# PHONOLOGICAL ANSWERS TO ORTHOGRAPHIC PROBLEMS.
# ON THE TREATMENT OF
# NON-SIBILANT OBSTRUENT + LIQUID GROUPS
# IN HISPANO-CELTIC

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**Preliminary matters**

**§1.** The large majority of the corpus of Hispano-Celtic linguistic records is engraved in an adaptation of the Iberian script, which has segmental characters for vowels, sonorants, and sibilants, and moraic characters — which do not code voicing[1]— for non-sibilant obstruents. The typical character shapes of the eastern school of writing and their transcriptions are as in (1):[2]

(1)

| | | | | | |
|---|---|---|---|---|---|
| **a** = ⊳ | **Pa** = Ⅰ | **Ta** = ✕ | **Ca** = ⋀ | **m** = Ⴗ | **n** = Ｖ |
| **e** = Ⱶ | **Pe** = ⊗ | **Te** = ◈ | **Ce** = ⟨ | **l** = ↾ | **ŕ** = ♢ |
| **i** = Ｍ | **Pi** = Γ | **Ti** = Ψ | **Ci** = ↘ | **ś** = ⋀ | **s** = ⚡ |
| **o** = Ⱶ | **Po** = ✕ | **To** = ш | **Co** = ⊠ | | |
| **u** = ↑ | **Pu** = ☐ | **Tu** = Δ | **Cu** = ◇ | | |

**§2.** As has long been recognised, one of the principal difficulties that arises in the script is that it is not possible to spell /TL/ groups straightforwardly.[3] The orthographic convention which was developed to spell such groups is to write a moraic character whose vocalic colour copies that of the following etymological vowel, i.e., to spell a so-called 'dead' vowel, a system familiar from the Linear B script (see Woodard 1994 and Bartoněk 2003: 109–110), e.gg.:

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[1] At least, not usually. Jordán Cólera 2005 makes an interesting case that five inscriptions have introduced a voicing distinction into some of the moraic characters

[2] I employ the traditional transcriptions of the sibilant characters, whereby ⋀ = ‹ś› and ⚡ = ‹s›. Since the mid-1990s, two other systems have become common: That of the Spanish school transcribes ⋀ as ‹s› and ⚡ as ‹z› (roughly since Villar 1995); that of the German school transcribes them as ‹s› and ‹đ›, respectively (roughly since Untermann 1997). My reasons for maintaining the traditional transcriptional system are set out in Eska 2002: 141[2].

[3] L = any liquid; T = any non-sibilant obstruent; V = any vowel.

(2)  a. nom. sg. *a-re-ku-tu-ru-wo*; cf. ἀλεκτρυών 'cock'.
     b. acc. sg. *ka-ra-te-ra*; cf. κρατῆρα 'mixing vessel'.
     c. nom. sg. *ko-no-so*; cf. Κνωσ(σ)ός 'a toponym'.

Some tokens of this convention in Hispano-Celtic are:

(3)  a. **PalaCoś** (MLH K.1.3 iv 18; nom. sg.) /ɸlakkos/ 'an idionym'; cf. Lat. *Flaccus*.
     b. **ConśCiliTom** (MLH K.1.1 A3; acc. sg.) /konsklitom/ 'cut up' < *\*skl̥-tó-*.
     c. **ČolouńioCu** (MLH A.67.1; gen. pl.) /klownioku:/ 'an abbreviated derivative of a toponym'; cf. CLOVNIOQ (MLH A.67.2) in Roman characters.
     d. **aPulu** (e.g., MLH K.1.1 A11; nom. sg.) /ablu:/ 'an idionym'; cf. Latinised ABLO (AE 1979, 377 = 1983, 602 = 1984, 586).
     e. **enTaŕa** (MLH K.1.1 A6; prep.) /entra:/ 'within'; cf. Lat. *intrā*.
     f. **śeCoPiŕiCea** (MLH K.0.3; nom. sg.) /segobrigia:/[4] 'an adjective derived from a toponym'; cf. SEGOBRIGA (MLH A.89.5) in Roman characters.

It is important to note that some combinations of non-sibilant obstruent + liquid making use of a dead vowel are not securely attested, or, indeed, not attested at all.

(4)  a. **Xele** for /Tle/ is not attested.[5]
     b. **Xeŕe** for /Tre/ is not attested.[6]
     c. **Xoŕo** for /Tro/ is not certainly attested. The only potential token is a form which is uncertainly read as **a|nṬiŕ|oś** or **a|nṬoŕ|oś** (MLH K.0.10).[7] Should the latter be correct, it is not certain that it would necessarily represent /antros/ or /andros/.
     d. **Xuŕu** for /Tru/ is not certainly attested. **TuŕumoCum** (e.g., MLH K.1.3 i 24) is obscure, and it appears likely that **TuŕunTaś** (Bot. IV A3) contains /tur(r)u/-.

**§3.** In addition to this convention, all previous commentators recognise two other, much less common, techniques for writing /TL/ groups (Lejeune 1955: 58–60; Schmoll 1959: 8 & 101; Untermann 1997: 380–381; Wodtko 2000: xxiii–xxiv; Jordán Cólera 2004: 31). The first posits an orthographic metathesis of the liquid and following etymological vowel; thus, e.g., ‹**Tiŕ**›= /tri/ or /dri/. The clearest token is:

(5)  **ConTeŕPia** (MLH A.75.2; nom. sg.) 'a toponym'; cf. Latinised loc. sg. CONTREBIAE (AE 1979, 377 = 1983, 602 = 1984, 586).

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[4] The attested form is a token of quasi-phonetic orthography, in which phonemic -/ia:/ shows lowering of the high vowel to -[ea:] by vowel affection.
[5] I employ **X** as a cover symbol for the obstruent component of moraic characters.
[6] In view of gen. sg. **TuaTeŕoś** (MLH K.1.3 iii 24), nom. pl. **TuaTeŕeś** (MLH K.1.3 ii 40) must surely represent /duateres/.
[7] Epigraphic abbreviations: Round brackets ( ) indicate characters not incised by the engraver; the underdot ˳ indicates characters that are damaged and/or no longer clearly legibile; the pipe | indicates line breaks.

Many other likely tokens are based upon \*_trito_-, the ordinal 'third':[8]

(6)　　a. **TiŕTanoś** (e.g., MLH K.16.1; nom. sg.) 'an idionym';[9] Latinised nom. sg. TRITIANVS (AE 1983, 512).
　　b. **TiŕTano** (MLH K.1.3 ii 46; gen. sg. of (6a)).
　　c. **TiŕTaniCum** (e.g., MLH K.1.3 i 1; gen. pl.) 'a family name derived from (6a)').
　　d. **TiŕToCum** (Torrijo del Campo (Teruel);[10] gen. pl.); 'a family name'.
　　e. **TiŕToPoloCum** (e.g., MLH K.1.3 i 47; gen. pl.); 'a family name'.
　　f. **TiŕToTulu** (Museo de Cuenca; nom. sg.);[11] 'an idionym'.
　　g. **TiŕTouioś** (MLH K.1.3 ii 16; nom. sg.) 'an idionym'; cf. Latinised PENTOVIVS (e.g., CIL ii 6338$_k$).
　　h. **TiŕTu** (e.g., MLH K.1.3 ii 22; nom. sg.); 'an idionym'; cf. TRIDONIECV (MLH K.14.2).
　　i. **TiŕTunoś** (MLH K.1.3 ii 42; gen. sg. of (6h)).

The second posits the orthographic suppression of the liquid character, e.gg.:

(7)　　a. **ConPouTo** (MLH A.74; gen. sg.) 'a toponym'; cf. Hellenised nom. sg. *Κόμπλουτον* (Ptolemy, 2.6.56).
　　b. **ConTePaCom** (e.g., MLH A.75.1; nom. sg.) 'an adjective derived from (5)'; cf. Latinised nom. sg. CONTREBIENSIS (AE 1979, 377 = 1983, 602 = 1984, 586).
　　c. **ConTePias** (MLH K.0.2; abl. sg.) 'a toponym'; cf. Latinised loc. sg. CONTREBIAE (AE 1979, 377 = 1983, 602 = 1984, 586).
　　d. **neŕToPiś** (MLH A.50.1; nom. sg.) 'a toponym'; cf. *Νερτόβριγα* (Ptolemy, 2.4.10).

## Not orthographic, but phonological, metathesis

**§4.** In this paper, I argue, instead, that the only orthographic convention for spelling /TL/ groups makes use of a dead vowel that copies the colour of the following etymological vowel, as in **Tiŕiś** = /tri:s/ (MLH K.1.1 A6; acc.) 'three'. The two alternatives described in §3 do not represent orthographic conventions, but real —sporadically implemented— phonological changes.[12]

**§5.** Orthographies such as **ConTeŕPia**, then, do not represent an orthographic metathesis, but a phonological one. In fact, many commentators already allow for such an analysis for the forms in ‹**TiŕT**-› on the basis of orthographic variations such as those in (8) (Tovar 1949a: 274 = 1949b: 139; Lejeune 1955: 58; Untermann 1997: 381; Wodtko 2000: 395) — though not elsewhere.

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[8] There are numerous other possible tokens, but none with a good etymology, so I do not list them.
[9] Perhaps Latinised as DIRTANVS in an inscription from Hinojosa de Jarque (Teruel), on which see Siles 1985.
[10] See Vicente Redón & Ezquerra Lebrón 1999, Rubio Orecilla 1999, and Jordán Cólera 2004: 319–323 on this inscription.
[11] See Lorrio & Velaza 2005 on this inscription of unknown provenance.
[12] Hoenigswald 1964: 205–206 notes that nasals and liquids are particularly subject to sporadic phonological changes.

(8)　　a. 1. TRITALICVM (CIL ii 5077).
　　　　　　 2. TIRDALICO(m) (CIL ii 6338^ff).
　　　　 b. 1. TRITAI (CIL ii 2953).
　　　　　　 2. TIRDAI (AE 1920, 80).

It is also to be noted, as commented upon by Wodtko 2000: 395, that the sequence /tri/- is spelt ‹Tiŕi›- in forms such as those in (9) from the Botorrita I (MLH K.1.1) and Botorrita III (MLH K.1.3) inscriptions:

(9)　　a. **Tiŕiś** (MLH K.1.1 A6; acc.) /tri:s/ ‘three’.
　　　　 b. **Tiŕiu** (MLH K.1.3 iii 31; nom. sg.) /triu:/; cf. Lat. nom. sg. TRIO (AE 1953, 88)

It seems highly unlikely, then, that ‹Tiŕ›- spells anything but /tir/- or /dir/- in the same inscriptions, e.gg.:

(10)　　a. **TiŕTanoś** (MLH K.1.1 B6; e.g., K.1.3 i 52).
　　　　　b. **TiŕTu** (MLH K.1.1 B4; K.1.3 ii 22).

**§6.** The tautosyllabic metathesis of /LV/ to /VL/ sequences between consonants is known to occur in many languages. This occurs because laterality (Ladefoged & Maddieson 1996: 193–197; Narayanan, Alwan, & Haker 1997) and rhoticity (Ladefoged & Maddieson 1996: 244 & 313; Alwan, Narayanan, & Haker 1997) are features whose phonetic cues are elongated and resonate over multisegmental strings, leaving open the possibility for the listener to attribute the elongated feature to a non-historical position.[13]

**§7.** Leumann 1977: 101 cites the sporadic metathesis of /rV/ to /Vr/ in the following Plautine forms:

(11)　　a. *corcōtāriī* ‘concerned with saffron coloured robes’ (*Aul.* 521); cf. Gk. κροκωτός ‘saffron coloured’.
　　　　 b. *phyrgiō* ‘embroiderer’ (*Aul.* 508); normally *phrygiō*.
　　　　 c. *tarpezīta* ‘money changer’ (e.gg., *Curc.* 341, 406); cf. Gk. τραπεζίτης.

A similar sporadic change is well know in Old English (Campbell 1959: 184–185), e.gg.:

(12) a. *cerse* ‘cress’; cf. *cresse*.
　　　 b. *dærstan* ‘dregs’; cf. *dræstan*.
　　　 c. *forsc* ‘frog’; cf. *frosc*.

Such metatheses can become regular. Blevins & Garrett 1998: 516–517 cite the metathesis of */lu/ > /ul/ before [–coronal] consonants reconstructed for Latin, as in (13), and the metathesis of */rə/ > /ər/ in unstressed syllables before consonants that are not [+labial, –plosive] in Le Havre French, as in (14):

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[13] See Steriade 1990 and Blevins & Garrett 1998: 510–527 & 2004: 117–125 & 128–135 on the phonetic mechanics of this phonological change. For the concept of the listener as the source of sound change, see numerous papers by Ohala, e.gg., 1981, 1993 & 2003.

(13)  Latin (Leumann 1977: 101):
  a. */dlukis/ > Lat. *dulcis* 'sweet'.
  b. */plumo:/ > Lat. *pulmō* 'lung'.

(14)  Le Havre French (Grammont 1909):[14]
  a. [bərdɛl] 'suspenders; bretelle'.
  b. [bərbi] 'ewe; brebis'.
  c. [fərʃɔne] 'shiver; frissonner'.
  d. [fərlyk] 'tuft; freluche'.
  e. [fərtije] 'wag (a tail), wriggle; frétiller'.
  f. [gərzi] 'sleet; gréssil'.
  g. [gərnje] 'granary; grenier'.

**§8.** The combined evidence of /LV/ vs. /VL/ forms engraved in Roman characters (8), the coëxistence of forms in ‹**Tiŕi**›- and ‹**Tiŕ**›- in the same inscriptions (9–10), and cross-linguistic comparanda for both sporadic and regular metathesis (11–12 and 13–14, respectively), then, indicate that what we see in forms such as **ConTeŕPia** is a phonological metathesis, not an orthographic convention. Based upon the very limited number of tokens currently attested (5–7), it appears that /l/ was prone to metathesise across back vowels and /r/ across front vowels.

**Not orthographic, but phonological, deletion**
  **§9.** Within the hypothesis that sequences of /l/ + back vowel and /r/ + front vowel underwent metathesis sporadically, I argue that orthographies such as those in (7), in which etymological liquids are not written, do not represent an orthographic suppression of the liquid,[15] but a sporadically implemented deletion in coda position before consonant, e.g., */komplowto/- > */kompowlto/- > gen. sg. **ConPouTo**.[16]

  **§10.** It is clear that liquids are normally continued in coda position before consonant in Hispano-Celtic, e.gg.:
(15)  a. **PilPilis** (e.g., MLH A.73.1; abl. sg.) 'a toponym'; cf. Latinised nom. sg. BILBILIS (see Untermann 1975: 292).
   b. **elCuanoś** (e.g., MLH K.1.3 ii 18; nom. sg.) 'an idionym'; cf.

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[14] In Cajun French, metathesised forms alternate freely with non-metathesised forms (Lyche 1995: 369–377).
[15] Epigraphic reasons have occasionally been advanced to explain the postulated orthographic suppression of the liquid character. Thus, Tovar 1949c: 23, followed by Lejeune 1955: 48[113] , suggests that **neŕToPiś** is an abbreviation for nom. pl. /nertobriges/, and Untermann 1972–1974: 475[29] adopts the same tactic with regard to **CaPiCa** (MLH A.75.7; nom. sg.) for **CaŕPiCa** (e.g., MLH A.75.2). But this does not convince, for everything we know about Hispano-Celtic epigraphic practice points to the fact that abbreviations simply left off the ends of words, e.gg.:
  (i) a. **aŕeCo** (MLH A.52.9) and **aŕeCoŕa** (MLH A.52.8) for **aŕeCoŕaTas** (e.g., MLH A.52.2; abl. sg.).
    b. **PiŕiCanTi** (MLH A.3.2) and **PiŕiCanTin** (MLH A.3.1) for /briganti:nos/; cf. Latinised *Brigantīnus* (Pliny, *NH* 9.63).
    c. **leś** (MLH K.1.3 i 33) for **leśunoś** (e.g., MLH K.1.1 B2; gen. sg.).
    d. **melm** (MLH K.1.3 iii 9) for **melmanso** (MLH K.1.3 iii 15; gen. sg.) or **melmunoś** (e.g., K.1.1 B1; gen. sg.).
[16] See Eska 2002: 148–149 on the significance of the heteroörganic nasal in the attested form.

Latinised nom. sg. ELGVANVS (Hinojosa de Jarque (Teruel); see Siles 1985).

c. **Pelśu** (e.g., MLH K.1.3 i 21; nom. sg.) 'an idionym'; cf. Latinised gen. sg. PELSINI (CIL ii 730).

d. **CalTaiCiCoṣ** (MLH K.23.2; nom. sg.) 'an adjectival derivative'; cf. Lat. CALDAEĊVS (IRL 265).

e. SALVANTICA (Lora del Río (Sevilla);[17] nom. sg.) 'an adjectival derivative of a toponym'.

f. **CaŕPiliCum** (MLH K.1.3 iii 39; gen. pl.) 'a family name'; cf. Latinised CARBILVS (CIL ii 2787).

g. **aŕCanTa** (e.g. MLH K.1.3 iii 11; nom. sg.) 'an idionym'; cf. Latinised ARGANTA (see Albertos 1979: 138).

h. **PoŕmeśCoḿ** (e.g., MLH A.81.1; nom. sg.) 'an adjectival derivative of a toponym'.

i. **śaŕniCiei** (MLH K.1.1 A9; loc. sg.) 'a toponym'.

j. **CoŕTonei** (MLH K.0.7; loc. sg.) 'a toponym; cf. Latinised *Cortonēnsēs* (Pliny, *NH* 3.24).

k. **Coŕuinom** (MLH K.1.1 A4; acc. sg.) '(animal) enclosure?' < *koru̯(o)-īno-*; cf. Lat. *curvus* 'having a curved surface'.

**§11.** It is well known, however, that consonants in coda position are not robustly articulated;[18] they may be neutralised, lenited, or deleted.[19] For example, in Andalusian Spanish, liquids in coda position are neutralised: The pronunciation of *harto* 'satisfied' and *alto* 'high' have merged, the liquid being variously articulated as a flap [ɾ], an approximant [ɹ], a lateral [l], or a lateral flap [ɺ], inter alia, or else deleted (Penny 2000: 126–127).

**§12.** Cross-linguistically, one finds that the articulation of rhotics in coda position varies enormously, e.gg.:

(16) a. In Dutch, /r/ may be realised by an enormous range of phones, including a uvular trill [ʀ] or approximant [ʁ], a palatal approximant [j], a retroflex flap [ɽ] or approximant [ɻ], or an alveolar trill [r] or approximant [ɹ], inter alia, or it may be vocalised to [ə], or deleted (van de Velde & van Hout 1999).

b. In German, /ʁ/ is regularly vocalised to [ɐ] in coda position (Kohler 1990:72).[20]

c. In British English, /r/ is regularly deleted in coda position (Wells 1982: 218–222), a development which also affects /ɹ/ in certain varieties of American English, notably in New York City (Wells 1982: 505–508), eastern New England (Wells 1982: 520–522), some

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[17] See Remesal Rodríguez 1999, Rubio Orecilla 2003: 145–146, and Jordán Cólera 2004: 366 on this inscription.

[18] Cf. the statistics of Adda-Decker, Boula de Mareüil, Adda, & Lamel 2005: 133–135. In their large corpus of spontaneous French, 30 per cent of consonants in coda position are deleted. They note that liquids represent over 35 per cent of the consonants deleted in their corpus, though they represent only 25 per cent of consonants.

[19] See Eska 2002: 146–150 for a discussion of the phonetic mechanics with regard to nasals in coda position before obstruent in Hispano-Celtic.

[20] See further the Swedish and German dialect information on this reduction compiled by Howell 1991: 109–111.

southern dialects (Wells 1982: 542–545), and African-American English (Wells 1982: 557).

**§13.** Likewise, the vocalisation of /l/ in coda position after /a/ is common in Spanish and many of the other Romance languages (especially before voiceless plosives) (de Cos Ruiz & Ruiz Fernández 2003: 148), e.gg.:

(17)    a. Span. *otero* 'hillock' < *\*autariu* < Vulg. Lat. *\*altariu*.
      b. Span. *otro* 'other' < *\*auteru* < Vulg. Lat. *\*alteru*.
      c. Span. *topo* 'mole' < *\*taupu* < Vulg. Lat. *\*talpu*.

It also occurs sporadically following any vowel in non-standard varieties of British English (Wells 1982: 258–259 & 314), in which it may be realised as [ɣ], [o], or [ʊ], or, rarely, deleted.  Vocalisation or deletion is also known in southern American English (Wells 1982: 550–551) and African-American English (Wells 1982: 557).[21] Similar articulations are attested in dialects of German (Howells 1991: 108–109).

Lateral deletion in coda position before /m/ is also attested in Q'ʷay'áyiɬq' (Upper Chehalis), a Salishan language of the Tsamoan branch (Rowicka 2002), e.gg.:[22]

(18)    a.  √*t'úl-* 'come, arrive, get to here'
          1. *s-t'ú-mis-n*
            CONT-come-REL-3.SG.OBJ
            'He/she comes to him/her.'
          2. *t'ú-ms-mulɬ*
            come-REL-1.PL.OBJ
            'He/she comes to us.'
      b.  √*šə́wil-* 'road, trail; door'
          1. *sit-šwá-m'-šuɬ*
            *change-road-toward-road*
            'He/she crosses/intersects roads/trails'
          2. *sit-šwá-mit-n*
            change-road-MID.CONT-3.SG.SUBJ
            'He/she crosses roads/trails.'

**§14.**  That liquids in coda position were perceptually weak in Hispano-Celtic and could be sporadically deleted may be evinced in two obscure forms:

(19)    a. **PaśCunes** (e.g., MLH A.38.1; abl. sg.); cf. **PaŕśCunes** (e.g., MLH A.38.3).
     b. **CaPiCa** (MLH A.75.7; nom. sg.); cf. **CaŕPiCa** (e.g., MLH A.75.2).

The etymon underlying (19a) is unknown, but Untermann 1975: 242 claims that '**baśk-** kann nur für *brask-*, nicht auch für *barsk-* stehen', thus maintaining the conventional explanation of the orthography. But the constraint upon his analysis is undermined by his connexion of

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[21] See further Hardcastle & Barry 1989 and Sproat & Fujimura 1993 on the phonetic mechanics of lateral articulation.
[22] Grammatical abbreviations: CONT = continuative; MID = middle; REL = relational.

(19b) to the ethnonym *Carpetanī* (e.g., Pliny, *NH* 3.19); he compares the relationship between neut. nom. sg. adj. **CaŕPiCom** (MLH A.75.5) and *Carpetanī* to that between masc. nom. sg. adj. **CalaCoŕiCo**ś (MLH Á.53) and *Calagurritanī* (e.g., Caesar, *BC* 1.60.1). If it is possible for /r/ to be deleted in coda position in **CaPiCa**, there is no reason to deny that it could be deleted in coda position in **PaśCunes**.

§15. The cross-linguistic evidence for the weak articulation, vocalisation, or deletion of liquids in coda position (§11 and 15–17) and the attestion of **CaPiCa** beside **CaŕPiCa**, then, suggest that what we see in forms such as **ConPouTo** and **neŕToPiś**[23] is a phonological deletion, not an orthographic convention.

## Conclusion

§16. There is no reason to believe that, beside the widely attested convention of spelling /TL/ groups with a dead vowel that copied the colour of the following etymological vowel, as in **Tiŕiś** = /tri:s/, there existed two other sporadically attested techniques for spelling such groups. To countenance such a view defeats the very notion of 'convention' in an orthographic system that is otherwise highly consistent. Metatheses such as that in **ConTeŕPia** < /kontrebia/ and deletions in coda position before obstruent such as that in **ConPouTo** < */kompowlto/- < */komplowto/- are well attested cross-linguistic phonological processes. Instead of seeking ad hoc orthographic sub-rules to explain linguistic forms that do not meet our expectations, we should take seriously the evidence that the engravers left us. Ancient languages were subject to all of the same phonological variations that languages spoken today are. The divergent forms addressed in this paper are valuable evidence for the proximate phonetics of what those variations were like.

## Abbreviations

AE = *L'année epigraphique*.
Bot. IV = Villar, Díaz, Medrano, & Jordán 2001.
CIL = *Corpus inscriptionum Latinarum*.
IRL = Diego Santos 1986.
MLH A = Untermann 1975.
MLH K = Untermann 1997: 349–722.

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[23] Carnoy 1906: 160 also mentions that the deletion of /r/ before /s/ occurred heterosyllabically in internal position in the Latin of Iberia on a sporadic basis, e.gg., SVSVM (CIL ii 6268) for *sursum* 'in an upward direction' and SVPPESTES (CIL ii 554) for *superstes* 'standing over (a body)'.

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