The origin of the Slavic 2 sg. present ending

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Abstract. The two 2 sg. present ending variants of Slavic, -*sь*/-*šь* and -*si*/-*ši*, are derived from pre-Slavic *-*si* and *-*s*-*ai̯s*, respectively. The first variant is found in all Slavic languages, and in most of them it is the only one. The second variant survived mainly in Old Russian (cf. *neseši*) and Novgorod (cf. *ideši*) and as a relic form in other languages (cf. Ukr. *jesý*, Cz. *jsi*, SCr. *jèsi*). In both variants, the form with -*š*- is dominant.

The first variant goes back to the Indo-European primary ending 2 sg. *-*si*. The second variant reflects the Proto-Slavic form of the 2 sg. future with the sigmatic stem *-*s*-*ai̯s*. This complex formant was formed in the Proto-Slavic period by adding the ending of the imperative 2 sg. *-*ai̯s* (from the Baltic-Slavic imp. *-*ai̯s* that continues PIE opt. *-*o*-*i̯h₁*-*s*, compare OCS *ved-i*, OPr. *wed-ais*) to the ending of the future 2 sg. *-*s* (from PIE *-*s*-*si*; the athematic sigmatic stem of the future is reconstructed for Balto-Slavic on the basis of the Eastern Baltic languages, cf. Lith. *duõs*, Latv. *duôs* 'he will give').

A partial apocope of the final *-*i* in Balto-Slavic could be the main reason for this morphological innovation. As a result of the apocope, a formal contrast developed between the forms with accented ending (2 sg. *u̯ede-si 'you lead') and with unaccented endings (2 sg. *dėd-s 'you put'). The reduced ending *-*s* merged with the sigmatic future stem, which provoked the renewal of this form with the imperative ending *-*ai̯s* in Balto-Slavic or Proto-Slavic, cf. *dōd-s-si > *dōd-s-s > *dōd-s → *dōd-s-ai̯s. The loss of the sigmatic future and the reduction of *-*s* in one of the two allomorphs of the 2 sg. present form conditioned the creation of the ending *-*sai̯s* and its spread to the paradigm of the present.

The dominant forms -*ši* and -*šь* resulted from the first palatalization of velars from *-*xi* and *-*xь*, which in turn developed from *-*si* and *-*sь* according to the RUKI-rule in present stems in -*i*-. The original forms with *-*s*- were preserved only in athematic root present stems.

Keywords: Slavic, Balto-Slavic, Indo-European, Verb, Endings.

Происхождение общеславянского презентного окончания 2 л. ед. ч.

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Аннотация. В славянских языках обнаруживаются следы двух вариантов общеславянских презентных окончаний 2 л. ед. ч. *-sь*/*-šь* и *-si*/*-ši*. Первый вариант распространен во всех славянских языках, причем в большинстве из них является единственным. Второй вариант сохранился главным образом в древнерусском (ср. *neseši*) и новгородском (ср. *ideši*) и в качестве реликтовой формы в других языках, главным образом в копуле (ср. укр. *jesý*, чеш. *jsi*, сербохорв. *jèsi*). В обоих вариантах форма с *-š-* является доминантной.

Первый вариант возводится к индоевропейскому первичному окончанию 2 л. ед. ч. *-si*. Второй вариант отражает праславянскую форму будущего времени 2 л. ед. ч. от сигматической основы *-s-a̯i̯s*. Этот сложный формант образовался в праславянский период путем добавления окончания императива 2 л. ед. ч. *-a̯i̯s* (из балт.-слав. импер. *-a̯i̯s* от и.-е. 2 л. ед. ч. опт. *-o-i̯h₁-s*, ср. ст.-сл. *ved-i*, др.-прусск. *wed-ais*) к окончанию будущего времени 2 л. ед. ч. *-s* (из и.-е. *-s-si*; на атематическую сигматическую основу будущего в балтославянском указывают данные восточно-балтийских языков, ср. лит. *du̯õs*, лтш. *du̯ôs* 'он даст'). Основной причиной этой морфологической инновации могла стать частичная апокопа конечного *-i* в балтославянском (выпадение *-i* в безударной позиции и сохранение в ударной). Предполагается, что в результате апокопы образовался контраст между формами с ударением на окончании (2 sg. *u̯ede-si̯* 'ты ведешь') и формами, содержащими безударные окончания (2 sg. *de̍d-s* 'ты кладешь'). В парадигме сигматического будущего редуцированное окончание *-s* слилось с основой, что повлекло за собой обновление этой формы с помощью окончания императива *-a̯i̯s* в балтославянском или в праславянском, ср. *dōd-s-si* > *dōd-s-s* > *dōd-s* → *dōd-s-a̯i̯s*. После утраты сигматического будущего и редукции *-s* одного из двух алломорфов окончания презенса 2 л. ед. ч. возникли условия для образования окончания *-sa̯i̯s* и его распространения на парадигму презенса.

Доминантные формы *-ši* и *-šь* развились по первой палатализации велярных из *-xi* и *-xь*, которые в свою очередь возникли из *-si* и *-sь* по правилу «RUKI» в презентных основах на *-i-*. Исходные формы с *-s-* сохранились только в атематических корневых презентных основах.

Ключевые слова: общеславянский, балтославянский, праиндоевропейский, глагол, окончания.

1. The 2 sg. present ending has always figured among the most problematic issues of Balto-Slavic historical grammar. As a modest token of appreciation for Prof. N. N. Kazansky, in this article I will present a new solution for the Slavic endings. It should be noted that this article is concerned with Slavic alone. The evidence of Baltic and other languages will only be discussed inasmuch as it is relevant for Slavic. I will first introduce the basic facts (§ 2) and a brief critical report of previous solutions (§ 3–5) to turn then to my own scenario (§ 6–10).

2. The Proto-Indo-European (PIE) 2 sg. endings were primary *-si*, secondary *-s*, reasonably well preserved in the old Indo-European languages (Ved. prs. *bhára-si* : impf. *ábhara-s*, Hitt. prs. *daške-ši* : pret. *daške-š*, etc.). The major exception is the Greek thematic 2 sg. prs. φέρ-εις. This ending has sometimes been compared to Lith. 2 sg. *ved-ì*, refl. *-íe-si* and used to reconstruct a thematic 2 sg. present ending without *-s-* (PIE *-e̯i, *-ḗi̯, *-eh₁i, *-e, *vel. sim.*). [1] This possibility, however, must now be regarded as highly unlikely. First, Gk. φέρ-εις and Lith. *ved-ì* are not actually compatible with each other, whereas (e.g.) Ved. *-si*, Hitt. *-ši*, Lat. *-s* and Goth. *-s* clearly coalesce in PIE *-si*. Second, in Greek the *s*-less 2 sg. φέρ-εις is paired with a *t*-less 3 sg. present ending φέρ-ει (Myc. *e-ke* /*ekʰei*/ 'has'). Gk. 3 sg. -ει constitutes a *locus desperatus* of Greek historical grammar, but the 2 sg. -εις is easily explained as analogical to it according to a proportion impf. 3 sg. -ε : 2 sg. -ες = prs. -ει : X, X = -εις. [2] If the analogy took place in post-Mycenaean times, it would have been a natural way to avoid the merger of 2 sg. *-esi > *-ehi > *-ei̯ > *-e̯i and 3 sg. -ει, but this is not essential for the analogy to work.

In short, it can hardly be doubted that Balto-Slavic inherited primary *-si*, secondary *-s*. The Baltic and Slavic endings, however, are only partly compatible with these prototypes:

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[1] The idea goes back to Fortunatov, Brugmann and Meillet and was often repeated through the 20th century. I cannot here devote the necessary space to discuss OIr. 2 sg. abs. *biri*, conj. *·bir* and other more doubtful material that has been mentioned in this connection. See [Cowgill 2006: 536f., 546f., 556–563] for references and discussion.

[2] See especially [Hoenigswald 1986: 372f.].

2.1. OCS has 2 sg. *-si* in athematic presents after consonant (*jesi* 'you are', *dasi* 'you will give', *věsi* 'you know') and *-ši* in all other present types (*neseši* 'you carry', *prosiši* 'you ask for', *imaši* 'you have'). The ending *-si/-ši* recurs in Old Russian (*neseši*), including Old Novgorod (*ideši*), and as relics in other languages as well, mainly in the copula (e.g. Ukr. *jesý*, Cz. *jsi*, SCr. *jèsi*). But apart from this all Slavic languages continue 2 sg. *-sь/-šь* and for most languages this is the only ending from the oldest records. The Slavic facts thus face us with three basic questions:

i) Do 2 sg. *-si/-ši* and *-sь/-šь* continue two different Proto-Slavic endings or is *-sь/-šь* a weakening of *-si/-ši*?

ii) What is the origin of the final º*i* of *-si/-ši*? (*-sь/-šь*, if old, obviously continues PIE **-si*).

iii) What is the rationale for the *-š-* of the dominant variant(s) *-ši*, *-šь*?

We will return to these questions below. For the moment it will be enough to note that only the last question has a straightforward answer within our current understanding of Slavic historical grammar.

2.2. The reconstruction of the East Baltic prototype is not essentially problematic. The 2 sg. ending was **-ė́* > Lith. prs. *neš-ì* 'you carry', refl. *-íe-si*. Athematic presents had 2 sg. **-sė́* (e.g. OLith. *esì*, *esíe-gu* 'you are', Daukša). Since the rest of the East Baltic evidence does not add anything essential, I will not discuss it here.[3] There is no *communis opinio* concerning the origin of EBl. 2 sg. **-ė́*, athem. **-sė́* (apart, of course, from the identification of the *-s-* of the latter with that of PIE 2 sg. **-si*).[4]

2.3. In Old Prussian even the synchronic facts are not fully understood. Athematic presents had a sigmatic ending: *assai* 7x, *assei/essei* 5x, *asse/esse* 5x 'you are', *dāse* 1x 'you give', *ēisei* 1x 'you go', *waisei* 1x, *waisse* 1x 'you know'. It is customary to start from pre-Old Prussian 2 sg. **-sei̯*, but this is not absolutely certain. Present stems ending in a vowel use the 3rd person for the 1st and 2nd sg. as well, e.g. *turri* '(I/you) have, has', *druwē*

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[3] See [Endzelin 1923: 546–549; Stang 1966: 407–409; Zinkevičius 1966: 335ff., 370–373] for more information.

[4] See [Cowgill 2006: 558–561] for a critical list of proposals till the early eighties.

'(I/you) believe(s)', *islāiku* '(I/you) hold(s)'. It is hard to say whether these forms continue, in some way, Proto-Baltic *s*-less 2 sg. forms cognate with EBl. 2 sg. *-ḗ* or are etymological 3rd person forms used in place of the 1st and 2nd singular. 2 sg. sigmatic forms seem to be attested in non-athematic presents as well: *giwassi* 2x, *gīwasi* 1x 'you live', *druwēse* 2x 'you believe', *segēsei* 2x 'you make'. It cannot be excluded, however, that these are future (or modal) forms, cf. *postāsei* 'you will become' (whose interpretation as future is certain because of the contrast with the present stem *postānai*). [5] The same caveat applies to some of the athematic 2 sg. forms.

In contrast with the uncertainties that surround the Old Prussian 2 sg. present, the 2 sg. imperative *wed-ais* 'lead!', *imm-ais* 'take!' transparently continues PIE 2 sg. opt. *-o-i̯h₁-s* (Ved. *bháres*, Gk. φέροις). It practically guaranties that OCS 2 sg. imp. *ved-i* directly continues PIE *-o-i̯h₁-s* as well.

3. There is no generally accepted explanation of the facts presented in § 2.1–2.3. In sections § 3–4 I will briefly report the solutions that have been proposed for the two main problems posited by Slavic: the origin of the °*i* of 2 sg. *-si*/-*ši* (§ 3) and its relation to *-sь*/-*šь* (§ 4). Since excellent *Forschungsberichte* are readily available, [6] I limit myself to just mention the main lines of thought without giving references to the secondary literature.

We can distinguish two major approaches to Sl. 2 sg. *-si*/-*ši*: a) it continues a (post-)PIE 2 sg. present middle *-soi̯* (Ved. *bhár-a-se*), b) it goes back to *-sei̯*, a historically composite ending obtained by crossing BSl. 2 sg. athem. *-si* and them. *-ei̯* (*vel sim.*, cf. Lith. 2 sg. *-ì*, *-íe-si*). The first theory is susceptible of multiple objections, but I will here limit myself to note that *all* current theories on the development of word-final *-ai̯* in Slavic predict PIE *-soi̯* to give Sl. †*-sě*, not *-si*. [7] The second theory is phonologically unobjectionable. The problem is the alleged thematic 2 sg. *-ei̯*. As noted above (§ 2), the possibility that the thematic 2 sg. of PIE

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[5] So e.g. [Cowgill 2006: 561–562; Smoczyński 2005, 414].

[6] E.g. [Cowgill 2006: 552–555, 556–563; Hock 2005: 26f.; Olander 2015: 312–318; Majer fthc.: § 3.2.2].

[7] See below footnote 18.

was *b^hér-e̯i and not *b^hér-e-si must now be regarded as extremely un-
likely. A second option that has been put forward is that *-e̯i was a Balto-
Slavic innovation, ultimately depending on the reanalysis of PIE *$h_1$ési
'you are' (Ved. ási, Gk. εἶ) as *$h_1$és-i. The amount of analogy that this the-
ory involves, however, is in my view simply incredible.

In short, none of the traditional accounts of the Slavic (and Baltic)
2 sg. present ending is acceptable. If Slavic is judged by itself, the general
insistence to start from *-se̯i is susceptible to some obvious criticism: i)
it is not self-evident why the alleged 2 sg. *b^hér-e̯i of the dominant the-
matic conjugation should have been remade to *b^hér-e-se̯i in the prehis-
tory of Slavic;[8] ii) the Baltic and Slavic facts do not make the reconstruc-
tion of a 2 sg. *-se̯i in any way unavoidable; iii) from a strict phonological
point of view, it is obviously not the only option for Sl. -si/-ši.

Finally, I can mention two recent proposals that at least include new
elements:

Mottausch [2003: 95f.] also considers Pre-Slavic *-se̯i a cross of 2 sg.
athem. *-si and them. *-e̯i, but explains *-e̯i as an analogical formation
ultimately based on the PIE 2 sg. imp. *b^hér-e 'carry!'.

Hill and Fries [2020] propose that in Balto-Slavic the 2 sg. was en-
larged with a clitic *a̯i (from PIE anaphoric loc. sg. f. *eh_2-i; cf. Dor.,
Aeol. αἰ 'if') and proposes the following development for Slavic: athem.
*ḗd-si=a̯i > *ě-si=a̯i > *jě-sь=ī > jě-si; them. *bere-si=a̯i > *bere-sj=a̯i >
*bere-š=ī > bere-ši. The development leading to Lithuanian was even
more complicated.

Although bringing new elements to the discussion is a welcome im-
provement, both proposals require too many ancillary assumptions to be
convincing. We can now turn to the second problem with Sl. 2 sg. -si /-ši —
its relation to the shorter variant -sь/-šь.

4. This issue is slightly different from that of the origin of the °i
of -si/-ši. The facts are easily summarized. The Old Church Slavonic end-
ing is -ši. This is also the regular ending of the oldest Old Russian texts
(12th–13th c.), but this could be a Slavonicism. This caveat does not apply
to the Old Novgorod texts. Here -ši is the oldest form, whereas -šь appears

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[8] As already stressed by [Cowgill 2006: 553f.].

from the second half of the 12th century (cf. [Zaliznjak 2004: 136]). Leaving some relics aside (e.g. Ukr. *jesý*, Cz. *jsi*, SCr. *jèsi* 'you are'), in most Slavic languages *-šь* (*-š*) is the only ending from the oldest records. The Freising Fragments have two occurrences of the longer form and four of the shorter one (according to [Kortlandt 1979: 58]).

The evidence makes a decision rather uneasy. The fact that *-ši* is demonstrably old in OCS and East Slavic seems to support the widespread view that *-šь* is an irregular shortening of *-ši*; see especially [Vaillant 1966: 9]. Note that *-šь* became the regular form in both areas just as in the rest of Slavic. But this view is not unobjectionable. First, the alleged shortening *-si*/*-ši* > *-sь*/*-šь* cannot be formulated as a real sound law. The shortening of the infinitive (e.g. Ru. *dat'*, Pol. *dać* vs. OCS, ORu. *dati*) has often been adduced as a parallel, but the longer variant *-ti* was much more resilient (cf. [Vaillant 1966: 129–132]) and this, accordingly, only highlights the uniqueness of the alleged early shortening in the 2nd singular. Second, the textual priority of the longer form is not as conclusive as it may seem at first sight. As per [Lunt 2001: 237], what we really know is that OCS *-ši* "existed in the dialect of the original translators and had the full approval of early scribes". If Common Slavic had variation between *-ši* and *-šь* (which is perfectly possible), there is no particular reason why the marginal South Slavic dialects from which OCS emerged could not have generalized *-ši* by the 9th century. A similar caveat applies to the testimony of Old Novgorod (also a somewhat idiosyncratic variety of Slavic, if for different reasons).

In my view the shorter variant *-sь*/*-šь* is too widespread and too early to be meaningfully accounted for as a shortening of *-si*/*-ši*. I will thus assume that both 2 sg. *-si*/*-ši* and *-sь*/*-šь* were in use in Common Slavic, though I admit that the issue cannot be regarded as fully settled. The success of the shorter variant *neseš ь* in *all* later variants of Slavic is easy to understand, as *neseši* would have been rhythmically out of tune with disyllabic 1 sg. *nesǫ* and 3 sg. *nese(t)* (after the fall of the *jers*, OCS *nesetъ*, ORu. *nesetь*).

5. The balance of sections § 3–4 is largely negative: The Slavic 2 sg. present endings remain as obscure today as they were at the beginning of the 20th century. But it also includes some potentially useful conclusions:

First, the starting point can only be PIE 2 sg. *-*si*.

Second, since the traditional account of Sl. -*si*/-*ši* as a cross of *-*si* and *-*eı̯* is inherently unattractive (whereas EBl. athem. *-*sę́* can easily have °*ę́* from the thematic ending *-*ę́*, whatever the origin of the latter might be), it seems best to operate with independent innovations in Baltic and Slavic.

Third, serious acceptance of the antiquity of Sl. 2 sg. -*sь*/-*šь* has important consequences for -*si*/-*ši* as well. The issue is not just the °*i* as such, but *why* was a variant -*si*/-*ši* created beside the inherited (and actually preserved!) PIE 2 sg. *-*si* of Sl. -*sь*/-*šь*.

6. My proposal starts from an observation that will probably look like a paradox at first sight. The -*s*-/-*š*- of -*si*/-*ši* has always been identified with the *-*s*- of PIE 2 sg. *-*si*. This will of course not be challenged in what follows. My claim is that, in addition, it *also* continues the *-*s*- of another important verbal category of Balto-Slavic: the future. For convenience I will present my scenario as a narrative from early Balto-Slavic to historical Slavic (§ 10). It will be convenient to begin by enumerating the elements I will work with:

First, Balto-Slavic inherited from PIE a 2 sg. present ending *-*si*.

Second, the Balto-Slavic imperative continues the PIE optative. PIE thematic 2 sg. opt. *-*o-ı̯h₁-s* directly gave (late) BSl. 2 sg. imp. *-*aı̯s*,[9] whence OCS *ved-i*, OPr. *wed-ais*.

Third, Balto-Slavic possessed an athematic sigmatic future, preserved in East Baltic: Lith. 1 sg. *dúo-siu*, 2 sg. *dúo-si*, 3 *duõs*, 1 pl. *dúo-sime*, 2 pl. *dúo-site* "will give" = Latv. *duôšu*, *duôsi*, *duôs*, *duôsim*, *duôsit* (-*iẽt*).

The third element is the only one that may require some grounding. Relics of the East Baltic future in the other Baltic and Slavic languages include OPr. *postāsei* 'you will become' (see above § 2.3) and the Slavic fossilized participle RuCS *byšǫšt-*/*byšęšt-* 'about to be', ORu. *sъ-byšjuč-*, OCz. *probyšucný* 'useful' (< BSl. *bū̆-sı̯a-nt-* < PIE *bʰuH-sı̯o-nt-*, cf. Lith. *bū́-siant-*, YAv. *būšiiaṇt-*). The Balto-Slavic antiquity of the East Baltic future,

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[9] Through this article I note the Balto-Slavic acute as $\underline{\bar{E}}$ (whereas $\bar{E}$ expresses non-acute or simply length, without specification of acuteness). Stress position is marked as $\dot{E}$. I have kept the traditional notations for 'Proto-Slavic' (*recte* 'Common Slavic') and Proto-East Baltic.

however, should be clear even without these relics. It continues a PIE athematic desiderative with acrostatic ablaut also seen in the Sabellian future (Um. *ferest* 'feret', Osc. *deiuast* 'iurabit') and in relics all around the family (e.g. Ved. *cáṣṭe* 'looks at' < *$k^wéḱ$-s-, Hitt. *ganēšš-^{mi}* 'recognize' < *$ǵnéh_3$-s-).[10] It cannot be a Baltic innovation postdating the breakup of Balto-Slavic. We will return to the actual inflection of the Balto-Slavic future below.

7. The next step in our scenario is to consider what happened to these formations. The 2 sg. imperative *-*ai̯s* (< PIE *-o-i̯h_1-s*) was surely stable, but both the 2 sg. prs. *-si* and the future were affected by a major Balto-Slavic sound law: the partial apocope of word-final *-i*.

An early apocope of Balto-Slavic *-i* has often been proposed to account for formations like the *ā*-stem instr. sg. *-*ān* (Lith. *ger-ą́-ja*, OCS *žen-oj-ǫ*) < *-*ā-mi* < *-ah_2-mi* (cf. *i-*, *u*-stem *-i-mi*, *-u-mi*: Lith. *sūn-u-mì*, *ugn-i-mì*, ORu. *syn-ъ-mь*, *pǫt-ь-mь*) or the Slavic 1 sg. *berǫ* < *-*ōn* < *-*ō-mi* < *-oh_2+mi* (cf. Lith. *ved-ù*, *-úo-si* < *-*ō* < *-oh_2*). In [Villanueva Svensson 2017–2018] I have tried to demonstrate that the *i*-apocope was regulated by (Balto-Slavic) accent position: unaccented word-final *-i* was apocopated, accented *-i* remained. The contrast between apocopated *ā*-stem instr. sg. *-*ān* < *-*ā́-mi* (where °*i* was always unaccented after Hirt's law) and *i-*, *u*-stem *-i-mi*, *-u-mì* (where °*i* was accented in mobile paradigms) is particularly telling.

The 3 sg. *-ti* (and 3 pl. *-nti*) was clearly affected by the *i*-apocope, yielding apocopated *-t* in immobile paradigms (e.g. *pė́i̯s̨i̯et* 'writes' < *pė́i̯s-i̯e-ti*) and unapocopated *-ti* in mobile ones (e.g. *u̯ed-e-tì* 'leads'). Apocopated *-ti* > *-t* > *-Ø* led to zero-ending forms like Lith. *vẽda* or Sl. *vede* (PIE *u̯édʰ-e-ti*), whereas preserved *-tì* led to OLith. *ẽs-ti* or ORu. *das-tъ*, *vede-tъ*. See [Villanueva Svensson 2017–2018: 284–287] for a detailed treatment, including the more problematic OCS *vedetъ*. If the *i*-apocope affected 3 sg. *-ti* and 3 pl. *-nti*, it evidently must have affected the 2 sg. prs. *-si* as well.

Ex hypothesi, then, in the immediate aftermath of the *i*-apocope Balto-Slavic possessed a contrast between mobile 2 sg. *u̯ede-sì* 'you

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[10] I cannot here devote the necessary space to argue for this reconstruction; see most recently [Jasanoff 2019: 16–22].

lead', *$ar\underline{i}e$-si 'you plow', *$d\bar{\underline{o}}d$-si 'you give' and immobile *$p\dot{e}\underline{i}s\underline{i}e$-$s$ 'you write', *$b\dot{u}nde$-s 'you wake up', *$d\dot{e}d$-s 'you put' (< *-si). We do not know whether the original distribution of *-si and *-s was preserved or whether both variants were redistributed according to some other principle. We know that both 3 sg. prs. *-ti and *-t where there in late Balto-Slavic because the historical languages have regular reflexes of both. We cannot ascertain this for the 2 sg. *-si/*-s, but the fact that the 2 sg. present ending is problematic in both Baltic and Slavic suggests that the preservation of an apocopated variant *-s was one of the factors leading to the remodeling of this ending in both branches.

In the case of the present tense our current knowledge of Balto-Slavic accentuation allows us to determine the original distribution of apocopated and unapocopated 2 sg. *-si/*-s, 3 sg. *-ti/*-t and 3 pl. *-nti/*-nt. In the case of the future we are limited to internal reconstruction from East Baltic. Fortunately, this branch provides us with two important facts. First, the i-inflection outside of the 3rd person most probably spread from 3 pl. *-s-$\underline{n}ti$ > *-s-$inti$, reanalyzed as *-si-nti, cf. [Jasanoff 2003: 133]. Since the 3rd person never acquired i-inflection, it is reasonable to infer that by late Balto-Slavic it had only advanced to the plural and dual. Second, the endingless Lith. 3rd person $du\tilde{o}s$ evidently continues apocopated 3 sg. *$d\bar{\underline{o}}d$-s-ti > *$d\bar{\underline{o}}d$-s-t (> *$d\bar{\underline{o}}d$-s). This almost automatically implies that the 2 sg. was apocopated as well: *$d\bar{\underline{o}}d$-s-si > *$d\bar{\underline{o}}d$-s-s, no doubt realized as *$d\bar{\underline{o}}d$-s. We can thus postulate the following paradigm for the late Balto-Slavic future: 1 sg. *$d\bar{\underline{o}}d$-s-m (?), 2 sg. *$d\bar{\underline{o}}d$-s, 3 sg. *$d\bar{\underline{o}}d$-s-t, 1 pl. *$d\bar{\underline{o}}d$-si-me, 2 pl. *$d\bar{\underline{o}}d$-si-te, 3 pl. *$d\bar{\underline{o}}d$-si-nt.

8. It is clear, at any rate, that the future 2 sg. *$d\bar{\underline{o}}d$-s was even more in need of morphological repair than the 2 sg. of the present. There was no overt 2 sg. marker and after the loss of *-t in 3 sg. *$d\bar{\underline{o}}d$-s-t it would have entirely merged with the 3 sg. Even if the loss of post-apocope *-t in *$d\bar{\underline{o}}d$-s-t was relatively late in Baltic and Slavic, the risk of homophony between 2nd and 3rd singular must have been high in informal speech.

The problem, I submit, was remedied by adding the 2 sg. imp. *-$a\underline{i}s$ (< PIE 2 sg. opt. *-o-$\underline{i}h_1$-s) to the apparently unmarked 2 sg. fut. *$d\bar{\underline{o}}d$-s, yielding *$d\bar{\underline{o}}d$-s-$a\underline{i}s$. This may have happened already in Balto-Slavic (in which case 2 sg. *-$a\underline{i}s$ may still have been an optative) or in the

individual prehistory of Slavic (in which case it must have been an imperative). If the first option is chosen, the 2 sg. fut. *$d\bar{o}d$-s-$a\underset{\,}{i}s$ did not survive into historical Baltic (Lith. *dúosi*, Latv. *duôsi*, OPr. *postāsei*). Since in Baltic the 2 sg. ending has been renewed in ways that we do not yet understand, we cannot tell whether this is a serious handicap. I insist, in any case, that at present there is no reason to believe that the problems with the 2 sg. in Baltic and Slavic require a common Balto-Slavic explanation. In what follows I will assume that *$d\bar{o}d$-s → *$d\bar{o}d$-s-$a\underset{\,}{i}s$ was an exclusively Slavic development, but this does not play a major role in my scenario.

The adoption of an imperative (or optative) ending by the future may seem curious, but such transfers of endings between different moods and tenses are actually well paralleled. A particularly close example is the widespread Latvian 2 pl. future variant *duô-siẽt* beside inherited *duô-sit* (= Lith. *dúo-si-te*), with 2 pl. *-iẽt* taken from 2 pl. imp. *duôd-iẽt* (< PIE 2 pl. *-o-$\underset{\,}{i}h_1$-te). [11] Other well-known examples include the West Germanic replacement of Gmc. 2 sg. strong preterit *-t (< *-ta < PIE *-th_2a; Goth. -*t*, ON -*t*) with subj. 2 sg. *-$\bar{\imath}$ (< PGmc. *-$\bar{\imath}z$ < PIE opt. *-ih_1-s; OE -*e*, OS, OHG -*i*), [12] the 1 sg. *agam* of the Latin future (in contrast with *-$\bar{e}$- in the rest of the paradigm, 2 sg. *agēs*), taken from the subjunctive (*agam*, *agās*, *agat*, etc.), [13] or the Italian present 1 pl. *vendiamo* (from Latin subj. *-ēāmus*, *-iāmus*), 2 pl. *vendete* (from Lat. imp. *-te*). [14] More examples could be given, but these should suffice to establish the point. [15] Such transfers of endings are evidently grounded on pragmatic factors of one or another sort (e.g. politeness, cf. e.g. [Dunkel 1998]) and, generally speaking, seem to be favored by the presence of specific conditions making the inherited indicative ending somewhat problematic; see [Cowgill 1965] for a case study. There is probably no need to say that this was precisely the case of BSl. 2 sg. fut. *$d\bar{o}d$-s → pre-Sl. *$d\bar{o}d$-s-$a\underset{\,}{i}s$.

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[11] Cf. [Endzelin 1923: 657–659].

[12] Cf. [Ringe, Taylor 2014: 67–69], with references.

[13] Cf. [Weiss 2009: 415].

[14] Cf. [Alkire, Rosen 2010: 101].

[15] See the references given in this section for more candidates.

9. Proto-Slavic, then, inherited the following allomorphy in the 2 sg. The present had both *-*si* and *-*s* in a distribution that can no longer be recovered. Although this cannot be proved, there is no reason to believe that PIE secondary *-*s* was not preserved in the formations that inherited it (aorist, imperative). The future, finally, had a special allomorph *-*s-ai̯s*. This state of affairs did not last for long. The sigmatic future was lost. At some point final *-*s* was also lost. At a later stage 2 sg. *-*si* and *-*s-ai̯s* gave *-sъ* and *-si*, respectively. We will return to these changes below, but it should be clear by now that my proposal is to derive the Slavic 2 sg. present *-sъ/-šъ* from (PIE) *-*si* and *-si/-ši* from pre-Slavic 2 sg. fut. *-*s-ai̯s*. In what follows I will argue for this idea in more detail.

We of course do not know when the Balto-Slavic sigmatic future was lost in Slavic, but the evidence that we have suggests that this was a relatively recent development. We have a relic in RuCS *byšǫšt-/byšęšt-* 'about to be', ORu. *sъ-byšjuč-*. OCS employs a variety of strategies to express the future: the inherited present not only in perfective verbs (*damь* 'I will give'), but also in imperfective ones (*pьjǫ* 'I drink', 'I will drink'), as well as three periphrastic constructions (with *imamь* 'have', *xoštǫ* 'want' and *na-/vъ-čьnǫ* 'begin'), cf. [Vaillant 1966: 106–110]. It is well known that the different periphrastic futures of Slavic (including more recent ones, like the one with *bǫdǫ* 'will become') generally mirror those of the neighboring languages and were likely influenced by them (e.g. with *habēre* in Romance, with θέλω in Greek, or with *werden* in German). Vaillant [1966: 105] even plausibly suggests that the whole rebuilding of the future system in Slavic was due to Germanic influence. This would put the disappearance of the sigmatic future at a relatively low date (the *terminus post quem* would be the expansion of the Goths since the 2nd century AD, and possibly much later). The case of Slavic would thus be similar to that of Prussian a few centuries later. In a more general vein, it is well known that around 500–600 AD Proto-Slavic still sounded much "Baltic" and that the far-reaching phonological changes that gave Slavic its characteristic outcast took place in a limited period of time broadly coinciding with the Slavic migrations. From this point of view, it is actually expected that major morphological changes like the loss of the sigmatic future took place at a relatively late date as well.

The date of the loss of word-final *-s cannot be determined with certainty either. Word-final *-s certainly affected previous vowels (e.g. *ā*-stem gen. sg. PIE *-ah₂-as > BSl. *-ās > Sl. *-ūs > OCS *žen-y*, *vel sim*.), although the details remain controversial. [16] This seems to indicate that the loss of word-final *-s was not very old. Proto-Slavic is often reconstructed without final *-s (*o*-stem nom. sg. **vilku*, **vilkə*, *vel sim*., from BSl. **-as*), but this is not beyond reasonable doubt. Some Slavic personal names ending in nom. sg. *-as* are recorded in Byzantine sources from the second half of the 6th century (e.g. *Dabragezas*), but while the *-a-* must be a specific Slavic feature (see [Vermeer 2015: 4f.]), we cannot be certain that the final *-s also was.

Notwithstanding these uncertainties, the intrusion of 2 sg. fut. *-s-*a͜is* in the present is best seen in connection with the loss of the sigmatic future and the loss of word-final *-s. At the time when word-final *-s was being lost the 2 sg. *-sa͜is* of the future (a category that was probably in decay as well) was adopted as a way to provide a clearly marked 2 sg. ending. The process was almost certainly favored by pragmatic factors, as there were surely contexts in which the 2 sg. of the present and the future were basically interchangeable. *Ex hypothesi*, the replacement of 2 sg. *-s by *-sa͜is* must have taken place in verbs in which the apocopated variant was in use. An almost ideal candidate is the verb 'to be'. The present of this verb was almost certainly immobile, cf. OLith. *ne ẽsti*, prs. act. ptcp. *ẽsǫs* (the ending accentuation of Sl. **jesmь*, **jesi*, **jestь* is due to Dybo's law). The 2 sg. **ėsi* must thus have been apocopated in Balto-Slavic, yielding **ės*. It is well known that the copula may be highly irregular, but 2 sg. prs. **ės* must have become exceptionally problematic when final *-s began to be lost. In this context its replacement by **ėsa͜is*, with 2 sg. *-[s]a͜is* taken from the moribund sigmatic future, makes excellent sense. A clear parallel is provided by Spanish 2 sg. *eres* 'you are', etymologically the Latin 2 sg. fut. *eris* used in place of 2 sg. prs. *es*. [17] As in the case of Slavic, it constitutes one of the very few relics of the Latin future in Romance.

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[16] See [Olander 2015: 56f.; Kim 2019: 4–7], both with references.

[17] Cf. [Alkire, Rosen 2010: 120].

Other scenarios can surely be imagined. They would slightly alter the motivation and chronology of the process, but not the main picture. At some stage of the development of Slavic the apocopated 2 sg. present variant *-s was felt as problematic and was replaced by the 2 sg. of the future. The 2 sg. fut. *-s-$a\underset{\frown}{i}s$ was itself the product of a special development at a much earlier date (§ 8). As noted above, the transfer of endings between moods and tenses that this scenario requires is not a rare phenomenon. In the prehistory of Slavic, it was favored by specific formal problems at both stages. Once established in some verbs (the verb 'to be' being one of them), the new ending spread in different ways in different varieties of Slavic (§ 4).

10. There remain just a couple of issues to comment on. As noted above (§ 7), the distribution of *-s-$a\underset{\frown}{i}s$ (> CSl. -si) and *-si (> CSl. -sь) cannot be determined from the available evidence. Our proposal predicts CSl. -sь to be the ending of mobile presents (with accented and preserved *-si) and CSl. -si to be at home in immobile presents (with unaccented and apocopated *-si > *-s → *-s-$a\underset{\frown}{i}s$). This is almost surprisingly consistent with the evidence of the Freising Fragments and the Kiev Leaflets. According to Kortlandt [1979: 58], these texts present 13 examples of -si in the copula (esi; immobile), 2 of -sь in other athematic presents (including podasь, mobile), 3 of -šь in simple thematic presents (Leskien's Class I, mobile), and 3 of -ši in i-presents (Leskien's Class IV, consisting of both mobile and immobile verbs). The evidence is too limited to draw any conclusions, but at least the consistency of -si in the copula is eye-catching (and is actually supported by the evidence from the modern Slavic languages; see above § 2.1). The possibility cannot be excluded, however, that 2 sg. prs. *-si and *-s had been redistributed in ways that can no longer be recovered.

Finally, some notes on the phonology leading to Sl. -si/-ši and -sь/-šь. PIE/BSl. *-si > Sl. -sь/-šь does not of course require any comment. The development of word-final *$a\underset{\frown}{i}$ is a classical conundrum of Slavic historical grammar, but, fortunately, this does not affect the development of *-s-$a\underset{\frown}{i}s$ to -si/-ši. The fact that BSl. imp. 2 sg. *-$a\underset{\frown}{i}s$, 3 sg. *-$a\underset{\frown}{i}t$ (< PIE opt. 2 sg. *-o-$\underset{\frown}{i}h_1$-s, 3 sg. *-o-$\underset{\frown}{i}h_1$-t) gave 2/3 sg. ved-i allows us to expect the same result for 2 sg. fut. *-s-$a\underset{\frown}{i}s$ and this is what we have. I will limit

myself to add that most current theories on the development of word-final *$a\underset{\smile}{i}$ in Slavic predict *-s-$a\underset{\smile}{i}s$ to give -si/-ši by regular sound change. [18]

As noted at the beginning of this article (§ 2.1), the -š- of the dominant variant -ši/-šь is the only issue that has always been perfectly clear. It reflects the retracted variant *x of *s that arose in RUKI-rule contexts, which in turn implies that *-xi/*-xь arose in the i-presents of Leskien's Class IV. Its spread to practically all presents of the language (the four athematic presents to roots ending in a consonant were the only ones to keep -s-) accords well with the general tendency of Slavic to generalize -x- whenever the RUKI-rule gave rise to morphophonemic alternations between -s- and -x-, cf. [Andersen 1968].

2 sg. prs. *-xь was then affected by the 1st palatalization of velars, yielding attested -šь. Since 2 sg. *-x$a\underset{\smile}{i}s$ was not affected by the 1st palatalization (both results of PSl. word-final *$a\underset{\smile}{i}$, ě and i, trigger the 2nd palatalization; e.g. OCS nom. pl. vlьci, from vlьkъ 'wolf'), our scenario requires the longer variant -ši to have adopted its -š- from the shorter variant -šь (PIE/BSl. *-si): 2 sg. *-s$a\underset{\smile}{i}s$ → *-x$\underset{\smile}{a}\underset{\smile}{i}s$ (vel sim.) > *-xi → -ši. The process was no doubt favored by the presence of both -sь (< *-si) and -si (< *-s$a\underset{\smile}{i}s$) in the athematic presents (especially in the copula), where -si could easily be interpreted as a longer variant of -sь. To formulate it in proportional terms: -sь : -si = -šь : X, where X = -ši. Note that, if this is correct, the analogy leading to -ši took place in a relatively advanced stage of Common Slavic. It is thus possible that -ši originated in some areas of the Slavic territory, being a secondary import in others.

11. Summing up, in this article I have proposed to derive the two 2 sg. present ending variants of Slavic, -sь/-šь and -si/-ši, from pre-Slavic *-si and *-s-$a\underset{\smile}{i}s$, respectively. The first one unremarkably continues PIE 2 sg. *-si. The second one was taken from the sigmatic future 2 sg. *-s-$a\underset{\smile}{i}s$, a historically complex ending created in the prehistory of Slavic by adding the imperative 2 sg. *-$a\underset{\smile}{i}s$ (< PIE 2 sg. opt. *-o-$\underset{\smile}{i}h_1$-s) to 2 sg. fut. *-s (< *-s-si).

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[18] See [Olander 2015: 56, 323; Villanueva Svensson 2016: 173], both with references. A detailed discussion of the development of word-final *$a\underset{\smile}{i}$ in Slavic cannot be attempted here.

This set of innovations was unrelated to the (still fully unclear) set of innovations that led to the 2 sg. endings of Baltic.

Abbreviations

1, 2, 3 — 1st, 2nd, 3rd person; abs. — absolute; act. — active; athem. — athematic; conj. — conjunct; f. — feminine; fut. — future; gen. — genitive; impf. — imperfect; imp. — imperative; instr. — instrumental; loc. — locative; nom. — nominative; opt. — optative; pl. — plural; prs. — present; pret. — preterit; ptcp. — participle; refl. — reflexive; sg. — singular; subj. — subjunctive; them. — thematic.

Aeol. — Aeolic; BSl. — Balto-Slavic; CSl. — Church Slavonic; Cz. — Czech; Dor. — Doric; EBl. — East Baltic; Gk. — Greek; Gmc. — Germanic; Goth. — Gothic; Hitt. — Hittite; Lat. — Latin; Latv. — Latvian; Lith. — Lithuanian; Myc. — Mycenaean; OCS — Old Church Slavonic; OCz. — Old Czech; OE — Old English; OHG — Old High German; OIr. — Old Irish; OLith. — Old Lithuanian; ON — Old Norse; OPr. — Old Prussian; ORu. — Old Russian; OS — Old Saxon; Osc. — Oscan; PGmc. — Proto-Germanic; PIE — Proto-Indo-European; Pol. — Polish; Ru. — Russian; RuCS — Russian Church Slavonic; SCr. — Serbo-Croatian; Sl. — Slavic; Ukr. — Ukrainian; Um. — Umbrian; Ved. — Vedic; YAv. — Younger Avestan.

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