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Syncope in English*

1 Introduction

English abounds in lexical consonant clusters; their nature and constraints on their occurrence are treated extensively in the phonological literature. There is, however, also a possibility for creating morpheme-internal consonant clusters postlexically, by syncope (also referred to as schwa-deletion, sonorant desyllabification or compression). Data on the conditions of syncope are contradictory, perhaps dialect-specific.[1] Not being a native speaker of the language, I have little chance of relying on my own intuitions about English pronunciation, therefore in this paper I will accept the data presented in the LPD (Wells 1990).[2] Accordingly, the label "English" below is to be taken to mean "LPDese". This variant of English is often referred to as RP, although the term appears to be less and less justified (cf. the title of Varga's (2002) interview). As for the tempo — an issue very relevant in any consideration of syncope — Wells explicitly excludes what he calls casual speech from the pronunciations he records (1990 : 241).

I will begin with the issue of syllabic consonant formation (SCF). The inclusion of syllabic consonants in a discussion of syncope is not immediately obvious. In English, synchronic/dynamic syncope is always preceded — historically/derivationally — by SCF, for any C_1əC_2~C_1C_2 alternation there exists an intermediate $C_1\underset{ˌ}{C}_2$ stage; the reverse, as we are going to see, does not hold. This fact points to a strong connection between $C\underset{ˌ}{C}$ and syncope-created consonant clusters.

* My thanks are due to Ádám Nádasdy and the editor for comments. As for mistakes that remain: I could not always be convinced.

[1] Cf. the rather different conclusions Kürti (1999) draws based on American data from Hooper (1978).

[2] John Wells says "[compression] depends on which word we're dealing with." About the ungrammaticality of *ˈmeldi (*melody*) he says "there is some constraint. Whether it's to do with the word or something about l space d I'm not sure" (Varga 2002). It can be concluded that Wells is giving his transcriptions without any well-defined theory about the conditions of syncope, therefore they represent some kind of native speaker intuition, not data dictated by theory.

Syncope proper is treated next, comparing it to SCF. High vowel gliding is also mentioned, since it seems to be a special case of syncope. The last but one section briefly treats apparent cases of syncope that do not fit the patterns discussed previously.

The aim of this paper is not to provide a theory to account for the data, rather to systematize the data to a certain extent in order to ease the task of further researchers, probably including myself.

2 Syllable reduction

English is claimed to be a stress-timed language, one relevant consequence of which is that unstressed syllables reduce. This reduction process has several stages: firstly, the wide range of vocalic contrasts possible under stress shrinks to a meagre set of three, ə ɪ ʊ (this stage will be referred to as "3V"; cf. (1a));[3] secondly, this set reduces to ə, (1b) — in the case of nonhigh vowels, e.g., *separate*, the 3V and the ə-only stage are homophonous. The loss in the prominence of the syllable is furthered by SCF, i.e., the loss of the vowel with the retention of its syllabicity, (1c). Finally, syllabicity may also disappear, which in traditional terms is equivalent to the total loss of the unstressed syllable, (1d). The four stages are illustrated by possible pronunciations of *separăte, family* and *natural.*

(1)	a. 3V set	b. ə-only	c. syll. C	d. syncope
separate	sepərət	sepərət	seprət	seprət
family	fæmɪli	fæməli	fæmli	fæmli
natural	nætʃʊrəl	nætʃərəl	nætʃrəl	nætʃrəl

The four stages identified in the gradual reduction of unstressed syllables are not all simultaneously present: Wells does not give nætʃʊrəl as a variant of *natural,* for example, apparently he considers it obsolete in the dialect he records.[4] Thus when I claim that some process like SCF or syncope is possible, this does not mean that it indeed occurs (and/or is recorded by

[3] Wells transcribes some unstressed vowels by i or u. These do not increase the three-way distinction mentioned here, since i and u never contrast with ɪ and ʊ, respectively.

[4] The variant does, however, occur in the EPD13 (Jones 1967), together with the other forms shown in (1).

Wells) in all the items that match the given criteria. As most optional processes, syncope is also subject to variations due to idiosyncratic properties of lexical items, like frequency of use.

Several interesting conditions govern the reduction of the 3V syllable to the ə-only syllable (in fact, in some environments even the 3V type is impossible and the syllable retains a full vowel; more on these conditions in Nádasdy 1994). Here we will be concerned only with the loss of the schwa, "first" resulting in a syllabic consonant, "later" possibly in syncope.

3 Syllabic consonant formation

As Wells (1990 : xvii) notes, "a syllabic consonant always has an optional variant involving ə and a non-syllabic consonant." Consonants eligible for syllabicity in English are only the sonorants. The syllabicity (?) of fricatives, like in *university* juːnɪvɜːs̩ti or *difficult* dɪf̩kl̩t, is (i) a fast speech phenomenon which I exclude from this discussion, (ii) not possible in LPDese and (iii) also peculiar in that, as opposed to most instances of syllabic sonorants, it occurs postvocalically. Among sonorants, although the glides j w are generally considered to be located between vowels and l in the sonority hierarchy, their syllabicity is radically different from that of l and nasals — r appears to pattern both with the latter group and with glides. To mention a few differences: neither i, nor u alternates with əj or əw, in a way that l̩ n̩ m̩ and əl ən əm do; both "syllabic" j and w (i.e., ɪ and ʊ) can occur stressed, while other syllabic sonorants cannot. (It must be admitted though that the high vowels that do alternate with their glide counterpart are never stressed anyway: j and w alternate with ɪ and ʊ, but not with ɪ́ and ʊ́.) The nasals and l are also not equal in their inclination to turn syllabic. The liquid is best-known for this property, while of the nasals n̩ is most frequent, m̩ occurs less often and ŋ̍ is marginal.[5] In fact, ŋ̍ exclusively — given that the cluster əŋ is nonexistent in English —, and m̩ potentially, evolves through place assimilation to the preceding obstruent: *reckon* rekən → rekn̩ → rekŋ̍;

[5] On the other hand, Bell (1978 : 169) notes, "syllabic nasals are greatly favored over liquids in the languages of our sample." He lists 28 languages having both syllabic nasals and liquids, and 35 having only syllabic nasals, against a single language having only syllabic liquids. His list of languages may not be fully reliable, however, for example, Czech is claimed to possess both kinds of syllabic sonorants, but that language does not have syllabic nasals. Also, it does not take into account the lexical frequency of the two types of syllabic consonant in the languages. Still, the rarity of only-liquids languages is surprising.

open əʊpən → əʊpn̩ → əʊpm̩. Nevertheless, this place assimilation is only possible if there is no vowel following: *rekŋ̍ɪŋ, *əʊpm̩ɪŋ (cf. Wells 1990 : xxi).

The availability of a əC_{son} string is not in itself enough for SCF to take place. Nontrivially, the input string must normally be preceded by a consonant: syllabic consonants do not occur word initially and only very rarely postvocalically. The first case is conspired against by the fact that a word-initial unstressed vowel in a closed syllable fails to reduce to schwa, as *angelic* ænʤélɪk, *antagonistic* æntæ̀gənístɪk show; thus SCF, which, recall, presupposes the ə-only stage, is impossible. There are not very many examples for the potential input vowel (a word-initial unstressed vowel in a closed syllable) anyway. The case of *unless* ənlés is an exception, but *n̩lés is still nonexistent. The same holds true for open syllables, where schwa does commony occur: *allow* *l̩aʊ, *annoy* *n̩ɔɪ. The likelihood of these forms is lessened by the fact that the syllabic consonant in them is followed by a stressed vowel, though this in itself is by no means an obstacle to SCF: *capitalistic* -tl̩ístɪk, *modernistic* ˌmɒdn̩ístɪk are possible forms. My impression is that pretonic SCF is only possible if a morpheme boundary of some kind separates the syllabic sonorant and the following stressed vowel. As our examples show this can hardly be claimed to be a word boundary though, especially since the vowel(s) of such a suffix would not be stressed. Furthermore, in this case a nonictus syllable containing a full vowel does not count as stressed (as opposed to their status with respect to syncope, see §**4**): SCF in *Catalan* kǽtl̩æn, *analogue* ǽnl̩ɒg, etc. appears to be normal.

More interestingly, SCF also regularly[6] fails to occur *after* a stressed vowel. The following could serve as potential input: *eon* iːən ɪən, but *iːn̩; *jewel* ʤuːəl ʤʊəl, but *ʤuːl̩. It is clear that the reason is not to retain the number of sonority peaks in the word, since the lexically bisyllabic forms can be drawn into a single syllable, as the transcriptions given second show. SCF is, however, possible after an unstressed vowel, but I have only found cases invovling -uəl (never ʊəl!) becoming -ul̩, like in *casual, ritual, sexual, usual.*

Ignoring the forms discussed last, we may conclude then that for SCF the required input string is CəC_{son}. However, the nature of the first consonant is also of importance in the process as the divergent grammaticality of *camel* kæml̩ and *column* *kɒlm̩ demonstrates. The received wisdom in this respect is that SCF is possible in a C_1əC_2 string only if C_1 is less

[6] A few exceptions I have found: *ideal* aɪdíːl̩; Wells also has SCF in the non-RP and GenAm pronunciation of *theorem* θíːr̩m̩, *theorist* θíːr̩əst.

sonorous than C_2.[7] The impossibility of SCF in both *lemon* and *venom* indicates that we must apply a broad sonority hierarchy, which treats all nasals alike, not one that distinguishes the sonority of sounds according to their place of articulation as well, like, e.g., Ladefoged's (1982). If we accept the sonority condition, the behaviour of r turns out to be ambiguous (cf. Ács & Törkenczy 1986). While in C_2 position it looks more sonorous than either l or the nasals (*celery* selr̩i, *scenery* siːnr̩i, *camera* kæmr̩ə), in C_1 position it behaves as if less sonorous than any of the three (*barrel* bærl̩, *barren* bærn̩, *quorum* kwɔːrm̩). The duality of r is even more apparent in forms like *arbitrary* ɑːbɪtrr̩i, *temporary* temprr̩i, or even tempr̩r̩i. Such behaviour is unparallelled by other syllabic consonants: *consonant* kɒnsnənt, but *kɒnsnn̩t; *similarly* sɪmləli, but *sɪml̩li. In fact, it is not only r that behaves as an obstruent in C_1 position, but also the glides j and w: *loyal* lɔɪl̩,[8] *equal* iːkwl̩, *narwhal* nɑːwl̩, GenAm *year* jr̩, *lawyer* lɔ́ːjr̩.[9,10] It is clearly not accidental that it is exactly these three approximants (r j w) that exclusively occur before a syllabic segment — vowel or syllabic consonant — in English.[11]

It is not only a difference in sonority that is required between the two consonants flanking the schwa in SCF, but also one of place of articulation. This claim is even less valid than the previous: it basically holds only of labials. None of the members of the short list of words containing a word-internal C_{lab}əm string[12] exhibit SCF; word finally this string does not occur.

[7] Under this condition postvocalic SCF should be impossible because the vowel (!) in the "C_1" position is way too sonorous.

[8] In light of the fact that SCF does not generally occur postvocalically, I take this form to be lɔɪjl̩; it must be admitted, on the other hand, that SCF does not occur after aɪ, though — perhaps somewhat inconsistently — Wells writes *portrayal* pɔː ˈtreɪ əl, i.e., pɔːtréɪl̩ among other variants. The peculiarity of words in -ul̩ may be explained along these lines: they actually end in -uwl̩, but then why don't we have ʤúːl̩ for *jewel*?

[9] English does not abound in jəl, jən or jəm sequences, which could serve as input for this case. In the handful of words with wən, however, Wells does not show the possibility of SCF.

[10] Without a clear idea of what the syllabicity of the high glides means, it is difficult to judge whether their sonority rank is also ambiguous with respect to SCF.

[11] Although certain traditions of transcription seem to falsify this claim by giving forms such as meyk (*make*) beside yes (*yes*), lawd (*loud*) beside wet (*wet*), or bɑrk (*bark*) beside red (*red*), distributional facts strongly argue that the nonprevocalic glides in such words are an integral part of the vowel, and are not consonantal "codas".

[12] *blasphemous, -phemy, dismemberment, euphemism, infamous, infamy, sophomore*

(Recall, word finally pm̩ and its ilk are acceptable as a result of assimilation, like in *open.*) Whether this is accidental, or implies some general property of SCF is unclear to me. The lack of this constraint for postalveolars (*natural* -ʧr̩-, *beneficiary* -ʃr̩-), the scarcity of words with labials in the relevant configuration and most importantly the fact that cross-linguistically "one favored source for syllabic consonants is C_1VC_2 where C_1 and C_2 are identical or at least homorganic" (Bell 1978 : 166) argue for the first option.

Stress also plays some role in the likelihood of SCF: the process is most frequent nonprevocalically, less likely before an unstressed vowel, and least likely, but still occasionally possible before a stressed vowel (cf., for example, *Lebanon* lébənən lébənɒn lébn̩ən, but *lébn̩ɒn; *megaron* mégərɒn, but *mégr̩ɒn vs. *megara* mégərə mégr̩ə). Without hoping to fully complete this account of syllabic consonant formation, we now proceed to an examination of syncope.

4 Syncope

We have seen that in English syncope presupposes a previous stage involving syllabic consonant formation (this is the source of the problem Ács & Törkenczy (1986) discuss). It follows then that the conditions of SCF are all necessary for syncope too, i.e., the latter is only possible if all the conditions of SCF apply.[13] Syncope, however, is subject to further constraints: not all syllabic consonants can be desyllabicized.

One crucial difference between the two processes is that syncope only occurs if the sonorant to be desyllabicized is followed by an unstressed vowel.[14] (Due to independent phonotactic constraints of English this vowel can only be ə or ɪ/i, or, of course, a syllabic sonorant.) Accordingly, a word with an *sww* syllabic pattern may shorten to *sw,* while *sws* may not

[13] Note that it is not universally necessary that a syncopated vowel be unstressed, cf. French apɛ́l∼aplé (*appelle*∼*appeler* 'call-1/2/3sg.∼inf.'), Polish pʲɛ́s∼psá (*pies*∼*psa* 'dog-nom.∼gen.').

[14] A reviewer advises that "vowel" should be changed to "syllable". I retain the first term (and mark stress accordingly), however, for several reasons. Firstly, any desyllabicized sonorant is followed by a vowel — otherwise syncope is not possible —, thus it becomes the onset of the unstressed syllable. Secondly, stress does not seem to be a property of syllables, but of vowels: the consonants of a syllable have practically no influence on whether that syllable can bear stress or not, but its vowel does, what is more, consonants, at least in English, never bear stress (perhaps r̩ excepted in rhotic dialects). Thirdly, syllables are too theory-specific objects, vowels are not.

shorten to *ss* (where *s* stands for a strong syllable, that is, one with a full vowel, *w* stands for a weak syllable, with a reduced vowel): *memory* mém∅ri vs. *memorize* *mém∅ràɪz. The generally accepted explanation for this regularity makes reference to notions like stress clash, or the preference of polysyllabic feet to monosyllabic ones: while both *(mémory)* and *(mém∅ry)* are polysyllabic feet, **(mém∅)(rìze)* would be two monosyllabic feet, at least the first of which can be avoided by blocking syncope (Burzio 1994 : 61). This explanation is inadequate. If this were the reason for the absence of syncope before stressed vowels, we would expect this process to occur in *swws* strings, but this expectation is frustrated, as the following show: *methodological* *mèθəd∅lɒ́ʤɪkəl, *hullabaloo* *hʌ̀ləb∅lú:. This, however, is not the result of some ununderstood ban on *swws* becoming *sws*, cf. *nationalize* nǽʃənəlàɪz, nǽʃnəlàɪz, *nǽʃənlàɪz. In these words the only factor that inhibits syncope appears to be the stressedness of the following vowel.

The correlation between SCF and syncope is most clearly demonstrated by the fact that the latter is only possible before sonorants (cf. *Agatha* *ǽgθə, *sycophancy* *síkfənsi; counterexamples like *veg∅table* will be brushed aside in §**6**). It also holds that the consonant preceding the syncope site must be less sonorous than that following it (cf. *family* fǽmli vs. *colony* *kɒ́lni, *enemy* *énmi[15]). As we have seen, r and the high glides (j w) behave as if less sonorous than l and the nasals (n m): the latter may turn syllabic when preceded by the former. At the same time, r can itself become syllabic when following l n or m. The same ambiguity does not hold in the case of syncope, as the data in (2) show.

(2) a.	tolerant	tɒ́lrənt	b.	perilous	*pérləs
	general	ʤénrəl		barony	*bǽrni
	camera	kǽmrə		caramel	*kǽrməl

The pronunciation patterns given in (2b) should occur, if r were ambiguous in syncope too. However, it is very difficult to prove that they are impossible, since, recall, the fact that the conditions elaborated here allow SCF or syncope in a given word does not guarantee that it in fact occurs. I have, nevertheless, not found any case of syncope preceded by r.[16]

[15] Note the isolated lexicalized word *enmity* though, which is frequently pronounced émnəti.

[16] As for *caramel,* its usual pronunciation ends in -mel, in which syncope is out, but alternative forms -məl/ml̩ are possible and potential inputs to syncope.

This asymmetry in the behaviour of r with respect to SCF and syncope is readily explainable by the well-known constraint on the occurrence of r j w h: these consonants (*the* glides) must be followed by a syllabic segment, a condition satisfied in an rC̩, but not in an rC cluster (cf. footnote 11).

We have seen that as regards the identity of the preceding consonant SCF and syncope have similar requirements: in a C_1əC_2 string C_1 must be less sonorous than C_2. However, while SCF is practically insensitive to the kind of consonant cluster that precedes the alternation site, (3a), syncope is not, (3b).

(3) a.	mantle	mǽntl̩	b.	gambolling	gǽmblɪŋ
	chieftain	ʧíːftn̩		oftener	ɒ́ftnə
	angle	ǽŋgl̩		company	kʌ́mpni
	patron	péɪtrn̩		patronage	*péɪtrnɪʤ
	sequel	síːkwl̩		equally	*íːkwli
	children	ʧíldrn̩		sepulchrally	*səpʌ́lkrli
	mongrel	mʌ́ŋgrl̩		centrally	*séntrli
	rational	rǽʃnl̩ rǽʃn̩l̩		rationally	*rǽʃnli
	Bracknel	brǽknl̩		signalling	*sígnlɪŋ

Syncope is only possible after a certain type of consonant cluster, all of which exhibit a falling sonority profile and many of which occur word finally.[17,18] On the contrary, SCF may occur after just any cluster that occurs in the relevant position. This trivially shows that, on the one hand, syllabic consonants pattern with vowels. On the other, however, they share some characteristics with consonants, since their occurrence is sensitive to the sonority of the preceding consonant.

If the claim made above that any syncope-created C_1C_2 cluster presupposes the existence of C_1C̩$_2$, then the absence of word-initial syllabic consonants also entails that a word-initial schwa cannot be syncopated. Since the syncopation of an unstressed vowel is only possible before another unstressed

[17] Wells has the GenAm datum *patronal* ˈpeɪtrnəl ˈpeɪtrnl̩. This is spurious, especially, since none of the other possible inputs (*acronym, membranous, patronage, synchronous, synchrony*) exhibit syncope.

[18] The type of cluster after which syncope is possible in English is not easy to capture. One may be tempted to say this is the type that occurs in branching codas, however, some (e.g., mb, sʧ, etc.) do not occur word finally. What comes closest to the class is government phonology's coda–onset clusters.

vowel, the fact that words cannot begin in English with two unstressed syllables conspires against the syncopation not only of word-initial schwas, but of any schwa in the first syllable of a word.

5 High glides

Wells (1990 : 152f) uses the term compression for the process I have referred to as syncope here. In addition, he applies it to an apparently different phenomenon, to the drawing together of two syllables in words like *medial* mí:diəl mí:djəl,[19] where the first pronunciation is three syllables long, the second only two, let us call this, not unexpectedly, (high vowel) gliding. One can attempt to interpret this loss of a syllable peak in the same way as sonorant desyllabicization. What has to be hypothesized is the nonexistent form *mí:dəjəl from which syncope regularly produces the attested mí:djəl. In (4) I offer forms that look parallel.

(4)	medial	*mi:dəjəl	mi:djəl=mi:di(j)əl	m:idjəl
	family	fæməli	fæmli	fæmli

Accordingly, high vowel gliding is a subcase of syncope, the only difference is that both the 3V-set, (1a), and the ə-only, (1b), stage of the syllable reduction process are missing, the high vowelled form is the equivalent of the one with a syllabic consonant, (1c).

Justification comes from the similarity of the conditions of gliding and syncope proper: both occur only if an unstressed vowel follows, e.g., *mediate* mí:dieɪt, but *mí:djeɪt, similarly to *separāte* sépəreɪt, but *sépreɪt; *happy* hǽpij (=hǽpi:), but *hǽpj, like *button* bʌ́tn̩, but *bʌ́tn. What argues against this solution is the apparent difference of the environment preceding the syncope/gliding: while it is true that glides are, according to common knowledge, the most sonorous of consonants, therefore gliding should be possible after just any other consonant. This is indeed the case: *barium* béərjəm, *Zimbabwean* -wjən, *February* fébrwəri, fébjwəri. These forms run counter to the claim that r j w are not expected to occur before a nonvowel. Further difficulties arise when one looks at post-cluster gliding: *Austria* ɒ́strjə, *ganglia* gǽŋgljə, *influence* ínflwəns. These data prove gliding to be much more liberal a process than syncope. Wells, however, admits his inconsistency in

[19] I have marked syllable peaks by the syllabicity symbol so that the number of syllables can be counted easily, but marking syllable boundaries — a controversial practice — is avoided.

marking gliding: while on p. 153 he transcribes the compressed (i.e., glided) form of *influence* as ˈɪnflwəns, on p. 175 he has ˈɪnflŭəns with a crescendo diphthong. He says the diphthongal pronunciation "is particularly likely if a semivowel would give rise to a difficult sequence of consonants, as in *glorious* ˈglɔːriəs, where -rj- is awkward." Expressions like "difficult sequence of consonants" and "awkward" are difficult to translate to the parlance of phonology, but the statement that jə and wə could be treated as diphthongs may save the present account equating gliding and syncope. At the same time, it leaves us uncertain of how to interpret the data.

6 Misbehaved data

Some data sneak out of the generalizations made above. Examples include *comfortable* kʌ́mftəbəl, *vegetable* véʤtəbəl, etc.[20] These words are clearly lexicalized, very similar forms fail to exhibit the loss of the schwa: *comforter* kʌ́mfətə, but *kʌ́mftə, *vegetative* véʤətətɪv, but *véʤtətɪv. It is also obvious that their development followed a different path: the obstruent following the "trace" of the schwa could never have been syllabic.

7 Summary

I have tried to systematize the data the LPD contains on syllabic consonant formation and syncope in English. Although there appears to be a considerable portion of forms that conform to rather general patterns, some of which have been mentioned here, there remain mysterious issues, like postvocalic SCF or the effect of stress on the following vowel on SCF.

[20] In fact, it is these cases that Nádasdy (1994 : 64) calls syncope, referring to the "normal" process as sonorant desyllabification.

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