound of Indo-European* (Berlin: Mouton de Gruyter), 53-66.
- Lubotsky, Alexander. 1990. La loi de Brugmann et *\*H<sub>3</sub>e-*. *La reconstruction des laryngales* (Paris: Les Belles Lettres), 129-136.
- Malzahn, Melanie. 2010. *The Tocharian verbal system* (Leiden: Brill).
- Meillet, Antoine. 1894. De quelques difficultés de la théorie des gutturales indo-européennes. *Mémoires de la Société de Linguistique de Paris* 8, 277-304.
- Pedersen, Holger. 1921. *Les formes sigmatiques du verbe latin et le problème du futur indo-européen* (København: Høst & Søn).
- Peyrot, Michaël. 2013. *The Tocharian subjunctive* (Leiden: Brill).
- Schrijver, Peter. 1991. *The reflexes of the Proto-Indo-European laryngeals in Latin* (Amsterdam: Rodopi).
- Steensland, Lars. 1973. *Die Distribution der urindogermanischen sogenannten Gutturale* (Diss. Uppsala).



Villanueva Svensson, Miguel. 2009. Indo-European \**sk* in Balto-Slavic. *Baltistica* 44/1, 5-24.

Wackernagel, Jakob. 1896. *Altindische Grammatik I: Lautlehre* (Göttingen: Vandenhoeck & Ruprecht).

### Summary

The Indo-European language family can be represented as follows:

0. Proto-Indo-European,
1. Anatolian vs. other Indo-European,
2. Tocharian vs. Classic Indo-European,
3. Italo-Celtic vs. Central Indo-European,
4. Germanic vs. Nuclear Indo-European,
5. Graeco-Phrygian vs. Satəm Indo-European,
6. Thracio-Armenian vs. North Satəm Indo-European,
7. Daco-Albanian vs. East Satəm Indo-European,
8. Balto-Slavic vs. Indo-Iranian.