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## THE ORTHOGRAPHY OF THE ELBING VOCABULARY AND THE RELATIONSHIP BETWEEN OLD PRUSSIAN AND EAST BALTIC

### 1. Introduction

Jenny Larsson has recently (2003) made an effort to revive Pauli's and Berneker's hypothesis that the spellings <oa> and <ea> in the Elbing Vocabulary denote circumflex length. She claims that in the majority of cases <oa> and <ea> originate from a retraction that may be identified with the well-known East Baltic retraction of the ictus from prevocalic \*i, which, in her view, yielded not only metatony but also lengthening of short vowels, including the first element of so-called mixed diphthongs (see also Larsson 2004). In Old Prussian, the first element of newly arisen long diphthongs was not shortened, as happened in East Baltic, but remained intact. It may be clear that the correctness of the proposed scenario is highly relevant to the reconstruction of a Baltic proto-language. The two questions which I shall address in this article are:

(1) To what extent do the spellings <oa> and <ea> in the Elbing Vocabulary reflect prosodic distinctions?

(2) Is there evidence for a retraction of the stress from prevocalic *i*?

Since the material has already been discussed extensively in Larsson 2003, I shall limit myself to a survey of the relevant forms. I shall omit from the discussion those cases in which <oa> and <ea> contain a syllable boundary, such as *gertoanax* 'hawk', and the words *geauris* 'coot(?)' and *pânean* 'boggy grove or shrubbery', where the <e> seems to denote palatalization, cf. Lith. *giaurỹs* 'water rail', Latv. *paņa* 'puddle'.

### 2. The Pomesanian vowel system

According to Levin (1974, 5), the vowel system of the Elbing Vocabulary can be analyzed as follows<sup>1</sup>:

/ī/	<b>i</b>	/ū/	<b>u</b>	/i/	<b>i, e</b>	/u/	<b>u, o</b>
/ē/	<b>e</b>	/ō/	<b>o, oa</b>	/ε/	<b>e, a</b>	/ɔ/	<b>a, oa, e</b>

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<sup>1</sup> In Levin's overview of the vowel phonemes and their representations in spelling, less frequent orthographical variants, such as <ea> and <ee>, are not mentioned.

I completely subscribe to this analysis. As to the representation of the vowel phonemes in the spelling of the vocabulary, I would like to raise the question under which circumstances <oa> may denote /ɔ/. To my mind, there are no clear cases of <oa> representing a short monophthong. Since Levin analyzes diphthongs as sequences of a short vowel + /i, u/ or /r, l, m, n/, it is possible that this is what he had in mind when he adduced <oa> as one of the possibilities for rendering /ɔ/<sup>2</sup>. It cannot be excluded, however, that in diphthongs <oa> indicates a greater intensity of the first element or indeed represents /ɔ̄/, as Levin himself (o.c., 41) is inclined to assume for *moargis* ‘acre’. For Pomesanian Prussian there is probably no rule which shortens long vowels followed by a tautosyllabic resonant, cf. *woaltis* ‘ell’, *woltis* ‘elbow’ and, possibly, *solthe* ‘fancy cookie’<sup>3</sup>. Such a rule is commonly assumed for the earlier stages of the Baltic languages and is invoked by Larsson to explain the loss of new long diphthongs in East Baltic. For modern Lithuanian and Latvian there is no longer a constraint on long vowels followed by a tautosyllabic resonant, e.g. Lith. *sūr̃ti* ‘grow salty’, *tõlti* ‘move away’, *šõnkaulis* ‘rib’, *vỹnmedis* ‘grape vine’ (Young 1990, 9).

The data of Samland Prussian, the Enchiridion in particular, show that there existed a contrast between acute and circumflex diphthongs in this dialect. The former were characterized by greater intensity at the end of the syllable, the latter by greater intensity at the beginning. It is generally assumed that the acute was rising and the circumflex falling, though it is possible that distinctive pitch had been lost, leaving behind a difference in duration and quality of the first element. Since acute length is also marked in high diphthongs which had only recently developed from acute monophthongs, e.g. *sunon* (II), *soũnon* (III) A sg. ‘son’, it is likely that the pitch accent system had been preserved<sup>4</sup>.

Assuming that the dialect of the Elbing Vocabulary also had a contrast between acute and circumflex vowels, Larsson’s hypothesis about the origin of <oa> and <ea> implies that <oaRC> and <eaRC> denoted sounds which differed from the realizations of circumflex /ɔRC/ and /ɛRC/ as well as from acute /ɔRC/ and /ɛRC/ (Larsson 2003, 102). In Lithuanian, there are oppositions such as *áRC* : *ãRC* : *óRC* : *õRC* : *úoRC* : *uõRC* and *éRC* : *ẽRC* : *éRC* : *ẽRC*, but here we find a considerable difference in quality between historically short and historically long vowels. I wonder if the scribe who wrote down the vocabulary would be able to record distinctions of this type in Pomesanian

<sup>2</sup> Cf. Smoczyński 2000, 70f., where *doalgis*, *moargis* and also *poalis* are presented as examples of <oa> denoting a short vowel. Note that in connection with *moargis* Levin (o.c., 41) refers to “the general problem of *oa* in the Elb orthography”.

<sup>3</sup> A possible counterexample is *passons* ‘stepson’ (see below).

<sup>4</sup> I shall use the designations I, II and III to refer to the First Catechism, the Second Catechism and the Enchiridion, respectively.

unless <oa> and <ea> denoted diphthongized vowels (cf. Trautmann 1910, 99, 110). In the catechisms, however, we find no evidence for a three-way distinction in mixed diphthongs. A careful investigation of the distribution of the various spellings of mixed diphthongs is clearly desirable.

The phonological status and the phonetic realization of the sounds denoted by <oa> and <ea> are obviously a point of discussion for monophthongs as well. It is clear that Larsson assumes that <oa> and <ea> do not represent acute monophthongs. Whether she actually claims that the sounds which these graphemes denote were distinct from the realizations of circumflex *\*ō* and *\*ē* is less apparent. Larsson speculates about a more open pronunciation of <oa> and <ea>, which more or less implies that as regular reflexes of inherited *\*ā/ō* and *\*ē* she advocates /ō/ and /ē/ rather than Levin's /ō̄/ and /ē̄/. Here, too, one might assume a diphthongized pronunciation for <oa> and <ea>. The question which needs to be answered first is whether it is possible to argue with a certain degree of plausibility that <oa> and <o> have a different origin.

### 3. Monophthongs

#### 3.1. <oa>

- *boadis* 'thrust', cf. *embaddusisi* (III) Npl. 'stuck'. It is plausible that this is a de-verbative *io*-stem, cf. Stang 1966, 39; PKEŽ I 150<sup>5</sup>.
- *doacke* 'starling', cf. OHG *tāha* 'jackdaw'. According to Smoczyński (1989, 19), this a borrowing from German. Stang (1971, 19) considers *doacke* a Baltic and Germanic "Sonderübereinstimmung".
- *gramboale* 'beetle', cf. Lith. *grambuolỹs* 3<sup>a</sup> 'May-bug', dial. *grambōlis* 2 'dung-beetle, May-bug'. The long vowel in the suffix seems to be of apophonic origin.
- *loase* 'blanket', cf. E. Lith. *ložė* 4 (DLKŽ) 'place where grain is lying flat, lying grain, bent sheaf' (also attested with AP 2). For semantic reasons it is unattractive to classify this word as a borrowing from Slavic, cf. Pl. *łoże* 'bed'. The best solution is probably to posit a derivative of *\*leg<sup>h</sup>*- 'lay', cf. *lasinna* (III) 3 sg. pret. 'put', Lith. dial. *išlèžti* 'lay down (crops)'<sup>6</sup>.
- *moazo* 'aunt', cf. Lith. *móša* 'sister-in-law (husband's sister)', Latv. *māsa* 'sister'. Larsson adduces Lith. *mōša* and states that a variant with an acute occurs as well. This seems to be a distortion of the facts, as *mōša* is not even mentioned in the LKŽ

<sup>5</sup> When discussing Mažiulis's etymologies I shall usually refrain from providing explicit references unless the etymologies cannot be found *sub voce*.

<sup>6</sup> Cf. Eng. *lay* (spelled *ledge* in the 16<sup>th</sup> and 17<sup>th</sup> centuries), *lodge* 'beat down (crops)', now only of wind and rain (OED s.v.v.).

(VIII 360)<sup>7</sup>. Furthermore, I disagree with Larsson's remark (2003, 93) that we should not attach too much importance to this example because we are dealing with a "Lallwort".

- *noatis* 'nettle', cf. Lith. *nōterė* 1, *noterė* 3<sup>a</sup>, *notrė* 4, *notra* 1/4, *nóterina* 1 (LKŽ VIII 874), Latv. *nātre*, *nātra* 'id.', Pl. *nać* 'leafy top of a root vegetable'. Larsson, who does not mention any Lithuanian forms pointing to an acute root, concludes that "the circumflex of the root is comparable to the East Baltic examples" (l.c.). The East Baltic evidence quite clearly indicates that the root was originally acute.
- *ploaste* 'sheet', cf. Lith. dial. *plōštė* (E. Prussia) 'sheet, cloth, cloak', Pl. *plaszcz* 'cloak'. Mažiulis considers it possible that the Lithuanian form is a Prussianism. Skardžius (1931 s.v.), on the other hand, argues that Lith. *plōštė* may be a back formation based on *plōščius* 'cloak', which is regarded as a borrowing from Slavic.
- *poaris* 'mole-cricket'. Mažiulis reconstructs *\*pārīs* from BSl. *\*(s)per-* 'fly'. Larsson's addition "i.e. *\*pārīs* < *\*parijas*" represents her own point of view, considering that Mažiulis draws a comparison with *plėšỹs* 'who/which tears'.
- *poalis* 'dove'. Derived from a colour adjective *\*pala-* by Mažiulis, who assumes an *io*-stem *\*pālīs*. With respect to the ablaut in the root he mentions the pair *rėtas* 'rare': *rėtis* 'sieve', but cf. *žilis* 'grey-haired man' vs. *žylis* 'greyness', etc. (Derksen 1996, 42f.). Smoczyński (2000, 70f.) also starts from an adjective *\*pala-*, but he interprets <oa> as a labialized short *a*. Furthermore, he considers this adjective a borrowing from German, cf. MHG *val* 'pale', which has also been proposed for Latv. *pāls*, by the way. Hinze (1991, 170) claims that *poalis* has a Finnic origin, cf. Wot. *paallo* 'dove'.
- *soakis* 'warbler'. This bird-name is traditionally derived from *šókti* 'jump', while Tenhagen (1998, 169) prefers a derivative of *suókti* 'sing'. Even if *soakis* is cognate with *šókti*, it is not obvious that an *io*-stem would belong to the type which underwent retraction of the stress in East Baltic, cf. Lith. *šókis* 'dance, jump'.
- *soalis* 'grass, herb', cf. *sālin* (III) Asg., Lith. *žolė* 4, Latv. *zāle* 'grass'. The broken tone of the Latvian noun is analogical after forms in which the root-final laryngeal remained. Larsson's Old Lithuanian accentual variant *žólė* may be based on the Nsg. *žóle* in Daukša's *Postilla*, which occurs alongside *žolé* and other forms pointing to accentual mobility (cf. Kudzinowski 1977, 481). The LKŽ (XX 952) only mentions AP 4. In my view, the long root vowel of this etymon has no connection with the retraction from prevocalic *i* but originated at an earlier stage (cf. Kortlandt 1985, 117).

<sup>7</sup> The accentuation *mōša* can be traced to Berneker (1896, 255).

- *coaris* [*toaris*] ‘mow, hayloft’, cf. Lith. *tvorà* 4, Latv. *tvāra* ‘fence’. We are probably dealing with an old root noun here, cf. also Rus. *tvar* ‘creature’. The loss of the *w* may be viewed as an indication that <oa> represents a long vowel, cf. *twaxtan* ‘bathing-switch’.
- *woasis* ‘ash’, cf. Lith. *úosis*, Latv. *uôsis*, *uôšs*.
- *soanxti* ‘spark’. This form is usually corrected to *spanxti*, which would mean that it is irrelevant to the topic of this paper. Smoczyński (2000, 130), however, assumes that *soanxti* (EV 35) and *knaistis* (EV 36) have been transposed and proposes an emendation *soarixti* ‘fire’, cf. *sari* ‘glow’.
- *broakay* ‘garment covering the upper thighs’. Universally considered a borrowing from MLG.
- *woapis* ‘paint’, cf. Latv. *vāpe* ‘glaze’, *vāpa* ‘paint’.
- *aloade* ‘door-hasps’, cf. Lith. *alvytā*, Latv. *elvete* ‘switch’, Lith. *alvỹtos*, *elvỹtos* ‘swing, swing beam’, *elvėdė* ‘swing beam’, Latv. *elvede* ‘ein junger, armdicker Tannenbaum, dessen dünnes Ende, in kleine *klūga* verwandelt, zum Befestigen der Flösser am Ufer dient, die Seitenstange einer Schaukel’.
- *poadamynan* ‘fresh milk’. Mažiulis identifies the root with PIE *\*peh<sub>3</sub>-* ‘drink’ and posits a present *\*pōda*. I consider the etymology of this noun uncertain.

I disagree with Larsson (2003, 98 fn.) that *woasis* is the only exception to her rule that <oa> represents a long circumflex vowel, as it is highly unlikely that *moazo* and *noatis* have circumflex roots. Of the remaining instances, many are borrowings or nouns with an uncertain etymology. In Standard Lithuanian, borrowings as a rule have a rising tone, e.g. *pōnas*. There is no reason to assume that Old Prussian borrowings typically had a falling tone. In my view, only *boadis* and *loase* are likely to belong to the derivational type which in Lithuanian is characterized by a long circumflex root vowel. Since there is an old layer of original root nouns with lengthened grade, the above-mentioned nouns do not prove that the retraction of the stress from prevocalic *i* must have operated in Old Prussian as well. The long root vowel may have spread to other derivational types.

There are many examples of <o> continuing acute *\*ō/ā*, e.g. *mothe* ‘mother’, *brothe* ‘brother’, *nozy* ‘nose’, *wosee* ‘goat’ (cf. Larsson 2003, 90). In addition, we find a number of etyma which either appear to continue circumflex *\*ō/ā* or would have been likely candidates to show <oa> within Larsson’s framework:

- *smoy* ‘man’, cf. OLith. *žmuō*. In spite of Lith. dial. *žmuōj*, it seems likely that <y> indicates length here.

- *nagotis* ‘iron pot’, cf. *nage* (EV) ‘foot’. Mažiulis compares Lith. *qsōtis* ‘jug’ vs. *qsōtas* ‘having ears’, cf. *qsà* ‘ear (of a jug)’.
- *abstocle* ‘lid (of a pot or kettle)’, cf. *stogis* (EV), Lith. *stogas* ‘roof’. For the formation cf. Lith. *pastōklė* ‘lower bench in a bath-house, footboard’.

### 3.2. <ea>

- *geasnis* ‘snipe’, cf. Latv. *dzēs(n)is*, *dzēse* ‘black stork’, *dzēse*, *dzēse*<sup>2</sup> ‘heron’. Here again Larsson seems to suggest that Mažiulis’s reconstruction of an *io*-stem implies a Proto-Baltic form with stress on a prevocalic *i*.
- *peadey* ‘socks’, cf. Lith. dial. *pėdėlė* (E. Prussia) ‘sock’. Larsson mentions Lith. *pėdė* ‘Sandale, Schnürsole’.
- *seabre* ‘Zährte (*Cyprinus vimba*)’, cf. Latv. *zebre*, *zebris* ‘id.’. The attestations of this fish-name include the dialect of the fishermen of the Curonian Spit (cf. Urbutis 1981, 175). Mažiulis’s reconstruction \**zēbrē*, from an adjective corresponding with Lith. *žėbras* ‘having a motley snout’, is primarily based on the spelling <ea>. There is no long root vowel in Lith. *žėbrỹs* 4, *žėbris* 2 ‘animal with a motley snout’.

As far as monophthongs are concerned, the claim that acute \**ē* is never spelled with <ea> is evidently not very strong. The most common way to spell /*ē*/ is <e>, e.g. *semen* ‘seed’, *thewis* ‘cousin’, *wetro* ‘wind’ (cf. Lith. *sėmenys* Npl. ‘flax-seed’, *tėvas* ‘father’, *vėtra* ‘storm’) and the borrowings *mestan* ‘city’, *swetan* ‘world’. Most inherited words have an originally acute \**ē*. An instance of <e> representing circumflex /*ē*/ may be:

- *metis* ‘throw’, cf. Lith. *mėtis* ‘id.’. The fact that the word is spelled with single <t> may be considered an indication for the long quantity of the root vowel, cf. *pettis* ‘shoulderblade’. Though Larsson could have used this form to boost her claim that the retraction from prevocalic *i* operated in Old Prussian, she does not mention it, presumably because it is not spelled with <ea> (see section 6).

At this point I would like to counter Larsson’s observation (2003, 89) that the acute ending \**-ā* is never spelled with <oa> with the observation that the Nsg. ending \**-ē* < \**-ēr*, \**-(i)eh*<sub>1</sub>, \**-ieh*<sub>2</sub>, which corresponds with Lith. *-ė*, is never spelled with <ea>. Of course, one may wonder if the Old Prussian ending \**-ē* may have been acute depending on its origin.

Besides <ea> and <e>, we find <ee> and <ey> as orthographical representations of the reflex of \**ē*:

- *seese* ‘blackbird’, cf. Lith. (obs.) *šėšė*, *šėžė*, *šėšėtė* (*šėšetė*?) ‘id.’ (Urbutis 1981, 42–48).

- *wosee* ‘goat’, cf. *wosux* (EV) ‘billy-goat’, Lith. *ožỹs* 3, Latv. *âzis* ‘goat’.
  - *steege* ‘hay-loft’, cf. *stogis* (EV), Lith. *stogas* ‘roof’.
  - *plieynis* ‘ashes’, cf. Lith. *plénys* Npl. ‘fine ashes’, Latv. *plēne* ‘white ashes on coals, snowflake’.
  - *pleynis* ‘cerebral membrane’, cf. Lith. *plènīs* 4, *plėnė* 4 ‘membrane’, Latv. *plēne* ‘thin layer’.
  - *seyr* ‘heart’, cf. *sīran* (III) Asg. ‘heart’.
- Here <e> and <y> are apparently used to indicate length.

## 4. Diphthongs

In view of the evidence from the Enchiridion, where falling diphthongs are often indicated by a macron on the first element, it seems reasonable to assume that diphthongs with <oa> or <ea> are falling (cf. Endzelīns 1943, 29–31 = 1944, 41–44). We shall now investigate the correctness of this hypothesis.

### 4.1. *i-* and *u-*diphthongs

#### 4.1.1. <oa>

- *moasis* ‘barley’, cf. Lith. *miėžis*, Latv. *miezis*.
- *moasis* ‘bellows’, cf. Lith. *maĩšas*, Latv. *màiss* ‘bag, sack’.
- *roaban* ‘striped’, cf. Lith. *raĩbas* (*ráibas*), Latv. *ràibs* ‘motley, speckled’.
- *spoayno* ‘Schaum des gärenden Bieres’, cf. Lith. dial. *spáinè* ‘stripe of spume’. Fraenkel (s.v.) mentions a variant *spáinè*, which Mažiulis uses to support the interpretation of the Old Prussian form as having a circumflex root. The original tone of the root is undoubtedly acute, cf. SCr. *pjèna* ‘foam’. Perhaps <oa> reflects the stronger labialization of [ɔ] after [p].

To all appearances, the lengthening of the first element in the circumflex diphthong *\*āi* was so prominent that the *i* tended to disappear or was not perceived by the scribe who wrote down the Elbing Vocabulary<sup>8</sup>.

For a thorough analysis of the spelling of *i*-diphthongs it is imperative to have a look at the orthographical variants. First we shall discuss <oy> and <oe>, which Mažiulis regards as representations of *\*āi* < *\*ài* and therefore as variants of *oa(y)* (1963, 43f.; 1970, 14; cf. Būga 1924, 108):

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<sup>8</sup> There reportedly is a parallel development in Lithuanian dialects, cf. Berneker 1896, 257; Trautmann 1910, 143.

- *coysnis* ‘comb’. Here and in the case of the next example we are confronted with the problem that *káišti* ‘scrape’ has an acute root. Mikkola (1925, 139f.) has argued that in *coysnis* and *coestue* the graphemes <e> and <y> indicate length, which would enable us to compare these etyma with Latv. *kast* ‘rake’, *kasīt* ‘scrape’ and PSl. *\*česati* ‘comb’.
- *coestue* ‘brush’, cf. Lith. *kaištūvas* ‘horse-comb, scraper’.
- *iccroy* Npl. ‘calf’, cf. Lith. dial. *ikras*, Latv. *ikrs*, Rus. *ikrá*, Pl. *ikra* ‘id.’. I agree with Mažiulis that *iccroy* and *clattoy* below probably contain the ending *\*-ài* of the *o*-stems.
- *stroysles* [*scroysles*] Npl. ‘flat-fish’. Perhaps cognate with Lith. *skraidyti* ‘fly’.
- *ennoys* ‘cold fever’. Analyzed as *en* ‘in’ + *\*āisas* ‘heat’ by Mažiulis.
- *clattoy* ‘burdock’, cf. OHG *klette*. A borrowing from German.
- *cariawoyti* ‘muster’ cf. *kragis* [*kargis*] (EV) ‘army’, *karyago* (EV) ‘military campaign’, *waitiāt* (III) ‘talk’.
- *cassoye* ‘messing’. Mažiulis proposes an emendation *cassoys*, but the etymology remains unclear.
- *girnoywis* ‘hand-mill’. Here the function of <y> is unclear.
- *caymoys* ‘arm-pit’, cf. Latv. *kamiēsis* ‘shoulder’. The first <y> is probably anorganic.
- *artoys* ‘peasant’, cf. Lith. *artójas* ‘ploughman, peasant’.

Though the material is limited, it seems plausible that in some cases <oy> represents a circumflex *i*-diphthong. In a form such as *caymoys*, however, the <o> must probably be attributed to the preceding labial. The value of <oe> is unclear. Mažiulis, by the way, considers *grosis* ‘hoarfrost’ an example of <o> for *\*ài*, thus separating this etymon from Lith. *grúodas* ‘frozen earth’, PSl. *\*gràdъ* ‘hail’. Instead he advocates a connection with *griēti* ‘skim’. As I prefer the traditional etymology, I shall leave *grosis* out of consideration here.

The most frequent orthographical representation of *\*ai* is <ay> or <ai>. Since I cannot present the complete evidence here, I shall limit myself to a number of etymologically transparent examples:

- *luriai* [*juriai*] ‘sea’, cf. *iūrin* (III) Asg., Lith. *jūra*. In this case I find it more difficult to assume that we are dealing with the Npl. of a masculine noun. It is likely, however, that in this form the ending is unstressed.
- *snaygis* ‘snow’, cf. Lith. *sniėgas*, Latv. *sniėgs*.
- *caymis* ‘village’, cf. *kāimaluke* (III) ‘sucht heim’, Lith. *kiėmas*, Latv. *ciems* ‘farmstead, village’. The acute of Lith. *káimas* is metatonical.
- *wayklis* ‘son’, cf. Lith. *vaikas* ‘child’.



- *maysotan* ‘mixed’, cf. Lith. *maišýtas*.
- *sawaite* ‘week’, cf. Lith. *saváité*. The Lithuanian word is considered a Prussianism.
- *slaix* ‘earth-worm’, cf. Lith. *sliėkas*, Latv. *sliēka*.

A logical consequence of the hypothesis that <oa(y)> and <oy> represent falling *i*-diphthongs is the assumption that <ay> and <ai> represent rising as well as unstressed diphthongs (cf. B ū g a 1924, 109). Though there is much to be said in favour of this view, there are strong counterexamples such as *snaygis* and *caymis*. The theory that the circumflex root of “old oxytona” retains the rising tone of the end-stressed case forms even if the stress was retracted at a later stage (Būga, l.c.) does not seem very convincing. Since there is no reason to assume that circumflex /ɛi/ merged with circumflex /ɔi/, Būga’s stress rule would seem to be superfluous in those instances where, in his opinion, <ay> continues \**ei*. It is doubtful, however, that these etyma do indeed contain \**ei*:

- *laygnan* ‘cheek’, cf. Rus. *licó*, Pl. *lice* ‘face’. The Slavic word belongs to AP (b) and acquired final stress as a result of Dybo’s law. In view of the closed first syllable, however, which may have blocked retraction at an earlier stage, I would not rule out the possibility that the Old Prussian form has preserved the original final stress. Furthermore, the root may contain an *o*-grade, cf. *balgnan*. The vocalism does not match the Slavic form anyway because in view of the effects of the progressive palatalization the latter must originally have had zero grade. The *e*-grade is probably analogical after \**likъ*.
- *playnis* ‘steel’, cf. Lith. *pliėnas*, Latv. *pliens*. There is no need to posit \**ei*.
- *aysmis* ‘spit’, cf. Lith. *iėšmas*, Latv. *iesms*. In view of Gk. αἶχμη ‘point of a spear, spear’, the Baltic forms cannot reflect \**ei*.

There appear to be no examples of <oa> or <o> as the first element of a circumflex diphthong (cf. B ū g a 1924, 110). Acute and circumflex diphthongs are not distinguished in the orthography, e.g.:

- *cawx* ‘devil’, cf. Lith. *kaũkas* ‘goblin’.
- *ausins* Apl. ‘ears’, cf. *āusins* (III) Apl., Lith. *ausis* 4, Latv. *āuss*.
- *tauto* ‘land’, cf. Lith. *tautà* 4, Latv. *tàuta* ‘people’.
- *keuto* ‘skin’, cf. Lith. *kiáutas* ‘shell, peel’. Here the <e> may indicate palatalization.

#### 4.1.2. <ea>

- *seamis* ‘winter corn’, cf. *semo* (EV), Lith. *žiemà* 4, Latv. *ziema* ‘winter’.

These are the only examples of <ea> and <e> representing \*ēi < \*èi. The reflex of \*ei is generally spelled <ey> or <ei>, e.g.:

- *deywis* ‘God’, cf. Lith. *diēvas*, Latv. *dīevs*.
- *deynayno* ‘morning star’, cf. Lith. *dienà* 4, Latv. *diena* ‘day’.
- *weydulis* ‘eyeball, pupil’, cf. Latv. *viêdêt* (*viēdêt*) ‘see’.
- *kalopeilis* ‘chopper’, cf. Lith. *peĩlis*, Latv. *peĩlis* ‘knife’.

There is one instance of <eey>:

- *geeyse* ‘heron’. For this word the emendations [*geerse*] and [*geense*] have been suggested, cf. Lith. dial. *géršė*, *gėnšė* ‘id.’. Furthermore, Berneker (1896, 290) has proposed an interpretation *gēsē*, cf. Latv. *dzēse* ‘id.’. Mažiulis simply reads *gēisē*, which he derives from an interjection.

Palmaitis (1990) attributes the difference in spelling between *seamis* and *semo* to a difference in accentuation. Drawing a parallel with Lithuanian dialects, he claims that <ea> and <oa> denote diphthongization under the stress in non-final syllables, while <o> and <e(e)>, insofar as they do not represent short vowels, denote unstressed long vowels as well as stressed long vowels in auslaut. In this view, nouns such as *peempe*, *seese*, *steege*, *dongo*, *gorme* and *semo* are end-stressed. Though I am inclined to agree that <ea> and <oa> are limited to stressed syllables, the validity of the second part of Palmaitis’s hypothesis is doubtful, if only because it presupposes that in unstressed syllables the opposition between acute and circumflex diphthongs is continued by quantitative distinctions, the first element of circumflex diphthongs being long. It must be admitted, however, that in the case of *semo* Palmaitis has a point. Here the loss of the \*i, which is generally assumed to be characteristic of circumflex diphthongs, occurs in the root of an originally mobile noun, cf. Lith. *žiemà*, PSl. \**zīmà* (c). Unless we assume that in the Prussian dialect of the Elbing Vocabulary this noun was barytone, the spelling with <e> is difficult to explain.

## 4.2. Mixed diphthongs

### 4.2.1. <oa>

- *doalgis* ‘scythe’, cf. Lith. *dal̃gis*. I am not convinced that this etymon is cognate with Lith. *dálgyti* ‘sting’, *dilgė* ‘stinging nettle’.
- *droanse* ‘corn-crake, landrail’, cf. Lith. *drėžti* (*drėžti*, *drėžti*) ‘wear, tear’. The etymology is supported by Lith. *driežlė*, *griežlė*, *bryzėlė* ‘corn-crake’, which all derive from a verb meaning ‘tear’ (PKEŽ I 228), cf. also Latv. *griēze*, *griēza*. The Lithuanian evidence does not point to an *iā*-stem.

- *moargis* ‘acre’, cf. Lith. *márgas*, Pl. *mórg*, MLG *morgen*. This must be a borrowing from either Slavic (Levin 1974, 41, 97) or Germanic (Smoczyński 2000, 204).
- *woaltis* ‘ell’. It is generally assumed that this form arose through syncope, cf. Lith. *uoлектis* 1/3<sup>a</sup> ‘ell’, Latv. *uôlektis* ‘ell, forearm’. Larsson (2003, 96f.) suggests that *woaltis* ‘ell’ is an inner-Prussian derivative of *woltis* ‘forearm’, in which case we would probably be dealing with <oa> as a designation for a long vowel with a metatonical circumflex. She does not rule out the possibility that in the word for ‘forearm’ the long diphthong which originated from syncope was shortened, implying that the <oa> of *woaltis* may be a secondarily lengthened vowel after all. I prefer the traditional view that *woltis* and *woaltis* are to be identified.

Larsson (2003, 100) dismisses the possibility that <oa> and <ea> before a tautosyllabic resonant point to a circumflex diphthong in general because too many originally circumflex diphthongs are not spelled with <oa> or <ea>. From her examples we can gather that <o> before a tautosyllabic resonant is considered a labialized variant of <a>, i.e. not a long element equivalent to <oa>. This is, of course, something that needs to be investigated. Mažiulis, for instance, seems to hold the opposite view (1963, 43f.; 1970, 14; cf. Būga 1924, 108). Furthermore, we must take into account that originally circumflex syllables are not necessarily stressed.

- *gorme* ‘heat’, cf. Latv. *gaīme*.
- *stordo* [*scordo*] ‘behaarte Kopfhaut’, cf. Pl. *skóra* ‘skin’.
- *bordus* ‘beard’, cf. Lith. *barzdà* 4, Latv. *bārda*.
- *tusawortes* [*tulawortes*] ‘Mannigfalt’, cf. *tūlan* (III) ‘much’, *wartint* (III) ‘turn’.
- *torbis* [*corbis*] ‘Wagenflechte, Korbflechte des Wagens’.
- *aclocordo* ‘guide rope, rein’. The second element of this compound is probably a borrowing from Germanic (pace PKEŽ I, s.v.).
- *passortis* ‘poker’, cf. Lith. *žarstėklis*.
- *wormyan* ‘red’, cf. *urminan* (III) Asg. m. ‘id.’, Lith. *varmas* 2/3/4 ‘mosquito, gadfly, flying ant’. If *urminan* < \*wūrminan < \*wārminan, these forms are an illustration of the fact that the first element of the diphthong was long.
- *smorde* ‘glossy buckthorn’, cf. Lith. dial. *smárdas* ‘stench’, Latv. *smar̃ds* ‘smell’.
- *prestors* ‘wren’, cf. LG *prēster* ‘priest’ (Hinze 1997, 146).
- *apisorx* ‘kingfisher’, cf. *butsargs* (III) ‘housekeeper’, Lith. *sárgas*, Latv. *saīgs* ‘watchman’.
- *solthe* ‘fancy cookie’, cf. OPl. *calta*, *colta* ‘long-shaped pastry’ (Levin 1974, 98).
- *wolti* ‘ear’, cf. Lith. *váltis* ‘ear of oats’.
- *stolwo* [*scolwo*] ‘chip’, cf. Lith. *skalà* ‘id.’, *skélti*, Latv. *šķélt* ‘split’.

- *colwarnis* ‘rook’, cf. Lith. *kóvarnis* ‘id.’, Latv. *kuõvarnis*, *kùosvãrnis*<sup>2</sup> ‘jackdaw’. Apart from the emendation [*coswarnis*], with a view to Latv. *kùos-*, attempts have been made to connect *colwarnis* with Slavic forms such as SCr. *galòvran* ‘black crow’ (Toporov 1984, 117–122; Hinze 1997, 154).
- *dongo* ‘refe’. Mažiulis interprets this word as ‘hoop’. The traditional interpretation is ‘Gestell für Trinkgeschirre, Gläserbrett’ (Trautmann 1910, 322), in which case one may wonder if we are dealing with a borrowing, cf. Pl. *daga* ‘board at the bottom of a barrel’. If Mažiulis is correct, *dongo* is semantically closest to Cz. *duha*, Slk. *dúha*, Sln. *dóga*, etc. ‘stave, rainbow’. The Slavic evidence points to AP (b), which would be compatible with a barytone Old Prussian noun *\*dāngā*.
- *pagonbe* ‘pagandom’, cf. *pogūnans* (III) Apl. ‘heathen’, Lith. *pagonýbė* ‘pagandom’, Pl. *pogan* ‘heathen’.
- *ponman* ‘buttock’. Mažiulis’s reading [*puninan*], cf. Latv. *puns* ‘lump’, would make this example irrelevant.
- *ackons* ‘awn’, cf. Lith. *akúotas*, Latv. *akuõts* ‘awn’. Here we are probably dealing with a secondary long mixed diphthong.
- *sompisinis* ‘coarse bread’, cf. Lith. *sq-*, Latv. *suo-* ‘with, together’. The second element is often considered a borrowing from Slavic, cf. Rus. *pšenó* ‘millet’ < *\*p̣šeno*. According to Mažiulis, *sompisinis* is equivalent with Lith. *sámalinis* ‘course-ground flour’.

Unlike Mažiulis, I am not at all convinced that <oRC> necessarily denotes a circumflex diphthong, cf. *gorme*, *smorde*, *apisorx*, *wolti*, *scolwo*. Note that in most of our examples the diphthong is preceded by a labial, a velar or, surprisingly, *s*.

The number of mixed diphthongs with <a> is too large to be presented in full. I shall now present a selection of examples:

- *tarbio* [*carbío*] ‘millet bin’, cf. Lith. *karbija* ‘millet hopper, basket’, ORus. *korobýja* ‘grain measure’.
- *warnis* ‘raven’, cf. Lith. *vařnas* 4.
- *warne* ‘crow’, cf. Lith. *várna*.
- *sarke* ‘magpie’, cf. Lith. *šárka*, Rus. *soróka*.
- *warto* ‘gate’, cf. Lith. *vařtai*, Latv. *vãrti*, Rus. *voróta* (*vorotá*), Pl. *wrota*.
- *sardis* ‘fence, enclosure’, cf. Lith. dial. *žarđis* (W.) ‘enclosure (for animals)’. The root of this noun is acute, cf. Lith. *žárdas*, Latv. *zãrds* ‘rack for drying flax’, Rus. *zoród* ‘hay-stack, enclosure for a hay-stack’. If the Old Prussian noun is assumed to continue an *io*-stem, Larsson’s theory would predict a form *\*soardis*.
- *kartano* ‘bar’, cf. Lith. *kártis*, Latv. *kãrts*.
- *dalptan* ‘chisel’, cf. PSi. *\*doltò* (b), e.g. Rus. *dolotó*, Pl. *dlóto*.

- *balgnan* ‘saddle’, cf. Lith. *bal̃nas* 4.
- *balsinis* ‘cushion’, cf. Lith. *balžienas*, Latv. *bàlziēns* ‘cross-beam’.
- *galwo* ‘Kopfstück am Schuh’, cf. Lith. *galvà* 3, Latv. *gal̃va* ‘head’.
- *dantis* ‘tooth’, cf. Lith. *dantìs* 4.
- *granstis* ‘borer, drill’, cf. Lith. *gr̃žtas* 2.
- *ansonis* ‘oak’, cf. Lith. *ąžuolas*, Latv. *uôzuõls*. In view of Lith. dial. *áužuolas*, the emendation [*ausonis*] cannot be dismissed.
- *anglis* ‘coal’, cf. Lith. *anglis* (*i*-st.) 2/4 alongside *anglis* (*io*-st.) 1/2, Latv. *ùogle*, PSl. \*òglb (a), e.g. Rus. *úgol*, SCr. *ùgalj*.
- *angis* ‘snake’, cf. Lith. *angìs* 4 ‘id.’, Latv. *uôdze* ‘adder’.
- *sansy* ‘goose’, cf. Lith. *žqsìs* 4, Latv. *zùoss*.
- *grandis* ‘ring’, cf. Lith. *grandìs* 4.
- *dangus* ‘heaven, palate’, cf. Lith. *dangus* 1/4.
- *gramboale* ‘beetle’: see 3.1.

The majority of the above-mentioned etyma are in agreement with the rule that acute and unstressed mixed diphthongs with *o*-grade have *aR* in Old Prussian (cf. B ū g a 1924, 110). Here I must add that, in my view, it is possible that the neuters *dalptan* and *balgnan* had preserved Balto-Slavic final stress. The most problematic instance is *granstis*. Mažiulis advocates an *i*-stem, cf. Lith. dial. *gr̃žtìs* ‘tie’, as he would have expected a neuter rather than a masculine *o*-stem, cf. *dalptan*, with which I completely agree. Nevertheless, I find it somewhat unsatisfactory to posit an *i*-stem. I have not included *alkunis* ‘elbow’ because of the East Baltic forms pointing to *e*-vocalism, e.g. Lith. dial. *elkūnė*, Latv. *ēlkuonis*.

A point which I shall not address here is the realization of mixed diphthongs with a first element /u/. Perhaps it is possible to link the apparently lax realization of /u/ in *lonki* ‘path’ and *stumalonx* ‘willow tit’ (Lith. *žalčiālunkis*) to the place of the ictus. For *passons* ‘stepson’, Mažiulis has argued that <on> reflects acute /un/, i.e. the first element of the secondary long diphthong was shortened because acute diphthongs always have a short first element. While I believe that the fact that the \**ū* was probably unstressed may have been a factor, I have my doubts about Mažiulis’s explanation, which presupposes that after the loss of the final syllable there was still an opposition between acute and circumflex in unstressed syllables.

#### 4.2.2. <ea>

- *greaste* [*greanste*] ‘Strang aus gedrehten Baumzweigen zum Binden und Hängen’, cf. *granstis*, Lith. *gr̃žtas* ‘borer, drill’, *gr̃žtìs* ‘tie’, *gr̃žtė*, Latv. *gr̃zite* ‘smth. twisted into a cord’.

- *teausis* [*teansis*] ‘Deichsel’, cf. *tiēnstwei* (III) ‘provoke’, Lith. *tęsti* ‘pull’.
- *mealde* ‘lightning’, cf. OCS *ml̋nii*, Rus. *mólnija* ‘id.’, Olc. *Mjöllnir* ‘Thor’s hammer’.
- *sealtmeno* ‘oriole’. Endzelīns (1943, 244) has identified the element *sealt* with Latv. *zēlts* ‘golden’, which makes good sense<sup>9</sup>. The European oriole is actually called the golden oriole, while the name “oriole” ultimately derives from Lat. *aureolus*.

I conclude that <ea> in mixed diphthongs seems to be connected with the falling tone. The most common spelling for mixed diphthongs is <eR>, however, e.g.:

- *mergo* ‘maiden’, cf. *mergu* (III), Lith. *mergà* 4 ‘maiden, girl’.
- *berse* ‘birch’, cf. Lith. *bėrzas*, Latv. *bērs*.
- *gerwe* ‘crane’, cf. Lith. *gėrvė*, Latv. *dzērve*.
- *pelwo* ‘chaff’, cf. Rus. *polóva*, SCr. *pljěva*.
- *pelky* ‘marsh’, cf. Lith. *pėlkė* ‘id.’, Latv. *pēlce* ‘puddle’.
- *gelso* ‘iron’, cf. Lith. *gelžis* (Žem.) 3, Latv. *dzēlzs*.
- *pentis* ‘heel’, cf. Lith. *pėntis* ‘backside of an axe, handle of a scythe, (dial.) heel’, Latv. *piēts* ‘backside of an axe’.
- *menso* ‘flesh, meat’, cf. Lith. *mėsà* 4, Latv. *miesa*, Rus. *mjásò*, Pl. *mięso*.

None of these examples is clearly in conflict with the rule that acute and unstressed mixed diphthongs are spelled <eR>. There is one spelling with <ee>:

- *peempe* ‘lapwing’, cf. Lith. *pėmpė*.

Finally, I would like to speculate on the realization of mixed diphthongs of the structure *iR*. With Mažiulis I am inclined to assume that here the lax first element of rising or unstressed diphthongs is sometimes reflected as <e>, e.g.:

- *meltan* ‘flour’, cf. Lith. *miltai*, Latv. *mīti*.
- *skerptus* ‘elm’, cf. Lith. dial. *skirpstūs* ‘beech, elm’.

In spite of *ebsentliuns* (III) ‘bezeichnet’, Lith. *žėnklas* ‘sign’, I wonder if *spertlan* ‘Zehballen’ could be an example of this phenomenon as well.

## 5. <oa> and <ea> vs. <o> and <e>

On the basis of their distribution, I conclude that <oa> and <ea> do not represent separate phonemes but were primarily used to denote long (or perhaps rather “tense”) [ɔ] and [ɛ], i.e. the monophthongs [ō] and [ē] as well as the realizations of /ɔ/ and /ɛ/ as the first element of a falling diphthong. It cannot be excluded that <oa> is sometimes

<sup>9</sup> Būga (1924, 65) already compared *sealtmeno* with Lith. dial. *žėltas* ‘yellowish’.

used to indicate the labialized quality of a realization of short /ɔ/, while <ea> may stand for [æ]. The grapheme <o> is less marked in the sense that it denotes both [ō] and [ɔ]. In the latter case <o> expresses labialization, which is particularly frequent after labials and velars. Likewise, <e> denotes both [ɛ] and [ē].

There is insufficient evidence for the hypothesis that <oa> and <ea> denote circumflex monophthongs, nor do I believe that diphthongs with <oa> and <ea> denote something different from regular circumflex diphthongs. The frequent occurrence of these digraphs in circumflex diphthongs is a consequence of the fact that in Old Prussian the latter were falling.

## 6. The East Baltic retraction from prevocalic *i*

I see no connection between the occurrence of <oa> and <ea> and derivational types with earlier stress on a suffix \*-*i*-. Insofar as these graphemes occur in nouns with an ending -*is* or -*e*, many of Larsson's examples are unlikely to belong to the required derivational type. This does not mean that Larsson's hypothesis that the retraction from prevocalic *i* operated in Old Prussian is refuted. In the first place, the effects of the retraction may manifest themselves as root stress on metatonical falling diphthongs. The only possible example of this type, viz. *doalgis* 'scythe', does not necessarily derive from an acute root, however, while *sardis* 'fence, enclosure' may be viewed as a counterexample. In the second place, the effects of the retraction may be visible as lengthening of short monophthongs. Here the most likely candidates are *boadis*, *loase* and *metis*. In my opinion, the (presumably) long root vowel in these forms does not necessarily originate – either directly or indirectly – from a retraction of the stress. The apophonic long vowel of nouns such as *soalis* and *coaris* may have spread to other derivational classes.

Since Larsson attributes the lengthening of short monophthongs in Baltic *io*- and *iā*-stems to a phonetic development, one would also expect lengthening in nouns with other root vowels than \**e* and \**o*. For this reason, I consider *brokis* 'blow, hit', with <o> pointing to short [u], a counterexample to Larsson's rule, cf. Lith. *brūkis* 'stroke', Latv. *brūce* 'scratch, scar'. The form *kruwis* 'fall' cannot be adduced as proof of phonetic lengthening because the spelling <o> for [u] is by no means consistent.

## 7. Conclusion

In my opinion, Larsson's analysis is biased in the sense that, despite the author's explicit assertions to the contrary, it is based on a selective use of Lithuanian data rather

than on internal reconstruction, with the predictable result that her investigation confirms the preconceived idea that Old Prussian probably shared Larsson's own version of the retraction of prevocalic *i*. The ambiguity of the endings *-e* and especially *-is* greatly facilitates her task.

The problem of the phonetic value of <oa> and <ea> and the question whether Old Prussian shared the East Baltic retraction of the stress from prevocalic *i* are topics which in principle must be addressed separately. In Larsson's article, the two questions are intertwined almost from the beginning. This has an adverse effect on the handling of the evidence, which is defective and shows a lack of objectivity.

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