1. THE PARADIGM OF THE LATIN COPULA

The establishment of the class of root athematic verbs in Proto-Indo-European is one of the undoubted results achieved by the application of the comparative method. Representative of this inflectional type is the verb *es- "be", which shows the full grade of the root in the singular and the zero grade in the plural:

<table>
<thead>
<tr>
<th>PIE</th>
<th>Skt.</th>
<th>Lat.</th>
</tr>
</thead>
<tbody>
<tr>
<td>sg. 1  *ésmi</td>
<td>ásmi</td>
<td>sum</td>
</tr>
<tr>
<td>2        *és(s)i</td>
<td>ásí</td>
<td>es</td>
</tr>
<tr>
<td>3        *ésti</td>
<td>ásti</td>
<td>est</td>
</tr>
<tr>
<td>pl. 1  *smés, *smós</td>
<td>smás</td>
<td>sumus</td>
</tr>
<tr>
<td>2        *sté</td>
<td>sthá</td>
<td>estis</td>
</tr>
<tr>
<td>3        *sénti, *sónti</td>
<td>sánti</td>
<td>sunt</td>
</tr>
</tbody>
</table>

The original Ablaut pattern with the accented root in the singular and the accented ending in the plural is faithfully retained in Sanskrit. Latin forms, however, cannot be straightforwardly accounted for from a phonological point of view. The essential difficulties in deriving the paradigm of Latin sum from its IE ancestor are summarized as follows:

1. the element $u$ found after the root in the 1 sg. and 1 pl.\(^1\)
2. zero grade of the root in the 1 sg.
3. full grade of the root in the 2 pl.

As regards the first point, Buck (1933: 273) claims that the $u$ (<*$o$) of sum (<*$som$) and sumus (<*$somos$) is attributed to the 3 pl. form sunt (<*$sonti$). This analogical explanation is, however, far from satisfactory because it is not easy to understand why $o$ was extended only to the first person forms, not to the whole paradigm.

Both the second and the third problems reject any phonological solutions, thus explanations, if any, being probably given from a morphological viewpoint. For the third problem, Buck, *op. cit.*, assumes that the full grade vocalism of the root in the 2 pl. estis (<*$es-te-s$) is carried over from the singular. Here again, however, it is totally uncertain why full grade was not generalized throughout the

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A Typological Parallel between Latin and Old Church Slavic

paradigm. Watkins (1969: 321f.), on the other hand, suggests that the full grade was originally proper to the 2 pl. as well as the singular and that the apophonic pattern of Lat. *sumus, estis, sunt* represents a striking archaism in this respect. Promising as his argument is, the Hittite evidence to which he has attached enormous weight remains to be more exhaustively examined.

Of course, it is not my intention here to offer absolutely convincing solutions to these thorny problems observed in the paradigm of the Latin copula. As for the *u* (\(<*o>\) found before the first person singular and plural endings, however, I would like to argue that it is best regarded as a thematic vowel inserted partially inside the paradigm. This explanation would be completely *ad hoc* if powerful support is not gained from anywhere. But an exactly parallel phenomenon is observed in a different Indo-European language. This language is Old Church Slavic (OCS); the verbal category in question is the sigmatic aorist. Before we directly proceed to the important forms in OCS, however, the original inflectional pattern of the *s*-aorist in the parent language must be seriously entertained.

2. INDOPROTOEUROPEAN SIGMATIC AORIST

It is well known that a few IE languages show lengthened-grade root vocalism in all or some of their active forms of the *s*-aorist. In Vedic Sanskrit four types of sigmatic formations are synchronically distinguished: the *s*-aorist, the *is*-aorist, the *sīs*-aorist and the *sa*-aorist. Among these the first two constitute one and the same category inherited from Proto-Indo-European. The difference between the *s*- and *is*-aorists is ultimately attributed to the structural difference of roots to which -*s* is attached; in general, the *s*-aorist is associated with *anīt*-roots (e.g., *avāt* "he carried") \(<*e-uyēgh-s-t\) and the *is*-aorist with *set*-roots having a root-final laryngeal (e.g., *ataŕit* "he passed") \(<*e-tērā-s-t <*e-tērH-s-t\)\(^4\). The *sīs*-aorist and the *sa*-aorist are, on the other hand, secondarily created formations best explained as the sigmatized *is*-aorist and *a*-aorist (= thematic aorist), respectively. If all the inflected *s*-aorist indicative forms were attested from the root *vah-* (IE \(*uegḥ-\) "carry") in the active and from *stu-* (IE \(*steu-\) "praise") in the middle, the following paradigm would be expected:\(^5\):

<table>
<thead>
<tr>
<th>active</th>
<th>middle</th>
</tr>
</thead>
<tbody>
<tr>
<td>sg. 1</td>
<td><em>e-uyēgh-s-m</em>&lt;sub&gt;0&lt;/sub&gt;</td>
</tr>
<tr>
<td>2</td>
<td><em>e-uyēgh-s-m</em>&lt;sub&gt;0&lt;/sub&gt;</td>
</tr>
<tr>
<td>3</td>
<td><em>e-uyēgh-s-m</em>&lt;sub&gt;0&lt;/sub&gt;</td>
</tr>
<tr>
<td>pl. 1</td>
<td><em>e-uyēgh-s-m</em>&lt;sub&gt;0&lt;/sub&gt;</td>
</tr>
<tr>
<td>2</td>
<td><em>e-uyēgh-s-m</em>&lt;sub&gt;0&lt;/sub&gt;</td>
</tr>
<tr>
<td>3</td>
<td><em>e-uyēgh-s-m</em>&lt;sub&gt;0&lt;/sub&gt;</td>
</tr>
</tbody>
</table>

As the above paradigm clearly shows, the *s*-aorist in Vedic Sanskrit is generally
characterized by a lengthened grade -ē- in the active and a full grade -e- in the middle.

Although Latin perfect endings are fairly faithful continuants of an Indo-European perfect (1 sg. -i < *-ai < *-h₂e+i, 2 sg. -istē < *-[is]+tai < *-th₂e+i, 3 sg. -it < *-[i]r < *-e+i, 3 pl. ĕrē < *-ĕr+i), its stem formations are varied and cannot be derived from any single IE category. Even if all the dubious examples are excluded, the following forms certainly show the inherited lengthened-grade root enlarged by -s-:

\[ \text{uēxī “I carried”} \ < *\text{yēgh-s-}h₂e-i \]
\[ \text{tēxī “I covered”} \ < *(s)tēg-s-}h₂e-i \]
\[ \text{rēxī “I ruled”} \ < *rēg-s-}h₂e-i \]

The ē-grade vocalism of the root is extended inside the paradigm of these Latin verbs.

Other major IE languages which widely use the s-aorist are Greek and Old Irish, both of which came to have innovative endings in their individual history. Greek generalized -σα- in its endings except in the 3 sg. (1 sg. -σα, 2 sg. -σας, 3 sg. -σε, 1 pl. -σαμεν, 2 pl. -σατε, 3 pl. -σαν). The -σα- element is due probably to paradigmatic extension of the 1 sg. -σα (« *-s-σ) and 3 pl. -σαν (« *-s-σ). Old Irish s-preterites present an idiosyncrasy in that only the 3 sg. is athematic (conjunct 3 sg. -ϕ < *-ss < *-s-t; 1 sg. -us < *-ssū < *-ssō, 2 sg. -is < *-ssī < *-ssesi, 1 pl. -sam < *-ssomos, 2 pl. -said < *-ssete, 3 pl. -sat < *-ssont). But this unique feature is consistently observed in all the Old Irish s-formations and the s-preterite in Old Irish must have been athematic in origin. As to the root vocalism, neither Greek nor Old Irish shows the lengthened grade unlike Sanskrit and Latin.

Considering the facts given above, there can be no reasonable doubt that the ē-grade in the s-aorist goes back to the common period; observe especially the undeniable correspondence Skt. avāksam : Lat. uēxī (« *yēgh-s-). A notable exception to this view is C. Watkins, who claimed that the lengthened grade characteristic of Indo-Iranian and Latin was a parallel but independent creation inside each of these dialects. There is, however, good reason to refute his view. From a theoretical point of view, Watkins (1962) is highly dependent on the Ablaut theory envisaged by Kuryłowicz (1956) that the lengthened grade is the latest apophonic development in Indo-European. But it is now widely recognized that the ē-grade was fully established in the parent language; Narten (1968) has pointed out a verbal type marked by ē-grade in the active singular and e-grade elsewhere (cf. Vedic stāuti “praises” < *stēu-ti, 3 sg. middle stāve < *stēy-oit and the same type with ē- in the strong cases and -e- in weak cases has been observed in the noun as well by Schindler (1975); cf. nom. sg. *iēk-ē- “liver”: gen. sg. *iēk-ē- exemplified by Skt. yāktṛ, yakṣṇāḥ, Gk. ῥ π ᾱ θ σ, ῥ π α τ ος, etc. In addition Tocharian A preserves
decisively important forms which reject Watkins' view: These forms are 3 sg. 
\( ñakās \) “he destroyed” and 3 pl. \( ñakār \) “they destroyed” of class III preterite. Toch. 
A \( a \) and Toch. B \( e \) go back to Common Toch. *ā which is, in turn, a reflex of 
either PIE *o or *ē. The initial palatalized \( ń \) in the above two forms, however, 
points to the original ˇvocalism in the root (*nek-s-).

The overall discussion given above naturally leads us to assume that the PIE 
s-aorist showed the “acrostatic” inflection characterized by lengthened grade in the 
active singular and by full grade elsewhere. After separation from the common 
ancestor Sanskrit and Latin preferred *-ē- in the active paradigm, while *-e- 
was generalized in Greek and Old Irish.  

3. THE PARADIGM OF THE OLD CHURCH SLAVIC SIGMATIC AORIST

The essential features of the Indo-European sigmatic aorist discussed in the 
previous section are considerably well preserved in Old Church Slavic. In his 
descriptive handbook of Old Church Slavic, Lunt (1974: 90) classifies the OCS 
sigmatic aorists into three types, the “s-aorist”, the “x-aorist” and the “ox-aorist”. 
The paradigms of these three types may be represented below by the verbs, vesti 
“to lead”, reći “to say” and nesti “to carry”, respectively.

s-aorist

\[
\begin{array}{c|ccc|c|ccc|c|ccc|c}
& \text{1} & \text{2} & \text{3} & & \text{1} & \text{2} & \text{3} & & \text{1} & \text{2} & \text{3} \\
\hline
\text{sg.} & \text{vest} & (< *ved-s-o-m) & & \text{du.} & \text{veso} & (< *ved-s-o-vē) & & \text{2} & \text{ved} & (< *ved-e-s) & \text{2} & \text{ved} & (< *ved-e-t) \\
\text{2} & \text{ved} & (< *ved-e-s) & & \text{3} & \text{ved} & (< *ved-e-t) & & \text{2} & \text{ved} & (< *ved-s-tā) & \text{3} & \text{vēste} & (< *ved-s-te) \\
\text{3} & \text{ved} & (< *ved-e-t) & & & & & & \text{3} & \text{vēste} & (< *ved-s-te) & \\
\hline
\text{pl.} & \text{vesomo} & (< *ved-s-o-mos) & & & & & & \text{veso} & \text{(< *ved-s-te) & } & \text{3} & \text{vēste} & (< *ved-s-te) \\
\text{2} & \text{vēste} & (< *ved-s-te) & & & & & & \text{3} & \text{vēste} & (< *ved-s-te) & \\
\text{3} & \text{vēste} & (< *ved-s-nt) & & & & & & & & & \\
\end{array}
\]

x-aorist

\[
\begin{array}{c|ccc|c|ccc|c|ccc|c}
& \text{1} & \text{2} & \text{3} & & \text{1} & \text{2} & \text{3} & & \text{1} & \text{2} & \text{3} \\
\hline
\text{sg.} & \text{rexo} & (< *rek-s-o-m) & & \text{du.} & \text{rexo} & (< *rek-s-o-vē) & & \text{2} & \text{rek} & (< *rek-e-s) & \text{2} & \text{rek} & (< *rek-e-t) \\
\text{2} & \text{rek} & (< *rek-e-s) & & \text{3} & \text{rek} & (< *rek-e-t) & & \text{2} & \text{rek} & (< *rek-s-tā) & \text{3} & \text{rēste} & (< *rek-s-te) \\
\text{3} & \text{rek} & (< *rek-e-t) & & & & & & \text{3} & \text{rēste} & (< *rek-s-te) & \\
\hline
\text{pl.} & \text{rekom} & (< *rek-s-o-mos) & & & & & & \text{reko} & \text{(< *rek-s-te) & } & \text{2} & \text{rēste} & (< *rek-s-te) \\
\text{2} & \text{rēste} & (< *rek-s-te) & & & & & & \text{3} & \text{rēste} & (< *rek-s-te) & \\
\text{3} & \text{rēste} & (< *rek-s-nt) & & & & & & & & & \\
\end{array}
\]

ox-aorist

\[
\begin{array}{c|ccc|c|ccc|c|ccc|c}
& \text{1} & \text{2} & \text{3} & & \text{1} & \text{2} & \text{3} & & \text{1} & \text{2} & \text{3} \\
\hline
\text{sg.} & \text{nesox} & (< *nek-os-o-m) & & \text{du.} & \text{nesox} & (< *nek-os-o-vē) & & \text{2} & \text{nek} & (< *nek-e-s) & \text{2} & \text{nek} & (< *nek-e-t) \\
\text{2} & \text{nek} & (< *nek-e-s) & & \text{3} & \text{nek} & (< *nek-e-t) & & \text{2} & \text{nek} & (< *nek-os-tā) & \text{3} & \text{nesosto} & (< *nek-os-te) \\
\text{3} & \text{nek} & (< *nek-e-t) & & & & & & \text{3} & \text{nesosto} & (< *nek-os-te) & \\
\hline
\text{pl.} & \text{nesoxm} & (< *nek-os-o-mos) & & & & & & \text{nesox} & \text{(< *nek-os-te) & } & \text{2} & \text{nesosto} & (< *nek-os-te) \\
\text{2} & \text{nesosto} & (< *nek-os-te) & & & & & & \text{3} & \text{nesosto} & (< *nek-os-te) & \\
\end{array}
\]
Synchronically, the s-aorist is characterized by the -s- element throughout the paradigm except in the second and third person singular. The x-aorist is slightly different from the s-aorist in having -x- in the first person and -ʃ- in the third person plural instead of -s-, whereas the -ox-aorist is further modified by insertion of -o- before the -s-, -x- and -ʃ-.

From a historical point of view, the lengthened grade of the root (OCS ʃ < PIE *ʃ) is generalized inside the s- and x-aorist paradigms except in the second and third person singular, where the ʃ-grade vocalism, together with the element -s-, is lacking. Schmalstieg (1976: 105) argues that the second and third singular forms originate from the root aorist ("strong aorist" in his term). Another possibility suggested by Meillet (1924: 212f.) is a thematic imperfect, which would be favored in terms of the root vocalism identical to that of the present stem and the existence of the thematic vowel -e-. In any event the second and third person singulars are not lineal descendants of the IE sigmatic aorist.

The s-aorist and x-aorist are originally variants in different phonological environments, both of which basically inherit the Indo-European s-aorist. Diels (1932: 239) states:

Im Suffix herrscht entweder -s- (ohne weiterer Änderung) oder -x- (das vor den mit -ʃ- beginnenden Endungen als -s-, in der 3 pl. als -ʃ- erscheint). Und zwar herrscht -s- bei den Stämmen auf -r-, -d-, -p-, -b-, -s-, -z-, -m-, -n-, ..., Dagegen herrscht -x- (-s-, -ʃ-) bei Stämmen auf -k-, -g-, -r-, -l- und Vokale, ...

This statement is no doubt correct from a synchronic point of view, but the original distribution of -s-, -x- and -ʃ- was determined by two purely phonological rules, that is, the so-called "ruki-rule" and the "first palatalization". They are roughly formulated as follows:

ruki-rule:  
\[ s \rightarrow x \begin{cases} r \\ x' \end{cases} \begin{cases} u \\ k \end{cases} \begin{cases} t \\ z \end{cases} \] [+syllabic]

first palatalization:  
\[ k, g, x \rightarrow ʃ, ʒ, ʃ \begin{cases} V \\ [− back] \end{cases} \]

It is important to notice that the above two rules operated feedingly in this order. Accordingly, -x- in the first person and -ʃ- in the third person plural were at first limited to the roots ending in -r, -u, -k, -ʃ and then analogically spread to other roots.

As for the ox-aorist, the complete absence of the ʃ-vocalism of the root and the persistent -o- between the root and -s- (-x-, -ʃ-) unambiguously indicate that it is a
relatively younger formation secondarily created. Therefore serious consideration
will not be given to the ox-aorist hereafter, though synchronically it is a productive
type.

Of enormous importance to our present discussion are the first person forms,
which underwent thematization regardless of the number. It is particularly in-
teresting that the thematization is confined to the first person forms and not found
anywhere. Favoring the view put forth in the preceding section that the IE
sigmatic aorist was characterized by the "acrostatic" type of Ablaut, the OCS 1
g. věsъ, 1 du. věsovъ and 1 pl. věsomъ is informally derived from the protoforms in
the following manner:\(^1\):

\[
\begin{align*}
\text{věsъ} & \quad < \quad * \text{věd-s-o-m} & \quad < \quad \text{PIE} \quad * \text{uědh-s-m} \\
\text{věsovъ} & \quad < \quad * \text{věd-s-o-vě} & \quad < \quad \text{PIE} \quad * \text{uědh-s-vě} (\text{?}) \\
\text{věsomъ} & \quad < \quad * \text{věd-s-o-mos} & \quad < \quad \text{PIE} \quad * \text{uědh-s-mos}
\end{align*}
\]

Needless to say, loss of final nasals and simplification of consonant clusters are
involved in the prehistory of these OCS forms in addition to the thematization and
extension of e-grade vocalism.

The x-aorist shows independent evidence for the restriction of thematization
to the first person forms. As we have already seen, *s- must be followed by a
vowel so that the ruki-rule may change it to -x-. Accordingly the x-aorist forms, 1
sg. réxъ, 1 du. réxo and 1 pl. réxomъ, for example, go back to the thematized
preforms, *rěk-s-o-m, *rěk-s-o-vě and *rěk-s-o-mos, respectively. If these forms had
not undergone thematization, the expected forms would be 1 sg. **řešъ (< *rěk-s-
im < *rěk-s-m) affected by the ruki- and first palatalization rules, 1 du. **řešvъ (<
*rěk-s-vě) and 1 pl. **řešmъ (<*rěk-s-mos), but they are not actually attested.

The unmodified -s- in the 2 du. rěsta (<*rěk-s-tá), 3 du. rěste (<*rěk-s-te) and 2 pl.
rěste (< *rěk-s-te) unmistakably shows that they are not thematized. The 3 pl. rěšъ
can theoretically be derived either from *rěk-s-nt (> *rěk-s-int) or from *rěk-s-ent.

But the comparative evidence suggests that the former be more preferable because
it does not require any further secondary transformations\(^2\). The partial thema-
tization found exclusively in the first person forms of sigmatic aorists must have
occurred very early in the prehistory of Old Church Slavic; it antedates the
ruki-rule and first palatalization at latest. At this point it may be appropriate to
summarize the derivational history of several crucial forms:\(^3\):

<table>
<thead>
<tr>
<th>Proto-Slavic</th>
<th>3 sg.</th>
<th>1 pl.</th>
<th>2 pl.</th>
<th>3 pl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>reket</td>
<td>rěksmos</td>
<td>rěkste</td>
<td>rěksint</td>
<td></td>
</tr>
<tr>
<td>partial thematization</td>
<td>—</td>
<td>rěksmos</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>loss of finals</td>
<td>reke</td>
<td>rěksomъ</td>
<td>—</td>
<td>rěkšъ</td>
</tr>
<tr>
<td>ruki rule</td>
<td>—</td>
<td>rěkxomъ</td>
<td>—</td>
<td>rěkxъ</td>
</tr>
<tr>
<td>C-cluster simplification</td>
<td>—</td>
<td>rěxomъ</td>
<td>—</td>
<td>rěxъ</td>
</tr>
</tbody>
</table>
first palatalization

<table>
<thead>
<tr>
<th>Language</th>
<th>Form 1</th>
<th>Form 2</th>
<th>Form 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old Church Slavic</td>
<td>реё</td>
<td>реёмо</td>
<td>реё</td>
</tr>
</tbody>
</table>

4. EPILOGUE

There is no doubt that the verb *es- “be” and the s-aorist were both characterized by the athematic inflection in the common period, though they belonged to different inflectional types. It is also a well-known fact that thematization is a pan-Indo-European phenomenon observable in the history of individual languages. Therefore it is not unreasonable to suppose that both the Latin copula and OCS sigmatic aorists underwent thematization in their prehistory. What is conspicuously remarkable in both cases is that only the first person forms were thematized. This idiosyncracy shared by Latin and Old Church Slavic is most appropriately interpreted as resistance to the entire transfer to a more general and productive type, i.e., thematic conjugation.

Incidentally, we have seen in the preceding section that the OCS sigmatic aorists were partially thematized very early in its prehistory. If this is also the case with Latin, the 1 sg. sum can be derived by the proportion such as eramus : eram = sumus : X, with X = sum having replaced the older *esum (< *esom)14).

NOTES

1) The 3 pl. form must be segmented into s-unt, where the ending -unt (< *-ont) is probably an apophonic variant of -ent; cf. Doric ēvē, Gothic sind vs. Old Church Slavic sōtē.
2) A good summary of the literature on the problems is found in Nyman (1977). Nyman’s own scenario of the mechanism of remodeling processes is quite insightful, but still nondemonstrable in my judgement.
3) A similar view has already been presented tentatively by many scholars; e.g., Ernout (1953: 176).
4) In Iranian any kind of laryngeals disappeared between consonants, which caused the entire absence of ḫ-aorist in this branch.
5) The dual forms, which do not have immediate relevance to the present discussion, are omitted for convenience’ sake.
6) There are a number of roots which show a zero-grade in the middle; e.g., asāta < *e-af-s-to (ṣrj- “emit”). The root vocalism in the middle forms of these verbs is, in all probability, secondary.
7) Old Irish has a descriptive category named ‘t-preterite’, which Watkins (1962 : 156ff.) has convincingly shown to be a transformed variant of the s-aorist.
9) Some of the Hittite and Tocharian facts are not easily reconciled with this reconstruction. These problems are, however, of no immediate relevance here.
10) The following discussion is limited to the active paradigm because Balto-Slavic systematically lost the Indo-European middle.
11) The choice of the -o- in the first person is consistent with the general distribution of thematic vowels.
12) The phonological outcome of the syllabic resonant *ŋ in Balto-Slavic is *in. In Slavic *in became *n before vowels and *ŋ before consonants. In any event, the 3 pl. -č never goes back to *-ont, the o of which is, according to Buck's speculation, a possible source of o of Latin 1 sg. sum and 1 pl. sumus, as we have earlier seen.

13) The relative ordering of "loss of finals" and "C-cluster simplification" to the other rules is not relevant here, and therefore their positions in this derivation are only provisional. The C-cluster simplification, however, must follow the ruki-rule.

14) This analogical change is against Kurylowicz' second "law" of analogy: "les actions dites 'analogiques' suivent la direction: formes de fondation → formes fondées, dont le rapport découle de leurs sphères d'emploi." It must be noted that there are a considerable number of examples which do not obey his laws.

References


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