

Positional factors in syllabification

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Abstract: From the perspective of standard generative phonological theory, syllable structure is not recorded in the lexicon but it is obtained by means of a syllabification algorithm based on a series of principles. In a given language, the algorithm should parse obstruent+liquid clusters as tautosyllabic both in word-initial and word-internal positions. The tautosyllabic parse as a branching onset complies with all principles on which the syllable-building algorithm is based. In standard theory, if branching onsets of obstruent+liquid are allowed in a language and documented in word-initial position, tautosyllabic parse is predicted to hold also word-internally. Likewise, Kaye's (1992) Uniformity Principle makes the same prediction, since it states that sequences of contiguous positions that are in a governing relation and contain the same phonological material have the same constituent structure. The present paper draws attention to empirical data showing obstruent+liquid clusters being parsed tautosyllabically in word-initial position and heterosyllabically in word-internal position in the same language. An account is proposed to explain the data discussed, claiming that positional factors may also be relevant in determining syllabification.

Keywords: syllable theory; consonant clusters; syllabification; fortition; complex segments; strong position

1. Introduction

Syllabification, from the perspective of standard generative syllable theory, is not recorded in the lexicon and is obtained online (Kahn 1976; Blevins 1995 among others). As is well known, a series of principles such as the Sonority Sequencing Principle or SSP (Selkirk 1984) and its corollary Minimal Sonority Distance Principle (Steriade 1982), the Maximal Onset Principle and the principle according to which word-edges coincide with syllable-edges are the pillars on which the algorithm is based.

In a recent contribution (Passino 2018), I illustrate empirical data on the syllabification of clusters that challenge the effectiveness of these principles in deriving all the attested patterns of syllabification documented cross-linguistically. The data presented are of two kinds: on the one hand, obstruent clusters and sonorant+obstruent clusters showing evidence of a tautosyllabic parse are discussed, on the other hand, I call attention to different syllabic parses of the same cluster depending on its position in the

word.¹ In the present contribution then, focusing on the latter empirical situation, I discuss in detail that this is difficult to explain with current principles of syllabification and propose an alternative account.

There are several cases in which the same principles of syllabification yield different parses of the same clusters. This happens in the case of falling-sonority clusters (sC and sonorant+obstruent clusters) that, according to the standard perspective, are parsed as coda–onset sequences word-internally, as coda clusters word-finally and as simplex onset preceded by an extrasyllabic segment word-initially. However, the different parses are obtained in order to obey those syllabification principles: word-finally, a coda–onset sequence parse would not comply to the principle according to which word-edges coincide with syllable edges. On the other hand, sonorant+obstruent clusters could not be parsed as complex codas in word-internal position, or else they would violate the Maximal Onset Principle. In word-initial position sonorant+obstruent clusters are analysed as having an extrasyllabic sonorant because the sequence does not conform to the SSP.

In the case I am discussing in this paper, a tautosyllabic parse of obstruent+liquid clusters is attested in word-initial position in compliance with all the principles of syllabification (SSP, the Maximal Onset Principle and the word-edge principle). If the language tolerates tautosyllabic clusters of obstruent+liquid word-initially, it is hard to explain by standard assumptions why the same kind of cluster would get a heterosyllabic parse word-medially violating the Maximal Onset principle, as well as the Syllable Contact Law (Vennemann 1988), requiring a coda–onset sequence of steep and falling sonority. Such data are also problematic for Standard Government Phonology, since Kaye's (1992) Uniformity Principle predicts that sequences of contiguous positions that are in a governing relation and contain the same phonological material have the same constituent structure. In the strict CV framework (Lowenstamm 1996; Scheer 2004), on the other hand, Ségéral and Scheer (2005) discussing evidence from the diachrony of French have already pointed out that *muta cum liquida* clusters may have a different syllabic status in the same language, arguing that there is no tautosyllabic default and that the three syllabification possi-

¹ The interpretation of the labels 'cluster' and 'onset' is not uniform in the literature. To avoid any ambiguity, in this contribution the label 'onset' refers to a prevocalic consonant or to a prevocalic consonant cluster that phonologically behaves as a single consonant, sitting in the same syllabic constituent and subject to co-occurrence restrictions. A cluster, on the other hand, is any sequence of consonants, regardless of its syllabic parse that is established on a case-by-case basis on phonological evidence.

bilities (tautosyllabic, heterosyllabic and monopositional) are recorded in the lexicon.

The analysis here proposed is also framed in Strict CV and exploits the Coda Mirror (Ségéral & Scheer 2001) perspective on lenition and fortition, which derives positional strength from the presence of empty nuclei and lateral relations entertained among segments. In my proposal, the different syllabic parses of the same cluster are thus ascribed to the different positional strength of the intervocalic position on the one hand, and the word-initial and post-coda positions on the other.

The article is organised as follows: section 2 provides an illustration of the data, section 3 sketches a formal analysis and section 4 is dedicated to some final remarks.

2. Data

In a number of languages, obstruent+liquid clusters typically display heterosyllabic behaviour in intervocalic position but tautosyllabic behaviour word-initially. This is the case for the reconstructed Indo-European language (Byrd 2015), Ilokano (Hayes & Abad 1989), Munster Irish (Green 2003), Lithuanian (Steriade 1997), Sanskrit (Cooper 2013), Icelandic (Gussmann 2002, 173) among others.² To exemplify in detail all these languages would by far exceed the scope of this paper. The argument is exemplified here with data from the Italo-Romance dialect of San Valentino in Abruzzo Citeriore (henceforth San Valentino). The data come from fieldwork conducted with Diego Pescarini (Passino & Pescarini 2018a;b).³ In this dialect of the Upper-Southern group, spoken in a village of Eastern Abruzzi near the towns of Pescara and Chieti, the evolution from Latin shows identical outcomes of tonic vowels before *muta cum liquida* (obstruent+liquid clusters) and in closed syllables, as opposed to open syllables, as shown in (1) by means of the evolution of A. These outcomes are common in the dialectal area around San Valentino described in Passino & Pescarini (2018a;b). Loporcaro (2005) and Savoia (2015, 116) provide detailed examples of heterosyllabic *muta cum liquida* in this Italo-Romance dialectal area:⁴

² In Icelandic only some of the obstruent+sonorant clusters display an inconsistent parse word-internally in intervocalic position and word-initially.

³ We are grateful to the informant Silvio Pascetta.

⁴ Some exceptions exist due to the fact that the dialect is situated in a transitional area. The heterosyllabic parse of *muta cum liquida* is more consistent in the area

- (1) Evolution of A in the dialect of San Valentino
- | | | |
|-----------------|-------------------|--------------------------------|
| open syllable | closed syllable | before <i>muta cum liquida</i> |
| CASA(M) > 'kəsə | PACTU(M) > 'pattə | MACRU(M) > 'magrə |
| 'house' | 'pact' | 'slim' |

The syllable-driven allophony concerning /a/ is also observed in synchrony, as shown by the adaptation of Italian loanwords, elicited from an informant and reported in (2):

- (2) a. open syllable b. closed syllable c. before *muta cum liquida*
- | | | |
|------------------------|---------------------------|-------------------------------|
| [fer.'rə.rə] < Ferrari | [var] < varre | [matrə] < Matra ⁵ |
| (car brand) | (video assistant referee) | (car name of the Simca brand) |

I consider this sufficient evidence to indicate a heterosyllabic parse of this cluster in word-internal intervocalic position. Among the analyses available for heterosyllabic clusters in autosegmental phonology, are on the one hand, the coda/onset analysis and on the other hand, the bogus cluster analysis (Harris 1994; Szigetvári 1999; Ulfsbjorninn 2017). In this case, the optional possibility of inserting an epenthetic vowel (also recorded in archaic stages of the dialect in words like *matrə* ['matərə], 'mother'), as well as the sonority rising profile of the cluster indicate that it is best analysed as a bogus cluster. Be that as it may, when word-internal, the cluster is bipositional and heterosyllabic.

In addition, in Sanvalentinense, *muta cum liquida* clusters also appear in word-initial position, where, most noteworthy, their tautosyllabic status is guaranteed by the fact that they do not undergo any repair in the language, as shown in (3a). On the other hand, as shown in (3b), epenthesis in word-initial sonorant+obstruent and obstruent clusters arising from

south of San Valentino. I have chosen to describe this dialect to use data from my own fieldwork.

⁵ Another recorded possibility is ['matərə], where the *muta cum liquida* cluster is broken up by anaptyxis, which also indicates a non-cohering cluster. An outstanding feature of the dialect area where Sanvalentinense is spoken is that open syllables of proparoxytonic words yield closed syllable outcomes in diachrony and display closed syllable allophones in synchrony (Passino & Pescarini 2018a;b). This makes it impossible to establish if the inserted vowel is epenthetic or excremental. The excremental vowel would not create another syllable from the original 'CVC-CV sequence, where [a] is the expected allophone in the stressed syllable. A truly epenthetic vowel would create an extra syllable as in 'CV-CV-CV but the stressed open syllable would then be sitting in a proparoxytonic word where the expected allophone is again [a]. This state of affairs makes it impossible to use open/closed syllable allophony to determine what kind of non-lexical vowel surfaces in the case at hand.

appheresis or present in loanwords hints at the presence of an unsyllabified element and thus to a heterosyllabic parse of the initial cluster.

(3) Word-initial clusters in Sanvalentinese

- | | |
|-------------------------------|--|
| a. Tautosyllabic (unrepaired) | b. Heterosyllabic (epenthesis shown in bold) |
| 'trəvə < TRAVE(M) 'beam' | rət 'tokə < (U)RTICA(M) 'nettle' |
| | pisi'koləkə < It. psicologo 'psychologist' |

The data presented so far show that identical clusters in word-initial and intervocalic positions may display different syllabic parses, as opposed to what standard syllable theory would predict. In standard generative syllable theory, as a matter of fact, the Sonority Sequencing Principle combined with the Maximal Onset Principle would predict a tautosyllabic parse of *muta cum liquida*. Nevertheless, the possibility of a heterosyllabic parse of *muta cum liquida* is also documented across languages, in violation of the above principle. In Moroccan Arabic (henceforth MA), for instance, phonological and phonetic evidence, as well as evidence coming from versification, hint at the absence of complex onsets (Cantineau 1946; Kaye et al. 1986; Dell & Elmedlaoui 2002, among others). Across languages the sequence of consonants in complex onsets is usually very restricted, whereas Moroccan Arabic (henceforth MA) allows virtually any consonant sequence and its reverse at the beginning of the word (a helpful sketch is provided in Scheer 2015, 63). As argued by Kaye et al. (1986, 62), if word-initial CC sequences were complex onsets in MA, one would expect sequences of more than two Cs word-internally, as sequences of coda–complex onset clusters. If, on the other hand, MA does not allow for complex onsets, one predicts a word-internal maximal length of two consonants in case a closed syllable (CVC) is followed by another syllable (CV...). The latter sequences are in fact generally found, i.e., *sibsi* 'pipe', *firdi* 'gun' etc. Consonant sequences appear word-initially and word-finally in MA (*xla* 'desert', *ktib* 'to write', *wild* 'boy', *qint* 'ennui'). If these sequences were part of complex onsets or rhymes, one would expect maximal sequences of CVCC+CCV... in MA, as we find in English *constrain*, contrary to fact.

In MA, however, as opposed to Sanvalentinese, the same heterosyllabic parse holds for *muta cum liquida* in word-internal and word-initial positions, consistently with the principle according to which word edges coincide with syllable edges (the edge of word-internal syllables coincides with the edge of word-initial syllables). Only the Maximal Onset Principle is violated, since complex onsets of rising sonority are not allowed. An account of the situation of Moroccan Arabic in standard Government Phonology is provided in Kaye (1990). From both the perspectives of classic

generative syllable theory and standard government phonology, as far as I can see, it is harder to explain why languages like Sanvalentinese, which present tautosyllabic *muta cum liquida* clusters in word-initial position, parse the same cluster heterosyllabically in word-internal position.

The pattern attested in Sanvalentinese can be found in a Southern Italo-Romance area extending from Southern Abruzzi to non-Salentine Apulia and Northern Calabria. In this area many different linguistic systems exhibit the same pattern, which can also be observed in some stages of Latin, the direct ancestor of these Italo-Romance dialects. On the basis of versification, stress and phonological phenomena such as anaptyxis (discussed below) and vowel change, several stages of Latin have been reconstructed as stages where *muta cum liquida* clusters displayed a heterosyllabic parse in intervocalic position. (Timpanaro 1965, 1093ff; Loporcaro 2005; 2011, 53–58, among others). No stage of Latin, however, documents a heterosyllabic parse of *muta cum liquida* word-initially. These latter clusters abound in word-initial position, where they behave tautosyllabically. The tautosyllabicity of word-initial *muta cum liquida* in Latin is guaranteed by the fact that other kinds of word-initial clusters, present in Greek loanwords, are repaired in classical and late Latin, as shown in (4) with data from Biville (1990):

(4) Deletion	ks>s	Gr. Ξανθιππη	Lat. Santippe	(proper noun)
	kt>t	Gr. Κτησιφων	Lat. Tesifon	(proper noun)
	pt>t	Gr. Πτισανη	Lat. Tisane	'herbal tea'
Prothesis (late)	pt>ipt	Gr. Πτερις	Lat. Ipteridus	'fern'
	ks>eks	Gr. Ξιφιον	Lat. Exifion	'gladiolus'
	ps>ips	Gr. ψαθυρος	Lat. Ipsatirus	'crisp'
Anaptyxis (late)	ps>pis	Gr. Ψιατον	Lat. pisiatum	'mat'

Epenthesis, as is the case for Sanvalentinese, and deletion can be interpreted as reactions of Latin to a heterosyllabic word-initial cluster, providing a nucleus for the stray initial consonant or eliminating it.

Archaic Latin was one of the mentioned stages where intervocalic *mutae cum liquida* were heterosyllabic. To show the different syllabic status of such clusters in word-initial and intervocalic position we can use data concerning conditioned anaptyxis discussed among others by Ségéral and Scheer (to appear). In archaic Latin obstruents followed by laterals receive anaptyxis only when the cluster is intervocalic (*poplus* > *populus*) and never when it is found in word-initial (*placet*) or post-coda positions

(*templum*), cf. also de Groot (1921).⁶ Furthermore, at a later stage, namely in the Vulgar Latin spoken in Gaul, Ségéral and Scheer (to appear) found that anaptyxis only concerns obstruent+rhotic clusters and never breaks word-initial clusters. Conditioned anaptyxis can be interpreted as a process that targets only clusters in which consonants are not cohering, or bogus clusters (cf. (2c)), namely those in intervocalic position. Among other existing evidence, anaptyxis proves that in some stages different from Classical Latin *muta cum liquida* clusters were heterosyllabic in intervocalic position, while they were tautosyllabic in word-initial position, as shown above in (4).

3. Formal analysis

So far, evidence of different syllabic parses of the same kind of cluster in a given language has been discussed, pointing out the difficulties that the principles upon which the standard theory of syllabification is based find in coping with the empirical data attested. If in a given language *mutae cum liquida* are tautosyllabic at the beginning of the word, a heterosyllabic parse of such clusters violates all the principles on which the syllable-building algorithm is based: the SSP, the Maximal Onset Principle as well as the word-edge = syllable edge principle. In Government Phonology, the Uniformity Principle is violated. A research path is suggested next that relies on structure and positional factors to account for the pattern illustrated above.

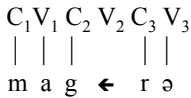
3.1. Theoretical assumptions

A CVCV model is posited here, where syllabification derives from lateral relations (government and licensing) entertained by segments, and phonological constituent structure is underlyingly represented as a strictly alternating sequence of consonant and vowel positions (Lowenstamm 1996; Scheer 2004). Lateral relations called government and licensing derive surface syllabic effects. The former has a damaging effect on the target, while the latter enhances it. Finally, the Empty Category Principle ensures that there is no proliferation of empty nuclei, stating that they may remain

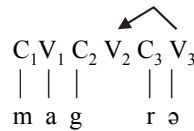
⁶ Most post-coda stop+liquid sequences emerged through stop epenthesis in nasal+liquid sequences, but the stop had become phonologised by the time anaptyxis took place (Sen 2009, § 4).

silent iff they are domain final, enclosed in a domain of Infrasegmental Government or governed by full nuclei (Scheer 2004, 67). Infrasegmental Government (henceforth IG), in a CVCV representation where all clusters are interrupted by an empty nucleus, is an interaction established between consonants on the basis of their complexity and melodic representations (Scheer 1996). IG produces syllabic effects similar to those of branching onsets for the consonants involved. In clusters bound by IG, the empty nucleus internal to the cluster does not require government (Scheer 1996), as shown in (5a), where IG is indicated with a thick arrow. This yields a cluster that in standard theory is referred to as tautosyllabic. Clusters not bound by IG, like coda/onset and bogus clusters, on the other hand, are characterised by an internal empty nucleus requiring government, as shown in (5b), where the arrow originates from the source and points to the target of government. In standard theory these latter clusters would be called heterosyllabic. From now on, for the sake of convenience, I will continue to use, in a *lingua franca*, the terms tautosyllabic and heterosyllabic as shorthands for the syllabic effects on clusters deriving from lateral relations.

(5) a. Tautosyllabic cluster



b. Heterosyllabic cluster

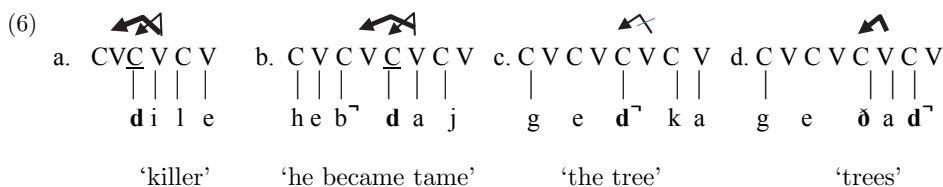


To derive both tautosyllabic and heterosyllabic parses of *muta cum liquida* clusters, consistently to what is found cross-linguistically, the application of IG to a cluster cannot be automatic, given the right complexity conditions. A possibility to regulate its application is to place a parameter on its application yielding tautosyllabic obstruent+liquid when on and heterosyllabic obstruent+liquid when off.

For clusters behaving tautosyllabically, in addition to the branching onset (a *muta cum liquida* cluster bound by IG) analysis, another analysis is available for clusters in the autosegmental environment: the monopositional analysis, often proposed in the literature (Hirst 1985; Lowenstamm 2003; Ségéral & Scheer 2005).

In the CVCV framework the word-initial position is marked by an empty CV Lowenstamm (1999). The presence/absence of the CV, parametrically distributed, determines a number of independent effects, providing arguments for this phonological translation of a morpho-syntactic

boundary (Scheer 2012). One of these effects is the strength of the word-initial consonantal position in languages where the initial CV is present. The strength of the position mainly derives from the presence of an empty nucleus preceding it, which prevents government, a weakening force, from targeting the consonants by attracting it on itself. In addition, the consonants enjoy licensing from the neighbouring expressed nucleus. In intervocalic positions the consonant is targeted by government instead, which makes it prone to lenition. Coda positions are not targeted by government but they cannot be licensed, because an empty nucleus follows them. In the CVCV representation, empty nuclei are found not only before consonants in word-initial position, but also before consonants in post-coda positions, which are in fact known cross-linguistically as positions resisting lenition, as opposed to the intervocalic and coda positions, which are weakening *loci*. This perspective is known as Coda Mirror Theory (Ségéral & Scheer 2001; 2008; Scheer & Ziková 2010) and is illustrated in (6) by means of the Somali stop alternations (Ségéral & Scheer 2001). In (6) /d/ alternation is used as an example, its allophones are in bold, strong C positions where /d/ sits are underlined, bold arrows represent directions of government, while thin arrows represent directions of licensing. The example shows that strong positions following empty nuclei in initial (6a) and post-coda (6b) positions are licensed and not governed, whereas weak positions in coda (6c) and intervocalic (6d) positions are respectively unlicensed and governed:⁷

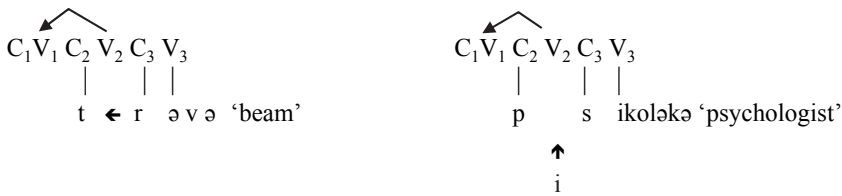


Languages where no CV is distributed at the beginning of the word show no strong-position effects in word-initial position. In addition, these languages show no restrictions on word-initial clusters either, since there is no empty nucleus to govern that could trigger the violation of the empty category principle when an ungoverned cluster-internal empty nucleus follows. On the other hand, a language where an empty CV is present word-initially will only allow tautosyllabic word-initial clusters, where the intervening nucleus is not governed and can govern the empty nucleus of the initial

⁷ In (6d), there are two /d/ allophones shown but the focus is on the intervocalic one.

CV (Scheer 2012). The governed empty nucleus present in a heterosyllabic cluster cannot govern an initial CV and triggers repair strategies, such as the ones seen in the data previously discussed in (3b) and (4). This is exemplified in (7), by means of the data in (3), where it is shown that the empty nucleus circumscribed by IG can take care of the initial empty CV and governs it (7a), whereas the empty nucleus enclosed in a cluster that cannot establish IG vocalises in order to govern the empty CV (7b).⁸ Henceforth government is indicated by thin arrows:

- (7) a. initial CV and tautosyllabic cluster b. initial CV and heterosyllabic cluster



This is why for languages like Moroccan Arabic, where heterosyllabic sequences are present word-initially, a representation without initial CV is proposed.

As mentioned above, in Coda Mirror Theory, an empty nucleus preceding a consonant endows it with positional strength, because it allows a licensed consonant to escape government. On the other hand, the intervocalic position is prone to lenition because the consonant is governed. The situation described here, whereby the same cluster gets a different syllabic parse in intervocalic and word-initial position, can be analysed as a positional effect. The situation depicted is illustrated in (8). IG is assumed to be off in the language, yielding heterosyllabic parse of obstruent+liquid clusters. The initial CV needs government but the nucleus enclosed in the

⁸ In other languages, in the situation depicted in (3b) and illustrated in (7b), it is the empty nucleus of the word-initial CV that vocalises, because it lacks government, being preceded by a governed empty nucleus. This yields a repair by prosthesis instead of anaptyxis. I am not able to explain why some languages recur to either strategy. Prosthesis/anaptyxis asymmetries have been addressed by Fleischhacker (2001) and Singh (1985) among others. However, as opposed to the general view also expressed by those authors, prosthesis/anaptyxis asymmetries cannot depend exclusively on the sonority profile of the cluster. As shown in 4 above, Latin documents both strategies for the same cluster. In addition, latin sC clusters in Romance are generally resolved by prosthesis but cases of anaptyxis are documented in eastern and north-eastern Gallo-Romance (Sampson 2010, 126). I leave this question open for further research.

heterosyllabic cluster (8a) is empty, governed, and may not govern. Usual repairs (epenthesis/deletion) could apply. Alternatively, another kind of repair can be posited: the empty CV attracts government forcing the cluster to become more cohesive so that there is no ungoverned nucleus internal to the cluster. The cluster can become cohesive either emerging as monopositional, as in (8b), or by contracting IG as in (8c). This way no ungoverned empty nucleus enclosed in the cluster exists anymore, and the initial CV may receive government. In (8d) an intervocalic heterosyllabic *muta cum liquida* (mcl) is shown again for comparison:

- (8) a. heterosyllabic *mcl* b. monopositional *mcl* c. tautosyllabic *mcl*



3.2. Positional effects in syllabification

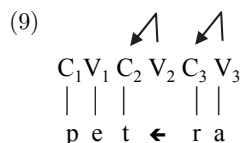
The gap in syllabic parse attested in some languages between the intervocalic and the word-initial position (the post coda position is examined later in the discussion) is analysed here as a positional effect driven by the contrast between strong and weak position. The case considered concerns *muta cum liquida* behaving, in Sanvalentinense and other languages, as tautosyllabic word-initially and heterosyllabically in intervocalic position. In Sanvalentinense the empty CV is present, as indicated by the vocalisation triggered in heterosyllabic word-initial clusters, where the empty nucleus enclosed in the clusters is governed and cannot govern the one present in the word-initial CV. If *mutae cum liquida* may stand free in word-initial position in languages like Sanvalentinense, it means that the empty nucleus internal to the cluster is taken care of and the cluster is tautosyllabic. One of the two representations, illustrated in (8b) and (8c) must then hold for

Sanvalentinense, since the representation in (8a) is not compatible with the empirical data attested. A cluster where the enclosed empty nucleus is not taken care by IG, as is for the internal position, would trigger vocalisation of the empty nucleus or other repair strategies. From the representational point of view, both the IG and the monopositional analysis are in principle compatible with fortition in strong position, since both the representation of a cluster bound by IG and that of a complex segment leave government free to target the empty nucleus of the initial CV. Also, from the perspective of a strength comparison, a branching onset is a more complex structure than a simplex onset or a bogus cluster, for instance it is more problematic to license by a following empty nucleus (Cyran 2010). A monopositional complex segment is stronger than a simplex segment, in the sense that across languages monopositional clusters may be the outcome of strengthening processes targeting consonants (i.e., Malagasy exemplified in Scheer 2015, 120) and complex segments are crosslinguistically often documented as strong versions of singleton consonants (Ségéral & Scheer 2005; Scheer 2015: 146). If IG is meant as a parameter, however, it cannot be on and off in the same language.⁹ Accordingly, I will henceforth maintain that the cohesion of the consonants and the government of the word-initial empty nucleus, in other words tautosyllabicity is obtained by means of the creation of a monopositional cluster. It can be observed that from a perspective of Standard Government Phonology the monopositional cluster arises in violation of the Structure Preservation Principle (Kaye 1992), a principle curbing the possibility of resyllabification. However, this principle has no purpose in CVCV, where no resyllabification is possible. Be that as it may, we have to admit a change in structure for any complex segment formation that is reported to have taken place from the historical loss of a vowel, as it was proposed for Georgian (Butskhrikidze 2002) or Kimatuumbi (Odden 1996), among others.

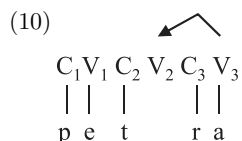
It is worth mentioning that simultaneously and independently of this proposal, Ségéral and Scheer (to appear), discussing the evolution of *muta cum liquida* from Latin to French, also connect the different syllabic parses of *muta cum liquida* attested in prehistoric Latin and French to the strong/weak position contrast. Their analysis, however, differs in some respects. Most notably, as opposed to the account presented here, which sees tautosyllabicity as a strong position effect, Ségéral and Scheer

⁹ The nature of the IG relation, however, has not been the object of an in-depth investigation. It could therefore turn out that it is not established by parameter after all and its application and blocking thereof in a given language could be derived independently.

(to appear) analyse the heterosyllabicity of intervocalic *muta cum liquida* as a lenition effect. In their view, the weak intervocalic position breaks the solidarity of a cluster bound by IG, making it heterosyllabic. In the fortition analysis, however, the presence of the empty nucleus to govern, which characterises strong positions, may be seen as the direct cause of the contraction of a cluster in a single structural slot, as discussed above and exemplified in (8c), and complex segment formation is compatible with fortition. In the lenition analysis, as far as I can see, it is more difficult to understand how the intervocalic position impacts on the loss of cohesion of the cluster bound by IG from a computational point of view. Brun-Trigaud and Scheer (2010) have shown that each of the members of the clusters contracting IG in intervocalic position are subject to lenition as if they were simple consonants. Each suffers the spoiling action of government, because there is no empty nucleus to attract this force, as shown in (9):



A heterosyllabic *muta cum liquida*, where the consonants have lost cohesion, is represented as in (10):



It is not clear how the intervocalic position, namely how V₁ and V₃ in (9), could impact on the cohesion of the cluster so as to force the government coming from V₃ to move from C₃ to V₂.

Be that as it may, the important generalisation that can be reached is that syllabification may be sensitive to positional factors. If this proposal is on the right track, it predicts that no syllabification mismatches of the kind are detected in languages where the initial CV is absent. There, *muta cum liquida* will be either heterosyllabic or tautosyllabic across the board. (Clusters enclosing vowels alternating with zero, however, are excluded from this prediction, because a vowel is lexically present to separate the cluster, although it is not always linked to its skeletal position). It also predicts that clusters in post-coda positions will display the same syllabic

parse as the word-initial position in a language with the initial CV. In this respect, unfortunately, only distributional evidence exists in post-coda position and no dynamic phonological diagnostic of strength or syllabic parse is available in Sanvalentinense. However, distributional evidence suggests that this proposal is on the right track. In Sanvalentinense, one observes that *muta cum liquida* clusters are the only clusters that can occur after a coda, indicating that they have a tautosyllabic parse.¹⁰ Moreover, if this account is correct, languages with heterosyllabic parse of obstruent+liquid clusters word-initially that parse the same clusters tautosyllabically in intervocalic position should not exist. The typology predicted, as shown in (11), is one where IG applies by parameter in languages that thus may parse obstruent+liquid clusters either tautosyllabically (English, Italian, Czech) or heterosyllabically (Moroccan Arabic) across word-positions. In addition, languages where obstruent+liquid clusters are heterosyllabic intervocalically but not word-initially (Lithuanian, Sanskrit, Sanvalentinense) can be analysed as languages where the parameter on IG is basically set off by default. In the initial position, when there is an empty CV to govern, heterosyllabic obstruent+liquid clusters become monopositional so that the nucleus of the initial CV can be taken care of. The opposite situation, whereby the parameter on IG is set on by default and it is undone under lenition is in principle plausible, but I have not found any way to derive the breaking of IG in intervocalic position from computation, so I exclude this kind of language in the typology proposed and leave the matter to further research.

To summarise the argument, the main idea presented here is that in a language, be it Latin or Sanvalentinense, where the syllabification of obstruent+liquid clusters varies across positions, the different parses can be ascribed to positional factors. The fortition illustrated above need not be synchronic and I am not arguing that it is in Sanvalentinense. When in a language with an initial CV, as is the case of the languages at hand, the parameter that derives tautosyllabic syllabification of *muta cum liquida* clusters (IG) switches for some reasons in diachrony to yield heterosyllabic parse, I argue that only the intervocalic *muta cum liquida* clusters actually loosen their bond and result in bogus clusters. The existing initial and

¹⁰ The situation in which *muta cum liquida* are the only cluster that may appear post-coda is very common (in languages where this cluster is tautosyllabic across the board). A heterosyllabic cluster in post-coda position, however, would incur violation of the ECP, by displaying two empty nuclei in a row. Exactly for this reason it is noteworthy that Sanvalentinense, where *muta cum liquida* are heterosyllabic in intervocalic position, features this kind of cluster in post-coda position.

(11) Predicted typology of languages displaying clusters of obstruent+liquid

Parameter setting	Word-initial syllabification of <i>muta cum</i> <i>liquida</i>	Intervocalic syllabification of <i>muta cum</i> <i>liquida</i>	Post-coda syllabification of <i>muta cum</i> <i>liquida</i>	Language
Initial CV present, IG ON	tautosyllabic	tautosyllabic	tautosyllabic	Italian
Initial CV absent, IG ON	tautosyllabic	tautosyllabic	tautosyllabic	Czech
Initial CV present, IG OFF	tautosyllabic	heterosyllabic	tautosyllabic	Sanvalentinense
Initial CV absent, IG OFF	heterosyllabic	heterosyllabic	Post coda mcl predicted not to exist	Moroccan Arabic

post-coda *muta cum liquida* on the other hand are arranged by a process of fortition as monoperpositional clusters. The process need not remain active in the language and monoperpositional clusters may eventually be stored in the lexicon as such.

Many other issues related to this tentative analysis could not be discussed due to space limitations and must be addressed in further research. More generally, for any language for which this analysis is proposed (see §2. above for an illustrative list), it must be understood and specified whether the fortition takes place in synchrony or in diachrony. More specifically, for the case of Sanvalentinense and the dialects of the area, it is important to add that an analysis has been proposed according to which the heterosyllabic parse documented is related to a metrical template active in the languages (Passino 2015). The relation, if any, between the action of the template on internal *mutae cum liquida* and the management of the same cluster in word-initial position must be assessed.

4. Final remarks

In this paper I have drawn attention to some empirical data problematic for the standard approach to syllabification, which derives syllable structure from the application of an algorithm. The different parses of seemingly identical clusters in word-initial and intervocalic positions, which is attested in various languages, argues against the principles of syllabification upon which the algorithm is based. The analysis put forward proposes that positional factors and parameters may be relevant to the resulting syllable

structure. Moreover, independently of the above analysis, a wealth of empirical data exists that question the received theory of the syllable (an overview is offered in Passino 2018). A thorough consideration of these data may open a different perspective on the syllable and help shed new light on a key phonological object.

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