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THE DATIVE AND INSTRUMENTAL DUAL IN EAST BALTIC

Rytų baltų dviskaitos datyvas ir instrumentalis

Abstract. The paper deals with two case-forms of East Baltic nominals, the dative and the instrumental dual. It summarises what is already known about these case-forms from Lithuanian and Latvian dialects as well as from Old Lithuanian sources. It is demonstrated that these data imply a particular reconstruction of the dual inflectional endings in these cases for Proto-Baltic. Subsequently, the paper shows that etymological matches of the reconstructed Proto-Baltic endings of the dative and instrumental dual may be attested in two further branches of Indo-European. Such endings are found in Gaulish, which is a member of the Celtic branch, and in Ancient Greek.

Keywords: East Baltic; Gaulish; Ancient Greek; inflection; dual number; dative case; instrumental case.

Anotacija. Straipsnyje nagrinėjami du rytų baltų kalbų vardažodžio linksniai: dviskaitos datyvas ir instrumentalis. Jame apibendrinama viskas, kas yra žinoma apie šių linksnių formas lietuvių ir latvių tarmėse bei senosios lietuvių kalbos šaltiniuose. Parodoma, kad turimi duomenys leidžia rekonstruoti specifines šių dviskaitos linksnių galūnes baltų prokalbėje, o jų etimologinių atitikmenų galima rasti ir dviejose kitose indoeuropiečių kalbų šeimos šakose: keltų šakos galų kalboje ir senojoje graikų kalboje.

Raktažodžiai: rytų baltų kalbos; galų kalba; senoji graikų kalba; linksniavimas; dviskaita; datyvas; instrumentalis.

1. Introduction

The East Baltic languages Lithuanian and Latvian constitute a sub-branch of Baltic whose only other sub-branch, traditionally called West Baltic, is represented by now extinct Old Prussian. The Baltic languages belong to the Balto-Slavonic branch of the Indo-European language family. This means that Proto-Baltic, i.e. the common parent language of East and West Baltic, must have developed from the same proto-language that gave birth to Proto-Slavonic. In other words, Proto-Baltic and Proto-Slavonic were sisters whose mother, Proto-Balto-Slavonic, originated as a dialect of an even more ancient proto-language, Proto-Indo-European.

As is well known, the evidence of several ancient Indo-European (henceforth IE) languages implies that in Proto-Indo-European (henceforth PIE) not just two but three numbers were distinguished in the inflection of nouns, pronouns, adjectives and numerals. The most ancient Indo-Iranian languages (Vedic Sanskrit, Old Persian and Avestan), as well as Ancient Greek, Old Irish from the Celtic branch of IE and, finally, Gothic and Old Norse from its Germanic branch all possess at least remnants of a special number category clearly distinct from the singular and the plural. This additional number is traditionally called the dual. The original function of the dual in nouns must have been to indicate that specifically two items were meant, as opposed to just one in the singular and more than two in the plural. Accordingly, in deictic pronouns and adjectives the use of the dual served agreement with the relevant pairs of nouns. In personal pronouns the dual expressed the idea of 'we two' and 'you two'. In the domain of numerals special dual case-forms were used for inflecting 'two'.

The PIE dual has been well preserved in Balto-Slavonic nominals. It is amply attested in all medieval and is still in use in several modern Slavonic languages. As for Baltic, the dual of nouns and adjectives was frequent in Old Lithuanian texts from the 16th and 17th c. and, in dialects, remained in use at least until late into the 20th c. (cf. Kazlauskas 1968, 127–132; Zinkevičius 1966, 203–207; 1980, 179–180). Accordingly, the dual case-forms of nominals are routinely treated in many Lithuanian grammars since Klein (1653; 1654), cf. Schleicher (1856), Kurschat (1876), Otrębski (1956, 81–85), Senn (1966) and others.

In the present paper I intend to clarify the origin and to reconstruct the development of two dual case-forms in Lithuanian and, accordingly, in all of Baltic. These case-forms are the dative and the instrumental dual. To achieve this goal, I will start (section 3 below) from what is known about the dative and the instrumental dual of nominals from Lithuanian and Latvian dialects as well as from the Old Lithuanian sources. I will demonstrate that these data imply a particular reconstruction of inflectional endings in these two cases for the Proto-Baltic times. Subsequently (section 4), I will demonstrate that reflexes of these endings may be attested in at least two further branches of IE and therefore may be as old as PIE. The last section of the paper (section 5) will summarise the results and sketch the problems which remain to be addressed in the future.

However, before turning to the dative and instrumental dual of Lithuanian specifically some preliminary remarks on the dual inflection of nominals are in order.

2. Preliminaries on dual case-forms of nominals in Indo-European

At least in the IE language family, the dual inflection of nominals exhibits properties which are not found in the other two numbers. The first of these properties is the inclination of the dual inflection of nominals towards a secondary merger with the plural. This abandoning of the inherited distinction between the dual and the plural numbers of nominals can be complete, i.e. affect the entire system, or only partial. For instance, hardly any trace of the PIE dual is found in Latin despite the fact that Latin text records start as early as the middle of the 1st millennium BC. By contrast, in the Germanic branch of IE, the written records of which begin many centuries later, the dual is preserved but only in personal pronouns. In Old Irish, which belongs to the Celtic branch and is attested since the early Middle Ages, the inherited dual case-forms of nouns are only used after the numeral ‘two’ while the adjectives and pronouns lack a dual.

However, the tendency to abandon the distinction between the dual and the plural does not mean that the inherited dual case-forms of nominals are necessarily lost, being replaced by their pluralic counterparts in the whole system. Sometimes it is the inherited plural case-forms which are replaced by their dualic peers that just assumed the new function of designating plurality of any kind. So, in dialects of Russian the inherited instrumental plural of pronouns and feminine nouns may appear replaced by descendants of the Old Russian dative-instrumental dual (cf. Borkovskij, Kuznecov 1965, 220).

The second property of the dual inflection of nominals in IE is its inclination towards case-form syncretism. No IE language makes a distinction between the nominative and the accusative dual in nouns of any gender. At the same time these two cases are mostly kept distinct in the singular and plural of gendered, i.e. masculine or feminine, nouns. The same is true for the genitive and locative of Vedic Sanskrit, dative and instrumental of Old Church Slavonic, genitive and dative of Ancient Greek. This case syncretism in the dual may be partly inherited from PIE but seems also to be partly due to recent developments. The latter is strongly indicated, for instance, by the fact that the genitive and locative dual are syncretic in Vedic Sanskrit but kept distinct in the closely related Avestan (cf. Hoffmann, Forssman 2004, 115).

As will become clear in the following section, both cross-linguistic tendencies of the nominal dual inflection help to correctly understand the situation found in the East Baltic languages Lithuanian and Latvian.

3. Dative and instrumental dual in Lithuanian and their Latvian counterparts

In contemporary standard Lithuanian, the inherited dual inflection of nominals is preserved only in two words, in the pronoun ‘both’ and in the numeral ‘two’. In these two words both the dative and the instrumental dual end in *-m* in both genders. However, the dative dual *abiēm*, *dviēm* and the instrumental dual *abiēm*, *dviēm* clearly differ in their prosody. Grammatical descriptions written in the 19th c., when the dual of nouns was still in use in many Lithuanian dialects, as well as works on 20th c. dialects confirm the same prosodic contrast also for nouns and adjectives, i.e. dat.du. *galvóm* vs. inst.du. *galvóm* etc. (cf. especially Kurschat 1876; Zinkevičius 1966, 205).

A similar situation is found in Latvian where the inherited dative and instrumental dual function as plural case-forms in all nouns, pronouns and adjectives (cf. Endzelīns 1923, 295–299, 307–308, 390). Here, most dialects have either generalised reflexes of *abiēm*, *galvām* (= dat.du. Lith *abiēm*, *galvóm*) or reflexes of *abiēm*, *galvām* (= Lith instr.du. *abiēm*, *galvóm*) in both cases. An intonational contrast directly matching its Lithuanian counterpart, i.e. presupposing dat.pl. *galvām* vs. inst.pl. *galvām*, is also attested albeit in just one local sub-dialect (cf. Endzelīns 1971, 145 on *-uom* vs. *-uôm* in Apukalns near Alūksne).

It follows that in the common prehistory of Lithuanian and Latvian the dative and the instrumental dual were prosodically different. Lithuanian late 16th c. texts demonstrate that this prosodic contrast was originally accompanied by a difference in the segmental composition of the endings. This is shown by Daukša’s writings (*Catechism* from 1595 and *Postil* from 1599) where the dative dual always ends in *-m* (cf. 1a) while the instrumental dual may end in *-m* (1b) or *-mi* (1c). The vacillation between *-mi* and *-m* in the instrumental dual can be either explained as an early stage of the apocope, which ultimately led to modern Lithuanian *abiēm*, *dviēm* etc., or as a secondary generalisation of the inherited dative dual for both cases.¹

¹ Both explanations are equally applicable to the majority of 16th c. texts where both case-forms always end in *-m*. Cf. dat. *dwem panam*, inst. *fu anem dwem aplam* etc. in the *Wolfenbüttel Postil* (1573); similarly dat. *dwiem ponam*, inst. *dwiem reteßem* etc. in Vilentas’s *Catechism* and *Gospels and Epistles* (both 1579) and, finally, dat. *dwiem Namam Ifraelo*, inst. *fu kitiem dwiem fparnam* etc. in Bretke’s writings (1585–1590). No conclusions can be based on *dwiemu* in DaP 390/5 and *po akima* in BrP I 116/10 which are routinely mentioned in the literature (cf. Arumaa 1933, 78; Kazlauskas 1968, 170–172 etc.). Being attested only once each, these by-forms can be merely misspelt and/or misprinted.

(1)			
a	dat.du.	<i>dwiem' Wiefzpatim'</i>	DaP 329/42-43, 330/34
		<i>aniem' dwiem' ėncziam'</i>	DaP 202/30-31
		<i>dwiem' vbagem' nafzlem'</i>	DaP 239/13-14
b	inst.du.	<i>dwiem' dienóm'</i>	DaP 166/7
		<i>abiém' îpátinem'</i>	DaP 141/30 etc.
		<i>po akim, po akim'</i>	DaK 134/18-19, 139/16 etc., DaP 4/24, 6/35 etc.
c	inst.du.	<i>abiem aufimi</i>	DaP 41/25
		<i>po akimi</i>	DaP 124/21, 473/3 etc. ²
		<i>dwiémi žuwélemi</i>	DaP 297/27, 299/12-13

The former explanation is clearly corroborated by the inflection of personal pronouns where in dialects the dative plural *mùm*, *jùm* is in contrast with the instrumental plural *mumì*, *jumì*. Those dialects which also preserve the inherited dative and instrumental plural as respectively *mùms*, *jùms* and *mumìs*, *jumìs* (cf. Brugman 1882, 302–303 on Garliava and, more comprehensively, LKA 3, 80–81) demonstrate that the shorter variants *mùm*, *jùm* and *mumì*, *jumì* most probably reflect the corresponding dual case forms. It follows that prior to the beginning of the written records in most dialects of Lithuanian the dative dual ended in *-m* while the instrumental dual ended in *-mi*, the vowel of which was probably preserved better in disyllabic forms (such as Daukša's *dviemi* and dialectal *mumì*, *jumì*).

What kind of vowel had been lost in the dative dual *abiém*, *dviém* etc. and dialectal *jùm*, *mùm* before writing in Lithuanian started in the 16th c. cannot be established with absolute certainty. It is, however, probable that in the personal pronouns a range of conservative Lithuanian dialects preserved this vowel until the 20th c. In the East Aukštaitian dialect of Šeduva the dative plural of *mēs* is attested as (probably unstressed) *mum* beside stressed *mùma* (cf. Arumaa 1933, 79). Stressed datives *mùma*, *jùma* are also found in the South Aukštaitian dialect of Rodūnia (Belorussia, cf. Zinkevičius 1966, 234, 303) and in the West Aukštaitian dialect of Veliuona (near Jurbarkas, cf. Arumaa 1933, 79). Finally, *mùma*, *jùma* can also substitute other case-forms, such as the accusative in the South Aukštaitian dialect of Nočia (Belorussia,

² Instrumental singular cannot be excluded with certainty but seems improbable given the very frequent *po akim*, never *po akimi* with a clear singular ending, for instance, in the very extensive corpus of Bretke's writings (1585–1590).

cf. Zinkevičius 1966, 304) as well as the genitive after the preposition *priē* in the West Aukštaitian dialect of Slavikai (near Šakiai, cf. Zinkevičius 1966, 306). The genitives *mùma*, *jùma* are also mentioned in 19th c. grammars (as genitive dual in Schleicher 1856, 217, as by-forms of the genitive plural in Kurschat 1876, 234). The earliest attestations seem to be those of Donelaitis (1714–1780), where *jùma* is once found as an adnominal genitive (*jummã Sūnėlis* 1/387) and once following a preposition (*dėl jùmã* 3/643). Most probably, this dative–genitive *mùma*, *jùma* is the source of such dative plural forms of nouns as *dùrima*, *akìma*, *seserìma* etc. in the dialects of Nočia and Varanavas (cf. Vidugiris 1960, 127–128; Grinaveckienė 1960, 193; Zinkevičius 1966, 234; LKA 3, 63–70).³

The dialect case-forms of personal pronouns *mùma*, *jùma* can hardly be a recent innovation. In the grammar of 18th–20th c. Lithuanian there is no model on which such case-forms might have developed anew. Moreover, the use of *mùma*, *jùma* in both the dative and the genitive case seems to indicate antiquity (cf. already Bezzenberger 1877, 148–149). As is well known, the East Baltic (and Slavonic) genitive case is partly reflecting the more ancient case ablative (cf. Stang 1966, 181; Endzelīns 1971, 134; Petit 2010, 13 etc.). The dative vs. genitive syncretism is unusual in Lithuanian but, as

³ Whether such dative plural forms as *mùmu*, *seserìmu*, *vaikāmu* etc. in Dieveniškės (cf. Arumaa 1930, 61–62) also result from a more ancient dative dual (as suggested in Arumaa 1933, 65–78), remains unclear. In this dialect the instrumental plural lacks the expected *-s* as well, cf. *sù dukterimì dvíem*, but nevertheless probably reflects the inherited plural, cf. *taīs arkliāīs* etc. in the *a*-stems. This seems to suggest that both *-mu* in the dative and *-mi* in the instrumental plural descend from respectively *-mus* and *-mis* which only recently lost their *-s* (perhaps originally in *seserìmu*, *dukterimì* and other forms with more than three syllables). In case this assumption is wrong and *mùmu*, *seserìmu* etc. indeed descend from the dative dual, such forms in *-mu* can still be explained as a recent creation based on the inherited (but recently abandoned) dative plural in *-mus* (which is widespread in 16th–17th c. sources). The model would have been provided by the instrumental, where *-mi* in the dual beside *-mis* in the plural would have been inherited (cf. Zinkevičius 1966, 206; 1980, 198; Kazlauskas 1968, 172; 1970, 91). The situation in the other southern East Aukštaitian dialects is even less clear than in Dieveniškės. In Lazūnai (cf. Arumaa 1930, 69, Vidugiris 2014, 117–131, 176–191), both the dative and the instrumental plural equally end in *-m* or *-mi* but contrast prosodically, i.e. dat.pl. *galvóm*, *mùmi*, *akìmi* vs. inst.pl. *galvõm*, *mumì*, *akimì*. Dat.pl. *jíemi*, *arkliám* vs. inst.pl. *jaīs*, *arkliāīs* etc. in the *a*-stems again point to the plural rather than dual as the historical source of the relevant case-forms. Similar systems are attested in several other local dialects (cf. Kazlauskas 1968, 169).

already stated above, a syncretism between the cases dative and ablative in the dual would be unsurprising on its more ancient stage (cf. especially the situation in Vedic Sanskrit and Avestan). It follows that Lith *mùma*, *jùma*, which are attested since the 18th c., most probably reflect a more ancient syncretic dative–ablative dual of personal pronouns. It seems logical to assume the same ending *-ma* also for the dative dual of all other nominals, i.e. *abíem*, *dviém* etc. The preservation of the word-final vowel in *mùma*, *jùma* and its early loss in *abíem*, *dviém* etc. would closely resemble the situation in the instrumental dual already described above, i.e. *mumì*, *jumì* vs. *abiēm*, *dviēm* etc. as early as in many 16th c. texts.

Taken together, the prosodic contrast between the dative dual *abíem*, *dviém* etc. and the instrumental dual *abiēm*, *dviēm* as well as the segmental contrast between *-ma* in the dative dual and *-mi* in the instrumental dual imply that these case forms arose in the way shown in (2a). The difference in the place of stress (indicated by ' preceding the stressed vowel) on the Proto-Baltic level of reconstruction is somewhat unexpected from the perspective of the Indo-European grammar where both case-forms should be stressed the same. However, Hirt's law, established on completely independent grounds (cf. 2b), helps to explain this deviation.⁴

(2)		Lithuanian		Proto-Baltic		PIE		
a	dat.du.	<i>dviém</i>	<	*d̥u'áĭ-ma	<	*d̥uoĭh ₁ -mó		
	inst.du.	<i>dviēm</i>	<	*d̥u'áĭ-m'í	<	*d̥uoĭh ₁ -mih		
b	nom.sg.	<i>výras</i>	<	*u'íras	<	*uĭhrós	cf.	Skt <i>vīrás</i>
	nom.sg.	<i>dúmas</i>	<	*d'úmas	<	*d ^h uh ₂ mós		Skt <i>dhūmās</i>

In the following section, I will demonstrate that these endings of the dative and instrumental dual, reconstructed on solely East Baltic data, probably possessed exact counterparts in two other branches of IE and therefore, were indeed inherited from PIE.

⁴ Hirt's law can be also assumed for the *ā*-stems (i.e. dat.du. *galvóm* vs. inst.du. *galvóm* etc.). For the other nominals (i.e. dat.du. *langám* vs. inst.du. *langam̃* etc.), either analogy or perhaps a recent stress retraction due to Nieminen's law may be proposed. Cf. on the latter now Villanueva Svensson 2021.

4. Dative and instrumental dual outside of Baltic

The suggested reconstruction of the relevant case-endings as Proto-Baltic dative dual **-ma* (> OLith *-ma*, *-m*, Latv *-m*) and instrumental dual **-mí* (> OLith *-mi*, *-m*, Latv *-m*) presupposes respectively PIE **-mo* and **-mih*. In order to establish whether comparable endings are attested in other branches of IE, one has to take into consideration the well-known fact that the relevant case-endings may begin with **m* only in Balto-Slavonic and Germanic. In all other branches preserving the inherited endings of the relevant cases, these endings always begin with a reflex of PIE **b^h*, cf. Skt instr.pl. *-bhis*, Lat dat.-abl.pl. *-bus* etc.⁵ As soon as this is acknowledged, potential etymological counterparts of the Proto-Baltic dative dual in **-ma* and instrumental dual in **-mí* outside of Baltic become apparent.

4.1 Dative and instrumental dual in Celtic

The first branch of IE which seems to have possessed such endings is Celtic. Special dual case-forms of nouns are preserved in Old Irish, the written records of which begin around the year 700 AD. In Old Irish the IE cases dative, instrumental and ablative secondarily merged in all three numbers. The outcome of this merger, which is traditionally called “dative”, ends in palatalised *-b* (written <-ib>) in both dual and plural numbers, i.e. OIr *túatha-ib* (pronounced /t'uaθə-β'/) of *túath* ‘tribe’ etc. This presupposes a Proto-Celtic ending or two distinct Proto-Celtic endings beginning with **b* followed by a front vowel. Possible reconstructions are Proto-Celt **-bis* (cf. now Stüber 2017, 1204), which can be the match of Skt instr.pl. *-bhis*, and Proto-Celt **-bī*, which would equate OLith instr.du. *-mi*. It is tempting to assume that the Old Irish dative plural reflected the former and its dual counterpart the latter. However, all by itself Old Irish provides no way to establish that originally the endings in question were indeed different and distributed in this particular way.

Fortunately, three distinct Celtic languages are attested already in antiquity, i.e. many centuries earlier. The most ancient of them is Lepontic which is documented in ca. 140 inscriptions from Northern Italy, written in a variety of the Etruscan alphabet and dating from the late 7th to late 2nd c. BC (cf. recently Stifter 2020). The so-called Celtiberian, once spoken in the north of the Iberian Peninsula, left some 200 inscriptions in a variety

⁵ This peculiar feature of IE grammar has been recently discussed in Hill 2012, 178–200. Cf. differently Bonmann 2017 who etymologically separates the **m-* and the **b^h-*endings from each other.

of the Iberian script, dating from the 2nd–1st c. BC (cf. MLH 4, 349–722). Finally, the last “continental” Celtic language Gaulish is attested firstly, in a few inscriptions from Northern Italy, written in a variety of the Etruscan alphabet and dating from the 2nd c. BC; secondly in some 280 inscriptions in Greek letters from Southern France, written in the 2nd–1st c. BC; thirdly in ca. 150 inscriptions in Latin script from different parts of France, dating from the 1st c. BC to the late 5th c. AD (cf. again Stifter 2012, 523–527; 2020).

These early attested Celtic languages demonstrate that the cases dative and instrumental were still kept distinct in the Proto-Celtic non-singular nominal inflection. The ending of the dative plural is attested as Lepontic *-pos* (cf. Lejeune 1971, 96–104) and Celtiberian *-bos* (cf. MLH 4, 400). It must be accordingly reconstructed as Proto-Celt **-bos*, a direct match of Latin dat.-abl.pl. *-bus* (cf. Stüber 2017, 1205). The instrumental plural does not appear to be securely attested in Lepontic or Celtiberian. However, the dative plural of these “continental” Celtic languages and its Old Irish counterpart clearly cannot reflect the same case-form. Since the Old Irish dative plural can only reflect the PIE instrumental and its Lepontic and Celtiberian counterpart only the PIE dative, we have to assume that in Proto-Celtic these two cases were still distinguished at least in the plural.

Now, in the third “continental” Celtic language, i.e. in Gaulish, both the dative and the instrumental plural appear to be securely attested (cf. again Stüber 2017, 1204–1205). The clearest cases are collected in (3) where the taxonomy of attestations follows RIG 1; 2(1) and 2(2).⁶ The dative function of Gaulish *-βο*, *-bo* is clearly established by the context. The instrumental function of Gaulish *-bi*, *-be* is disputed (cf. ESKA 2003, 105–115 for a discussion). It is possible that in late Gaulish both cases merged into a new syncretic dative ending in *-bi* like in Old Irish. Nevertheless, the difference between the case formed with Gaulish *-βο*, *-bo* on the one hand and the case bearing Gaulish *-bi*, *-be* on the other cannot be explained in any other way than as reflecting the inherited difference between the dative and the instrumental.

(3)				
a	dat.	ματρει-βο γλανεικα-βο	‘mothers of Glanum’	G-64
		ματρει-βο ναμαυσικα-βο	‘mothers of Nemausus’	G-203

⁶ The word-forms in question are briefly discussed in RIG 1, 449–450; 2(1), 153–154; 2(2), 390 and Delamarre 2003.

		ανδοουvνα-βo	‘wells’	G-183
		<i>atrebo aganntobo</i>	‘ <i>agantto-</i> (?) fathers’	L-15
b	inst.	<i>gobed-bi</i>	‘smiths’	L-13
		<i>suiore-be</i>	‘sisters’	L-6
		<i>eía-bi</i>	‘them’	L-98

The only peculiar feature of Gaulish $-\beta o$, $-bo$ in the dative and $-bi$, $-be$ in the instrumental is the lack of $-s$ which one expects in the plural of these cases because of both internal Celtic evidence and external comparison. As already stated above, the former is provided by Lep $-pos$, Celtib $-bos$ and OIr dat.pl. $-ib$ presupposing Proto-Celt $*-bis$, the latter by Skt instr.pl. $-bhis$ and Lat dat.-abl.pl. $-bus$. This unexpected lack of $-s$ in Gaul $-\beta o$, $-bo$ and $-bi$, $-be$ is traditionally explained by a recent loss. However, as recently stated by Stifter (2012, 533), this hypothetical loss cannot be due to a sound change because word-final $-s$ is always preserved in Gaulish in all other positions. For this reason, it is sometimes assumed that Gaul $-\beta o$, $-bo$ in the dative somehow lost its $-s$ “under formal influence from originally s -less” instrumental (Stifter 2012, 533, similarly Stüber 2017, 1205 who speaks of a “contamination”). However, an originally s -less instrumental plural can hardly be assumed for Proto-Celtic. Both Celtic itself (OIr dat.pl. $-ib <$ Proto-Celt $*-bis$) and its relatives (Skt $-bhis$) attest for PIE $*-b^hi$ s.⁷

The problem is easily resolved if one assumes that Gaulish $-\beta o$, $-bo$ in the dative and $-bi$, $-be$ in the instrumental do not continue the plural endings of these respective cases but rather their dual endings. Since the dual was preserved in Celtic until Old Irish times, it can be assumed that Proto-Celtic possessed a dative dual in $*-bo$ ($>$ Gaul $-\beta o$, $-bo$) as well as an instrumental dual in $*-bī$ ($>$ Gaul $-bi$, $-be$, OIr dat.du. $-ib$).⁸ These endings would be exact

⁷ An instrumental plural in Proto-Greek $*-p^hi$, which is occasionally reconstructed in the literature, is probably an illusion, cf. subsection 4.2 below.

⁸ Why OIr $-ib$ causes nasalisation of the following word in the dative of *da* (m., nt.), *di* (fem.) ‘two’ but not in the dative dual of nouns (cf. GOI, 149), remains unclear. The reconstruction Proto-Celt $*-bī$ advocated here does not explain the nasalising dative of the numeral. At the same time, Proto-Celt $*-bin$ (cf. GOI, 183; Sommer 1912, 138–139; Bonmann 2017, 159) does not explain the non-nasalising dative dual of nouns. A simple intrusion of the dative plural ending into the dual of nouns is unlikely because the other case-forms of the dual (i.e. the nominative-accusative and the genitive) remain distinct from their pluralic counterparts. The best explanation seems to be a recent generalisation

matches of their Proto-Baltic counterparts *-ma (> OLith *-ma*, *-m*, Latv *-m*) and *-mī (> OLith *-mi*, *-m*, Latv *-m*) reconstructed above.

As for the functions of the Gaulish endings, none of the inscriptions containing the relevant case-forms seems to unambiguously require the plural to the exclusion of the dual. The mothers of the towns Glanum and Nemausus, who are mentioned in the dedications G-64 and G-203, seem to have been local deities. In how many divine mothers the inhabitants believed, is unclear. How many smiths, wells, fathers and sisters were meant in L-13, G-183, L-15 and L-6, is equally difficult to establish.⁹ However, even if it were clear that Gaulish *-βο*, *-bo* and *-bi*, *-be* were used in the plural at the time of the creation of the inscriptions, it would still be possible to assume that in Gaulish (though not in Lepontic, Celtiberian or Old Irish) the inherited dative and instrumental dual were secondarily generalised to represent both non-singular numbers. Similar changes in dialects of Latvian and Russian (cf. section 2 above) show that this would be typologically unremarkable.

4.2 Instrumental dual in Greek

The second branch of IE which seems to preserve an instrumental dual ending directly matching Proto-Baltic *-mī (> OLith *-mi*, *-m*, Latv *-m*) is Greek. Like in Celtic, in this branch the case-endings which begin with *m* in Baltic and Slavonic always start with a reflex of PIE *b^h, i.e. with Proto-Gk *p^h. This is shown by the instrumental-locative plural ending <-pi> in the most ancient Mycenaean dialect (late 14th–13th c. BC) and by the dative singular ending -φι in Homeric texts (late 9th c. BC).¹⁰ The former – cf. <e-ka-ma-pi>, <te-u-ke-pi> of Gk ἔχμα ‘holdfast’, τεῦχος ‘armour’ etc. – seems to reflect Proto-Gk *-p^his, the counterpart of Skt instr.pl. *-bhis*. The latter – cf. κεφαλῆ-φι, στήθεσ-φι of κεφαλή ‘head’, στήθος ‘chest’ etc. –

of the nasalising dative *dib*, *deib* ‘two’ of the neuter gender in the whole paradigm of the numeral. In the neuter, the numeral is nasalising in all cases, i.e. also in the nominative-accusative and in the genitive (which must be itself due to the well-known use of nasalisation as neuter gender marker in Old Irish, cf. Sommer 1912, 140).

⁹ The noun *gobed-bi* ‘smiths’ in L-13 is accompanied by *dugiōnti=ío*, probably ‘who worship’, which is clearly a plural form. However, the dual has been lost in verbs in all of Celtic, including Old Irish where dual subjects require a predicate in the plural. The same can be assumed for Gaulish and perhaps already for Proto-Celtic.

¹⁰ On the dating of the Mycenaean and Homeric texts see respectively Bartoněk 2003, 74–78 and Ruijgh 2011, 260–261. The use of the Mycenaean case-form in <-pi> is discussed in Hajnal 1995, 133–207 and Thompson 1999, 226–244; on the Homeric case-form in -φι cf. Thompson 1999, 220–226 and Goldstein 2020.

comes from Proto-Gk $*-p^hi$ which can be equated with instr.sg. OCS *-mb*, Armenian *-b*, *-w*.¹¹

As expected, the Mycenaean instrumental-locative plural ending <-pi>, i.e. /-p^his/, is not attested in thematic nouns and adjectives. These exhibit in the relevant case the ending <-o> which, most probably, represents /-ois/, the counterpart of dat.pl. -οις in the more recently attested dialects (and inst.pl. Lith *-ais*, Skt *-ais*). Cf. Myc <de-so-mo> /desmois/ of Gk δέσμος ‘rope’, <re-wo-te-jo> /leontejjois/ of Gk λεόντειος ‘leonine’ etc. Now, the text KN Se 891 attests the noun phrase <e-re-pa-te-jo-pi, o-mo-pi> which is traditionally understood as meaning roughly ‘with ivory bands’ (cf. Gk ἐλεφάντειος ‘of an elephant’ and οἶμος ‘stripe’ or ‘band’). Since both the noun and the adjective are thematic, the instrumental-ablative plural ending in <-pi> would be unexpected. Hajnal (1995, 59–60) plausibly thinks of the dual number which is securely established for Mycenaean at least in the nominative-accusative. Indeed, <e-re-pa-te-jo-pi, o-mo-pi> can be interpreted as /elep^hantejjoi-p^hi oimoi-p^hi/ ‘with two ivory bands’. The desinence /-oi-p^hi/ would be then the Greek counterpart of Lith *-iẽ-m* in inst.du. *abiẽm*, *dviẽm* etc.¹²

5. Summary and future perspectives

Lithuanian texts from the 16th–18th c. as well as the 19th–20th c. dialects of both Lithuanian and Latvian imply the following reconstruction of the dative and instrumental endings in the dual number: Proto-Baltic dat.du. $*-ma$ (yielding Lith *abiẽm*, *dviẽm*, Latv dial. *abiẽm*, *galvãm*), inst.du. $*-mĩ$ (yielding *-mi*, *-m* in Daukša, Lith *abiẽm*, *dviẽm*, Latv dial. *abiẽm*, *galvãm*).

¹¹ Pace a widespread opinion (cf. recently Goldstein 2020, 370–372), Myc <-pi> and Hom -φι do not need to reflect the same Proto-Greek ending (cf. Hill 2012, 195–196). The use of Homeric -φι in the plural is probably an innovation based on ὄχισ-φι ‘chariot’, the most frequent dative in -φι in the whole epos. At least in Homer, this word is a plurale tantum (i.e. ὄχισ, cf. similarly ἄρμα ‘chariot’ and its plural ἄρματα which can both refer to a single vehicle). Homeric ὄχισ-φι ‘chariot’, synchronically a dative plural with collective semantics, served as the model for ναῦ-φι ‘ships (as camp of Greek warriors)’ and similar cases. See on this Shipp 1953, 15–16 and Hajnal 1995, 293–294. Scarce attestations of -φι in more recent Greek are all in the dative singular, cf. Troxler 1964, 70–73; Hajnal 1995, 312–315; Barnes 2016.

¹² Traditionally, a further instance of Myc <-pi> used in the dual is seen in <du-wo-u-pi> which is interpreted as a case-form of Myc <dwo>, Hom δύο, δύω ‘two’ (cf. recently Thompson 1999, 237; Goldstein 2020, 348). The problems of this traditional analysis are discussed in Hajnal 1995, 57, 105–129.

Exact etymological matches of these Proto-Baltic endings seem to underlie Gaulish $-\beta o$, $-bo$ in the dative and $-bi$, $-be$ in the instrumental case. The latter ending can also be reflected in Old Irish dat.du. *túatha-ib* etc. A further match of the Proto-Baltic instrumental dual ending might be preserved in Mycenaean $\langle -pi \rangle$ in the phrase $\langle e-re-pa-te-jo-pi, o-mo-pi \rangle$.

However, our understanding of the Baltic dative and instrumental dual remains incomplete until the following problems have been addressed.

- (a) In Daukša and Bretke, the ending of the instrumental dual $-m$, rarely $-mi$, is sharply contrasting with the ending of the athematic instrumental singular which is nearly always $-mi$ (except *tavimi*, $-im$ etc. in Daukša and *su moterim* in both writers). The historical background of this situation remains entirely unclear.
- (b) In Slavonic, the ending of the dative-instrumental dual of nominals is Old Church Slavonic $-ma$ (*oběma, dvěma* etc.). This $-ma$ implies a long vowel and thus cannot reflect the same ending as Lith $-ma$ in dial. *mùma, jùma* and/or Lith $-m$ in *abíem, dvíem* etc. (pace Arumaa 1933, 78; Kazlauskas 1970, 90; Zinkevičius 1980, 198 etc.). The relation between OCS $-ma$ and the corresponding case-endings in Baltic and Celtic remains unclear. In Indo-Iranian, the ending of the dative-ablative-instrumental dual of nominals is attested as Old Persian $-biyā$, Old Avestan $-biiā$, Young Avestan $-biiā$ and Skt $-bhyām$ (cf. Debrunner, Wackernagel 1930; Hoffmann, Forssman 2004). The relation between these endings and the corresponding case-endings in Baltic and Celtic is equally unclear.
- (c) If Myc $\langle -pi \rangle$ in KN Se 891 is indeed the Greek counterpart of Proto-Balt $*-mí$ and Proto-Celt $*-bī$, the reconstruction of this instrumental dual ending for PIE becomes less obvious. PIE $*-mih$ presupposed by Baltic and Celtic is less appealing from the Greek perspective (cf. PIE $*-ih_1 >$ Proto-Gk $*-ĭe$ in nom.-acc.du. Gk ὄσσε ‘both eyes’ etc.).

To find answers to the questions raised by these problems remains a task for the future.

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