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On complex syllable onsets in Latin

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1. Introduction

Latin syllables are traditionally divided into long and short ones, using the same terminology as for the vowels. In order not to confuse the two things, we will here speak of heavy and light syllables. A light syllable is one ending in a short vowel; all other syllables are heavy. Both accent placement and the metrics of Latin poetry depend on this distinction.

Latin school grammar (see §2 for the historical source) contains a metric rule that renders a syllable ‘long by position’ (*positione longa*). The rule says that, for metric purposes, a syllable containing a short vowel nevertheless counts as heavy if it is followed by two consonants. Therefore, although the /o/ in the word *formas* ‘forms’ is short, the first syllable is heavy, so that the word can occupy a dactylus (Ov. *Met.* 1, 1). This rule suffers an exception conditioned by a constellation known as *muta cum liquida* (‘stop plus liquid’), which comprises sequences of any of /p t k b d g/ plus either of /l r/.¹ The exception says that a syllable preceding a *muta cum liquida* cluster may count as light in poetry. Verses such as the following (with feet separated by vertical slash),

et pri|mo simi|lis uolu|cri, mox |vera uo|lucris

‘and first similar to a bird, then a real bird’ (Ov. *Met.* 13, 607)

where the second syllable of *uolucris* ‘bird’ is first light, then heavy, prove that the exception rule is treated as optional in poetry. It normally does not apply if there is a morpheme boundary in the group. Thus, the second syllable of *integro* ‘integer’ is light, but the first syllable of *abrumpo* ‘break off’ is heavy. In the space available, a comprehensive treatment of initial clusters is not possible (cf. Lehmann 2005²). We will ask to what extent the fricatives behave like stops, and the nasals and glides behave like liquids, in the *muta cum liquida* cluster.

2. The ancient doctrine

In Donatus’s *Ars maior*, chapter 2 *de littera* (p. 367), consonants are divided into *mutae* and *semivocales*. The *mutae* comprise the letters <b c d g h k p q t>, corresponding to the phonemes /p t k b d g/. Donatus himself is doubtful about <h>, which did not correspond to a phoneme in his time. The *semivocales* are <f l m n r s x>. A subgroup of these, viz. <l m n r>, is called *liquidae*,

ex quibus *l* et *r* faciunt communem syllabam (p. 368)

¹ We will restrict the concept ‘liquid’ to /l/ and /r/, excluding the nasals. More on this in §4.

² That work contains an extensive list of references, which allows me to minimize the bibliography appended here.

‘of which <l> and <r> make a syllable together [with a preceding muta]’.

Donatus then goes on to say:

item ex illis *f* littera superponitur liquidis *l* uel *r*, quem ad modum muta quaelibet, et communem syllabam facit (p. 368)

‘Again, from among these [*semivocales*], the letter <*f*> may precede the liquids <*l*> and <*r*> just like any *muta* and then forms a syllable together with them’.

This correct statement of the facts is taken by Priscianus (II, 6, 11) as the decisive criterion to classify /*f*/ as a *muta* instead of a *semivocalis*.

In chapter 3 *de syllaba*, Donatus distinguishes short, long and “common” (i.e. *anceps* ‘ambivalent’) syllables. He explains about the concept *syllaba longa positione* ‘syllable which is long by position’ and enumerates the kinds of *syllaba communis*. The first of these is the following:

sunt etiam syllabae quae communes dicuntur, cum aut correptam uocalem duae consonantes secuntur, quarum prior aut muta quaequam est aut *f* semiuocalis et sequens liquida, aut ... (p. 369)

‘there are also so-called ambivalent syllables when either a short vowel is followed by two consonants the first of which is some *muta* or the *semivocalis* <*f*> and the second a liquid, or ...’.

This passage is the *locus classicus* for the traditional concept *muta cum liquida*. At the same time, it is clear that grammarians like Donatus were aware that /*f*/ is in a class with the stops as far as *muta cum liquida* is concerned. As the term *muta cum liquida* passed down the millenia, with *muta* meaning ‘stop’, this tended to be forgotten. We will review some cases in order to bring it back to awareness and to assign the rule its proper place in Latin phonotactics.³

3. Syllabication

It is meanwhile well-known that these rules are not based on any stipulation (*positio*) of the poets, but on normal syllabication in the spoken language. Latin’s syllabication rules are very simple:

1. Except at the beginning of a breath group, a syllable onset must contain at least one segment.
2. From there, the left syllable boundary is shifted successively leftward until either sonority no longer decreases sufficiently or there is a grammatical boundary.

That places the syllable boundaries (•) in the introductory examples thus: *inte•gro*, since sonority decreases leftwards from /*r*/ to /*g*/, but no longer from /*g*/ to /*e*/; *ab•rumbo*, since there is a grammatical boundary in front of the /*r*/. The rules do not account for *uoluc•ris*; but there is Ovidius to account for it.⁴

³ The entire classification is doubtless taken over from a Greek source. In Greek, the nasals do pattern with /*l*/ and /*r*/ in the group ‘muta cum liquida’ (see §4), which is why they are in the same class of ‘semivowels’. On the other hand, Donatus was aware that in Latin only /*l*/ and /*r*/ count as liquids in this context.

⁴ He is, of course, not alone with this option. It had existed since Ennius and reappears in Vulgar Latin. Thus, it may have been a variant throughout the language history.

The hedge *sufficiently* in subrule 2 is necessary to account for the syllabication of consonant clusters whose second member is a nasal: The sonority difference between the two cluster members is not sufficient by the standards of this rule – or of Latin –, and consequently a syllable boundary is inserted in them, as in *dig•nus* ‘worthy’.

4. Obstruent plus nasal

We will first dwell shortly on the problem just mentioned. The sequence ‘obstruent plus nasal’ occurs in the middle of Latin words both with preceding morpheme boundary, as in *cognatus* ‘cognate’, and without, as in *dignus* ‘worthy’. In both cases, the obstruent closes the preceding syllable, which thereby becomes heavy. When the sequence occurs across a morpheme boundary, as in *necnon* ‘and certainly’, the obstruent *a fortiori* closes its syllable by syllabication rule #2.

The syllabication rule would also insert a syllable boundary in such a sequence if it occurred word-initially. While it does not constitute a possible word onset in Latin, it may do so in Greek words. These, however, are generally treated according to Greek metric rules. These subsume the nasals under the liquids, so that a word-final vowel followed by a word starting with obstruent plus nasal may form an open syllable. Here is an example of a Sapphic hendecasyllabus:

O Venus regina Cnidi Paphique

‘oh Venus, queen of Cnidus and Paphus’ (Hor. *Od.* I, 30, 1)

The last syllable of *regina* is light here. The word *Cnidos* is treated the same way in all of its occurrences in Latin poetry (crucial tokens: Cat. 36, 13; Hor. *od.* I, 15, 13; Ov. *met.* 10, 531). Priscianus (I, 10, 6ff) states that the combination renders the preceding syllable ambivalent, adducing, however, only the Ovidian example and, thus, failing to show that the sequence /kn/ could be heterosyllabic.

In sum: Under no condition is there a syllable onset ‘stop plus nasal’ in Latin. Only Greek loans may be syllabicated in front of the stop in such a sequence. And one may add: in all probability, few people except poets would do so.

The case of sequences of /s/ plus nasal is similar. They do not occur inside Latin morphemes. In a Greek loan, they are generally heterosyllabic, as in:

rettulit acceptos regale nomisma Philippos

‘he paid back the Philippics, the kingly money which he had received’ (Hor. *epist.* II, 1, 234)

The same applies *a fortiori* when they are separated by a morpheme boundary, as in *latus nemoris* ‘side of the grove’ (Verg. *A.* 7, 566). The same should, again, be the case when such a sequence starts a word. However, just as in the case of ‘stop plus nasal’, the poets often apply Greek rules to Greek words, as in the following hexameter:

sedebat | in solio Phoebus claris lucente smaragdis

‘Phoebus was seated in a throne shining from brilliant emeralds’ (Ov. *met.* 2, 23f)

The last syllable of *lucente* is light. Ov. *hal.* 120 is similar.

Now the following generalization may be inferred from the syllabication of all the regular consonant clusters: If a certain consonant sequence occurs at the beginning of

lexemes, and if it can ever form a syllable-initial cluster in texts, then it can do so word-initially. This rule is less tautological than it seems, since many consonant sequences, in Latin as in other languages, which occur at the beginning of a lexeme do not occur at the beginning of a syllable in textual word forms of that lexeme because the sequences get resyllabified (Lehmann 2005, §4.3.5.2). Thus, there may be sequences whose syllable-initial occurrence is limited to the start of a breath group. This is generally so in Latin with sequences of /s/ plus obstruent. This principle should apply *a fortiori* to sequences of /s/ plus nasal, since the sonority difference between the two sounds is even smaller. Uses such as *Ov. met. 2, 23f* must therefore be regarded as breaking Latin syllabication rules.

5. Fricative plus liquid or glide

The topic of this section may be called *spirans cum liquida* ('fricative with liquid') in traditional terms.⁵ The two fricatives /f/ and /s/ require separate treatment because they occupy different positions in Latin phonotactics.

5.1. Initial /f/

In poetry, the sequence '/f/ + glide' never comes about: Following an /f/ in the same word, /i/ and /u/ remain vocalic, as in trisyllabic *fuertunt* 'they were' or *fiatis* 'you may become'. (This was presumably different in the spoken language.) Neither does /f/ occur at the end of a word, where it could meet with a subsequent initial glide. Thus we are left with sequences of /f/ plus liquid. Here are a few examples of *spirans cum liquida*. Horace quotes with approval the following verse from Ennius's *Annales*:

belli ferratos postis portasque refregit

'she broke open the iron jambs and doors of war' (Hor. *serm.* I, 4, 61f)

The first syllable of *refregit* is light. In his odes (I, 1, 29), he has *praemia frontium* 'award on the forehead'; the last syllable of *praemia* is light. /fr/ after a vowel in the same morpheme is exceedingly rare (see Hoenigswald 1990 for some discussion). However, the name *Afranius* provides an example. The first syllable is light in the first and heavy in the second example.

quam toga facundi scaenis agitavit Afrani

'which the toga of Afranius, eloquent on the stage, stirred up' (Auson. *epigr.* 71,4)

auctor damnatis supplex Afranius armis

'Afranius, author of [asking for peace], condemned weapons, surrendered ...' (Luc. 4, 338)

This proves that the *muta cum liquida* rule applies in the usual, viz. optional, way to /fr/.

The following beginning of a hexameter shows that /fl/ can start a syllable:

largifluum fontem scaterere

'for a source flowing copiously to gush forth' (Lucr. 5, 598)

⁵ Richter-Reichhelm 2010 deals extensively with this topic. He also generously provided me with long lists of relevant corpus examples with metric analysis.

The net balance is that (just as Donatus already said), the sequence ‘/f/ plus liquid’ is not separated by syllabication rule #2, from which we may conclude that the sonority difference between /f/ and the liquids is put on a par with the difference between stops and liquids.

5.2. Initial /s/

/s/ followed by another obstruent, as in *aspis* ‘viper’, *extra* ‘without’, always closes its syllable, no matter whether preceded, interrupted or followed by a morpheme boundary. This follows from the general rule that a sequence of obstruents is always syllabicated before the last obstruent, which in turn follows from syllabication rule #2 above (Lehmann 2005, §4.3.5.2).

The sequence of /s/ + nasal was already mentioned in §5, where it was seen that, apart from exceptions concerning Greek loans, it is treated like a cluster of /s/ plus obstruent; in other words, it is heterosyllabic, too. It remains to look at /s/ followed by glides and liquids.

As for /s/ followed by liquids, the same rule obtains: this sequence is always heterosyllabic. For one thing, it is not a possible cluster inside a morpheme, neither at the word onset nor word-internally. Thus, the sequence can only come about across a grammatical boundary. For /s/ meeting /j/ across a morphological boundary, only *dis-* could provide relevant examples. However, its /s/ is deleted in favor of compensatory lengthening of the preceding vowel, as in *dīligō* ‘esteem’, *dīrigō* ‘straighten’. Thus, we are left with word combinations. Here are some examples, first of /sl/, then of /sr/:

quod quereris, lupe

‘what you complain about, wolf’ (Phaedrus *fab.* I, 7)

The last syllable of *quereris* is heavy.

quae frontis rugas in vertice portant

‘who bear wrinkles on their brow’ (Ov. *Am.* I, 8, 45)

The last syllable of *frontis* is heavy. Similar evidence is provided by Hor. *Od.* I, 2, 25; 12, 3; 14, 1. There is not a single example where the syllable boundary would we put before the /s/. Thus there is no cluster ‘/s/ plus liquid’.

The two glides show a partly asymmetrical behavior and therefore have to be looked at separately. As for /sj/, words like Italian bisyllabic *siamo* ‘we are’ do not exist in Latin. For word-internal position, there are examples like *bāsium* ‘kiss’; in poetry, it is never bisyllabic. As in the parallel case of /fj/ and /fw/ seen in §5.1, this may have been different in the spoken language. Again, in compounding with the preverb *dis-* ‘asunder’, the /s/ normally suffers the same fate as before, as in *dīudicō* ‘decide’. The text tradition offers a few counterexamples such as the following:

prodimur atque Italis longe disiungimur oris

‘we are being surrendered and separated far from Italy’s shores’ (Verg. *A.* 1, 252)

This verse would scan the same if the text tradition had *dīiungimur* instead of *disiungimur*. The phonological change mentioned presupposes, in fact, that the /s/ in

question closes its syllable (instead of opening the next one). It is, therefore, independent evidence for the syllabication of such words after the /s/.

If the combination of final /s/ with initial /j/ comes about across a word boundary, this, too, always coincides with the syllable boundary, as in *Telluris iuuenes* ‘young men of Tellus’ (Hor. *Od.* II, 12, 7; similarly: Hor. *Od.* III, 7, 4). Net result: under no circumstances is there a cluster /sj/.

As for /sw/, we have bisyllabic *suavis* ‘sweet’, *suetus* ‘wonted’, *suinus* ‘suine’, witnessed in examples like the following:

quibus acer Eryx in proelia suetus

‘which fierce Eryx used [to wear] for fight’ (Verg. *A.* 5, 402)

There is also metrical evidence that syllabication does not divide this cluster if it follows a morphological boundary: *malesuāda* ‘giving bad advice’ (Verg. *A.* 6, 276) has four syllables, the second of which is light. For morpheme-internal position, relevant evidence is exceedingly hard to come by. Forms like *casui* ‘to a case’ might be bisyllabic, but they do not occur in poetry (*cornua* is always trisyllabic). For /s/ meeting /w/ across a morphological boundary, the restrictions concerning *dis-* apply. If the argument from the sound change may be applied by analogy, then *dīvertō* ‘divert’ must go back to /dis•wertō/, not to /di•swertō/. Moreover, if final /s/ hits upon initial /w/ at the syntactic level (as in the introductory Ovidian example), the /s/ always closes its syllable. Result: /sw/ forms an onset only if preceded by a stem boundary (i.e., in syntax or compounding); otherwise, it is heterosyllabic.

This analysis yields a less than homogeneous picture for /s/ preceding non-vowels: /s/ followed by an obstruent, nasal, liquid or semivowel is always heterosyllabic with one exception: /sw/ is homosyllabic (viz. an onset) if it occurs at the beginning of a stem.⁶

6. Conclusion

By phonotactic criteria, Latin /f/ and /s/ do not belong in the same class of phonemes. /f/ patterns with the stops, as already observed by Donatus. /s/, instead, patterns with nothing, since unlike /f/, it does not form syllable-initial *muta cum liquida* clusters but does introduce lexeme-initial obstruent clusters, which, however, become heterosyllabic in context. Putting it in simple terms: /f/ + liquid is normally homosyllabic, while /s/ + liquid is heterosyllabic. In the phonotactic template of the Latin syllable, /f/ therefore occurs in the slot of the initial, while /s/ is the only phoneme to occupy the slot of the preinitial (Lehmann 2005, §3.3.2).

These findings illustrate nicely the difference between a phonetic and a structural approach: Any phonetic classification of speech sounds would assign [f] and [s] to the same class, viz. voiceless fricatives, distinguished only by place of articulation. A classification on the basis of their distribution shows them to belong to distinct phoneme classes and shows /f/ to pattern with the stops. The structural behavior of these two Latin phonemes is the reflection, at the synchronic level of Classical Latin, of the diachronic

⁶ The syllabication algorithm proposed in Lehmann (2005, §4.4.5) would clash with these facts and thus need to be emended.

fact that the Latin /s/ goes all the way back to a Proto-Indo-European /s/, while the Latin /f/ was still a stop at the Proto-Italic stage.

As for /j/ and /w/, /w/ may occupy an onset slot after /k/, /g/, /d/ and /s/, while /j/ cannot. Here again, structural analysis arrives at a different conclusion than phonetic analysis. And once more, the synchronic pattern has a diachronic side to it: The combinations of obstruent plus /w/ already existed in Proto-Indo-European, be it as bisegmental clusters or as labiovelar segments. The latter were apparently bisegmentalized on their way to Latin (see Lehmann 2005, §3.3.5). On the other hand, that language stage lacked combinations of obstruent with /j/. One may speculate this to be related to the existence of palatal stops beside labiovelar stops.

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