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*Compensatory lengthening and structure preservation revisited**

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0 Introduction

In de Chene & Anderson's (1979) article on compensatory lengthening, the authors make two strong claims as to the universal nature of compensatory lengthening. These claims are: (i) that compensatory lengthening occurs in two stages, involving the weakening of a consonant to a glide and the subsequent merger of the resulting diphthong; and (ii) that compensatory lengthening can only occur when there is a pre-existing vowel-length contrast in the language in question.

Both of these claims have received considerable attention in the literature. The first claim has never gained widespread acceptance, and has been challenged in several studies. Challenges have come from, for example, Hock (1986), Poser (1986), Sezer (1986) and more recently Gildea (1995). Each of these scholars provides a strong case against the view that compensatory lengthening is always decomposable into two distinct stages. The ensemble of their arguments renders this claim simply untenable.

The second claim has gained widespread acceptance, as discussed below. Nevertheless, it has been challenged by a few scholars, for example, Hock (1986), Hayes (1989), Morin (1992) and Lin (1997). Hock (1986) mentions in a footnote that this claim is also 'dubious, except maybe as a tendency', citing as a counterexample final /h/-deletion in Andalusian Spanish, with compensatory lengthening and no pre-existing vowel length contrast. Hayes (1989), in another important article on compensatory lengthening, suggests that, according to moraic theory, a pre-existing distinction between heavy and light syllables should be a sufficient condition to allow compensatory lengthening to occur. Hayes mentions two cases that he knows of that bear out his prediction: Ilokano and, citing

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Hock (1986), Andalusian Spanish. Lin's (1997) analysis of Piro, if correct, suggests simply that compensatory lengthening is mora conserving (another suggestion put forth by Hayes 1989), but no more than that.

Despite the challenges posed to Chene & Anderson's second claim, that compensatory lengthening depends on an independently motivated length contrast in the language in question, it continues to be an underlying assumption in many important articles on phonological theory. For example, Kiparsky (1995: 656) makes the following statement in a general discussion on the structure dependence of sound change:

> De Chene & Anderson (1979) find that loss of a consonant only causes compensatory vowel lengthening when there is a preexisting length contrast in the language. So the scenario is that languages first acquire contrastive length through other means (typically by vowel coalescence); then only do they augment their inventory of long vowels by compensatory lengthening.

Kiparsky observes that the only counterexample he knows of is Occitan, mentioned in Morin (1992).

Another reference to de Chene & Anderson's claim comes from Rosenthall (1997: 163–164), who makes the following statement:

> The constraint ranking ... that determines surface vowel length accounts for the structure-preserving nature of compensatory lengthening noted by de Chene & Anderson (1979) and Hayes (1989). They note that compensatory lengthening from vowel deletion only occurs in languages that exhibit an underlying length contrast. This follows straightforwardly from constraint ranking in Optimality Theory.... Therefore, compensatory lengthening is not possible in a language without an underlying length contrast.

There are two problems with this statement. First of all, de Chene & Anderson do not discuss compensatory lengthening from vowel deletion at all. Each of their cases involves the putative weakening of a consonant to a glide and the subsequent monophthongisation of the resulting diphthong. Hayes does discuss compensatory lengthening from vowel loss, but only as one of six types (1989: 279–280). The second problem with Rosenthall's statement is that it implies that the two works cited reach similar conclusions. This is not the case. As we have already seen, de Chene & Anderson claim that compensatory lengthening depends on a pre-existing vowel-length distinction, while Hayes suggests only that it depends on a pre-existing distinction between heavy and light syllables.[1]

[1] In their final footnote, de Chene & Anderson do allude to a type of analysis of compensatory lengthening in terms of syllable structure. They say that the reinterpretation of a VG (G = glide) sequence in which the G is in coda position to one in which it is included in the nucleus 'is possible only where the syllable structure of the language allows for internally complex (two-position) syllable peaks'. However, in what immediately follows they make the same claim which is shown here to be simply untenable, i.e. that 'such a configuration is established by the existence of an independent length contrast' (1979: 533).

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The goal of this article is to refute the claim made by de Chene & Anderson that compensatory lengthening depends on an independently motivated length contrast in the language in question. The evidence I present against de Chene & Anderson's claims comes from Old French. This evidence is especially troublesome for their claims since it is largely on this very language that they rely in making their arguments. I show that de Chene & Anderson's interpretation of the Old French data is incorrect, and that their specific claims as to the structure-preserving nature of compensatory lengthening simply cannot be maintained. I suggest that structure preservation is irrelevant as a theoretical construct, and that structure-preserving effects such as mora conservation can be seen as falling out from general principles that have been proposed in the Optimality Theoretic literature.

1 De Chene & Anderson (1979): the claims

One of the main goals of de Chene & Anderson (1979) was to show that compensatory lengthening is structure preserving. As the authors themselves put it, 'the existence of an independently-motivated length contrast in the language is a necessary condition for compensatory lengthening', i.e. 'no language INTRODUCES distinctions of length into its phonological system through compensatory lengthening alone' (1979: 508).

De Chene & Anderson's claims are partially based on data from Old French. What they look at specifically are two processes of syllable-final consonant loss, of /S/ (=[s], [z]), dated in the 12th and 13th centuries, and of /N/ (= all nasals), dated in the 16th century.[2] Both of these processes occurred with concomitant compensatory lengthening. The compensatory lengthening is linked by the authors to a 16th-century process of monophthongisation of the diphthong [aw], which led to a long /o:/ (1979: 518). This monophthongisation, in turn, is compared to a similar one in the 9th century which led to a short /o/. Examples of the 9th and 16th century monophthongisations are shown in (1) and (2), respectively (from de Chene & Anderson 1979: 518).

(1) a. *or* < (Seq. of St. Eulalia, ca. 870) < *aurum* 'gold'
b. *oser* < *ausāre* 'to dare'
c. *somme* < *soma* (Strasbourg Oaths, 842) < *sauma* (Isadora of Seville, 7th cent.) < *sagma* 'burden'
d. *forge* 'forge' < **faurga* < *fabrica* 'workshop'
e. *parole* < **paraula* < *parab(o)la* 'word'

(2) a. *autre* [o:tr] < *alterum* 'other'
b. *aube* [o:b] 'dawn' < *alba* 'white (FEM SG)'
c. *faucon* [fo:kõ:] < *falconem* 'falcon'
d. *faut* [fo:] 'is necessary' < *fallit* 'it disappoints, is lacking'

[2] The dating of these changes is discussed in §3.

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The original, pre-9th century diphthong [aw] came from a variety of sources. Some were present throughout Latin, as in (1a) and (1b), some were created in Vulgar Latin by the vocalisation of [g] to [w] before [m], as in (1c) and some by a more irregular process which changed some instances of preconsonantal [b] to [w], as in (1d, e).

What is important here for de Chene & Anderson is that the resulting monophthongs in (1) were short, while those in (2) were long. Again, the length resulting from the later monophthongisation is related to the fact that compensatory lengthening was permitted with the loss of /S/ and /N/. The question which then naturally arises is posed by the authors as follows: 'What had changed in the language in order to allow this lengthening process?' (1979: 520). More important is the answer they propose: 'languages almost invariably acquire vocalic length through the development of sequences of identical vowels in hiatus (i.e. geminate vowel clusters), these generally resulting from the deletion of one or more intervocalic consonants. It is not hard to show that French obeys this rule.' More specifically, de Chene & Anderson claim that 'distinctive length was introduced in French, primarily during the course of the 10th and 11th centuries after the deletion of intervocalic *t* and *d*' (1979: 523).

The specific claim that de Chene & Anderson are making, then, is that the distinctive length that was introduced by the deletion of intervocalic *t* and *d* in the course of the 10th and 11th centuries was what permitted length to result from the 12th-century loss of syllable-final /S/, the 16th-century loss of syllable-final /N/ and the 16th-century monophthongisation of [aw].

In the following section, I reexamine in some detail the data on which de Chene & Anderson base their claim. I show that the orthographic geminate vowels cited by de Chene & Anderson as long vowels were in fact treated by poets as two-syllable sequences well into the 13th century, when the deletion of syllable-final /S/, and arguably of /N/ (see note 2), was complete. In §3, I show that syllable-final consonant loss in Old French was indeed accompanied by compensatory lengthening, despite the absence of a pre-existing vowel length distinction.

2 The data reexamined

The actual claim made by de Chene & Anderson (1979) concerning the pre-12th century formation of long vowels, with their supporting data, is as follows:

> There is a solid body of long vowels, however, that were established by 1100 through deletion of the consonant in original V_iCV_i sequences. In these cases, no leveling or assimilation being necessary, a long vowel is the automatic result of loss of the consonant.

They give the examples in (3), 'involving original sequences of *aCa* and *eCe* ($e < \check{\imath}, \bar{e}$)':

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(3)

	ModFr.	*OFr.*	*Latin*	
a.	bâiller	baailler	bataculare	'to yawn'
b.	—	graal	gradalem	'dish'
c.	—	aates	adaptas	'suitable (FEM ACC PL)'
d.	sceau	seel	sigillum	'seal'
e.	(voyez)	veez	*ved-ez (Cl. vidētis)	'you (PL) see'
f.	(croyez)	creez	*cred-ez (Cl. crēditis)	'you (PL) believe'

They observe (1979: 522) that:

> The history of *-oCo-* sequences is illustrated by *coule* 'cowl' < *cooule* < **cuculla* (It. *cocolla*) and *coing* 'quince' < *cooin* < *cotoneum*... An additional source for *oo* in Old French was provided by combinations of the analogically-created 1 pl. ending (Pope, 339) *-ons* with stems in *o*, producing forms like *joons* 'we enjoy' (*gaud(ēre)*), *foons* 'we dig' (*fod(ere)*), and *oons* 'we hear' (*aud(īre)*; Pope, 394).

Notice that in (d) the affected segment is neither a /t/ nor a /d/ (as is the case for **cuculla*), so that de Chene & Anderson's other wording of their claim, in terms only of 'intervocalic *t* and *d*' (1979: 523), must be intended to be more generally interpreted.

I have easily found each of the forms listed in (3a–f) in 12th and 13th-century Old French poetry. In each case the forms are treated as consisting of two syllables. This is illustrated in the following examples.

(4) *Putative long vowels as separate syllables in Old French poetry*

a. *Le Roman de Renart* (Roques 1958: 70, ll. 11506–11508), late 12th century

(Octosyllabic lines; syllables with schwa do not count at end of line)

fuiant s'an torne, si **baaille**,
1 2 3 4 5 6 7 8
fleeing, he turns around, lets out a moan of regret,
q'il n'i ose plus demorer
that he no longer dares to stay

b. *Le Roman de Perceval* (Roach 1959: 3, ll. 66–77), late 12th century

(Octosyllabic lines)[3]

Ce est le CONTES DE **GRAAL,**
1 2 3 4 5 6 7 8
This is the STORY OF THE GRAIL,
Dont li quens li bailla le livre.
About which the count gave him the book.

[3] In fact, *graal* occurs 24 other times in this poem of 9,234 lines (which is, after all, the story of the grail), and is counted as bisyllabic each time, including one time in which the scribe wrote only one *a*!

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c. *Voyage de Charlemagne à Jerusalem et à Constantinople* (Bartsch & Wiese 1958: 39, ll. 179–180), early 12th century

(Dodecasyllabic lines; syllables with schwa do not count at end of line)

puis serai si legiers et isnels et **aates**
1 2 3 4 5 6 7 8 9 0 12

Then I will be so light and fast and agile

que m'en vendrai corant parmi l'uis de la sale,
that I'll come running through the door of the room,

d. *Le miracle de Théophile* (Aspland 1979: 201, ll. 237–238), mid 13th century

(Extract in octosyllabic lines)

Ma chartre en ot de quanqu'il dist;
Whatever he said my letter had in it;

Seelé fu quanqu'il requist.
12 3 4 5 6 7 8

Whatever he requested was sealed.

e. *Trubert* (Lage 1974: 44, ll. 1303–1304), 13th century

(Octosyllabic lines)

Cest oignement que ci **veez**,
1 2 3 4 5 6 78

This ointment that you see here,

de quoi estes oinz et dorez,
with which you are annointed and gilt,

f. *Simon de Pouille* (Baroin 1968: 133, ll. 988–989), first half 13th century

(Dodecasyllabic lines)

– Dame, dist Synadors, si vos ice **creez**,
1 2 3 4 5 6 7 8 90 12

– Lady, said Synadors, if you believe that,

Donc estes vos plus folle que non est uns devez,
Then you are crazier than anyone is,

The putative long vowels in the examples provided by de Chene & Anderson are clearly treated as constituting two separate syllables in the works shown above. I have found many other examples of orthographic geminate vowels in 12th and 13th-century Old French poetry, all of which are treated as bisyllabic. They cannot be listed here, due to space limitations. Such examples are abundant, however, and I am confident that any future search will validate my finding that such sequences are treated as two separate syllables through at least the middle of the 13th century.[4] The fact that I have found no counterexamples is surprising in

[4] Pope (1952: 110) states, with no supporting evidence, that coalescence of homophonous vowel sequences 'began in the thirteenth century and was established in

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itself, given the high degree of variation found in other aspects of Old French poetry.

More evidence that orthographic geminate vowels were in fact bisyllabic comes from the 13th-century Basel Glossary. In this glossary, the word 'power' (common orthography *pooir*) is transcribed in Hebrew as פּוֹאוֹיִיר [po.ojr] (Banitt 1972: 303). The fact that an *aleph* separates the two [o] vowels (וֹ) indicates that these were two separate syllables (indicated by . in my transliteration). The same holds for the only other relevant form in the Basel Glossary, 'spokes' (common orthography *reels*), which is written רִיאֵילְש [re(i).e(i)ls] (67), with an *aleph* separating the two [e(i)] vowels (ִי). This is not some exaggerated orthographic convention to mark long vowels, as vowels lengthened by the deletion of /S/ and /l/ (which vocalised to [w] in other dialects) are usually represented in the Basel Glossary by one *aleph* in conjunction with the relevant vowel sound under or following the preceding consonant (e.g. 'blamed 3SG' (common orthography *blasma*) בְלַאמָא [blɑ:ma] (word-final *aleph* has no phonetic value) (1) and 'beauty' (common orthography *biauté*, reflecting vocalised etymological /l/) בִיָאטֵי [bija:te(i)] (85)). 'Normal' unlengthened vowel sounds are simply marked under or following the preceding consonant, with no *aleph*. The forms with lengthening marked by an *aleph* also provide evidence for the compensatory lengthening discussed in the following section.

I conclude from the evidence presented above that, *contra* de Chene & Anderson, long vowels from the putative sources discussed above did not exist at this stage of the language.

3 Old French consonant loss and compensatory lengthening

The loss of syllable-final /S/ and /N/, mentioned by de Chene & Anderson, are two manifestations of a more general change in Old French syllable structure which affected all syllable-final elements in word-internal syllables. The vocalisation of syllable-final /l/, which resulted in the diphthong [aw] (except in the Champenois dialect illustrated in the Basel Glossary), and which is so important to de Chene & Anderson, is another manifestation of the change, as is the deletion of syllable-final /R/. The individual manifestations of the change in Old French syllable structure are shown in (5).

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most words by the sixteenth'. I have found no examples of coalescence in the 13th century, and have found some examples counted as bisyllabic as late as the 15th century, although my search past the 13th century has to date been extremely limited. Fouché (1969: 438) treats geminate vowel sequences as bisyllabic, but offers no direct data from poetry. He does cite 16th-century grammarians, however, who even then treat orthographic geminate vowels in many forms as bisyllabic.

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(5) *Changes in Old French syllable structure*

	ca. 1050	*ca.* 1250	
a. feste	[fɛstə]	[fɛːtə]	'feast'
b. angle	[ɑnglə]	[ɑ̃ːglə]	'angel'
c. albe	[ałbə]	[awbə]	'dawn'
d. large	[laʀʤə]	[laːʤə]	'wide'

(5a) shows the deletion of syllable-final [s] and [z], the latter of which is indisputably dated in the latter part of the 11th century, with compensatory lengthening and, as I have shown, without pre-existing long vowels (cf. Pope 1952: 151–152, and see below). There is general agreement that the loss of [s] was complete by the middle of the 13th century, and textual evidence for it is very strong. The deletion of syllable-final nasal consonants is exemplified in (5b). It is quite common to see this process dated in the 15th or 16th century, but Morin (1994) and Gess (1996) have provided strong evidence for a much earlier dating, in the 12th and 13th centuries.

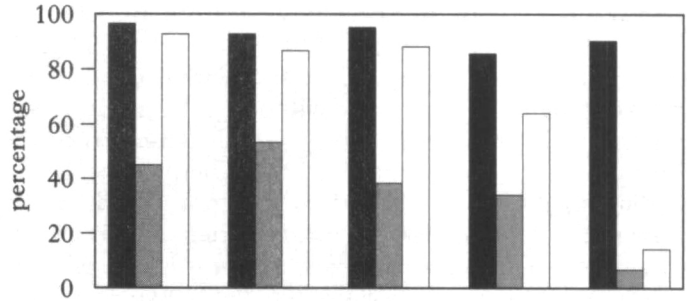
The vocalisation of /l/ is shown in (5c). Although some scholars date this change as early as the 7th or 9th century, there is little evidence (and none conclusive) to support this view. Several other scholars, who claim a very gradual process, put the ending date of the vocalisation of /l/ in the middle of the 12th century. Included in this group are Pope (1952), Rheinfelder (1953) and Fouché (1966). Klausenburger (1970) alludes to a dating at around the end of the early Old French period, i.e. at around the end of the 11th century, and Gess (1996) supports a dating in the 12th or 13th century. The deletion of /ʀ/, shown in (5d), did not occur in all dialects, a fact which is accounted for under my assumption that these changes were either more or less simultaneous, or followed the chronology shown in (5), in order of increasing sonority, and with little temporal separation between them. The fact that /ʀ/ is the most sonorous of these consonants protected it from deletion in certain dialects.

At least one scholar, Bichakjian (1986), disagrees with the view that the lengthening accompanying the changes shown in (4) resulted in distinctive length.[5] In fact, the evidence generally cited for lengthening is weak, and consists almost exclusively of remarks made by 16th-century grammarians, three centuries after the changes had occurred. Bichakjian uses these same remarks to argue against distinctive length, claiming that 'quantity could not have been distinctive' since 16th-century prosodists 'admonished poets not to couple in rhyme words with short and long vowels' (1986: 18). He argues that if length was distinctive, poets would not have had to be admonished to recognise it in their work. He attributes such remarks made by 16th-century prosodists and grammarians to a desire to imitate Latin, and also points to the statement made by Pope (1952: 205), that 'fifteenth-century poets like Villon couple together freely in rhyme words like *abbēsse*:*mĕsse*, *honnēstes*:*fillĕtes*, *maistre*:*mĕtre*'.

It is highly problematic to rely on remarks made by grammarians three

[5] My thanks to Haike Jacobs for pointing out this reference to me.

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	1100–1250	1250–1300	1300–1400	1400–1500	1500–1600
Overall rhyme matches	96·5	92·7	95·1	85·7	90·3
Forms with s *in relevant rhyme type*	45·2	53·5	38·3	34·0	6·8
Rhyme matches with s	92·7	86·8	88·2	64·1	14·3

Figure 1
Summary of rhyme trends in Old French

centuries after the relevant change in arguing one way or the other for compensatory lengthening. In fact, a detailed look at rhymes involving orthographic *s*, in poetry from the 12th to the 16th century, clearly reveals that poets consciously segregated rhymes with orthographic *s* from those without, even after /S/ had been lost. Indeed it appears that only if absolutely necessary were such rhymes permitted. The rule was to couple long vowels with long vowels, and short vowels with short vowels.

In Gess (1998b), I looked at 116,755 lines of poetry, for rhymes of the type *-i(s)* C(*ə*), *-u(s)* C(*ə*) and *-ui(s)* C(*ə*), since segregation of other vowels could also be attributed to a laxing which did not affect the high vowels. There were 1,287 relevant rhymes. From 1100 to 1250, before the deletion of /S/ was complete, the overall percentage of matching rhymes (occurrences of -V*s*C(*ə*):-V*s*C(*ə*) and -VC(*ə*):-VC(*ə*)) was 96·5 %. From 1250 to 1300, when the deletion of /S/ was complete, the percentage was 92·7 %, and from 1300 to 1400, it was 95·1 %. Only in the 15th century do we see a dip, to 85·7 %. The percentage rises again in the 16th century due to a dramatic fall in the use of orthographic *s*.

In only those rhymes involving at least one form with orthographic *s*, the 15th-century decline is even more obvious. The percentages of matches (-V*s*C(*ə*):-V*s*C(*ə*) only) are 92·7 % from 1100 to 1250, 86·8 % from 1250 to 1300, 88·2 % from 1300 to 1400 and 64·1 % from 1400 to 1500. In the 16th century, in those few rhymes involving at least one form with orthographic *s*, the percentage of matches is only 14·3 %. The results from my study (1998b) are summarised in Fig. 1.

Gess (1998b) shows that the lengthening that accompanied the deletion of syllable-final /S/ was distinctive through at least the 14th century, a

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century and a half after the deletion was complete. The evidence is very strong that from the middle of the 13th century through the 14th century, poets consciously segregated rhymes with orthographic *s*, an orthographic marker of length, from those without it. In the 15th century, there was an instability in the perception of length which was followed, in the 16th century, by a cataclysmic loss of distinctive vowel length. So Bichakjian (1986) may well be right as to the motivations of 16th-century grammarians and prosodists in making their admonitions, but not because there never was distinctive vowel length in the preceding two and a half centuries. Rather, it is because the distinctive vowel length that did result from the loss of syllable-final /S/ was lost in the 16th century.

As mentioned in the previous section, forms in the 13th-century Basel Glossary with lengthening marked by an *aleph* also provide evidence for the compensatory lengthening discussed in this section. As for the other changes shown in (5), there is no reason not to believe that they were also accompanied by compensatory lengthening. In fact, we have also seen that the Basel Glossary includes markers of length in forms where syllable-final /l/ is lost (with no vocalisation in this dialect), as in 'beauty' (common orthography *biauté*, reflecting vocalised etymological /l/) בִּיָאטֵי [bija:te(i)] (Banitt 1972: 85). The Basel Glossary provides no evidence for compensatory lengthening with the deletion of syllable-final /ʀ/, as it reveals instead that this manifestation of the general change did not occur in the Champenois dialect. The deletion of syllable-final /N/ is shown by the exclusive use of the Hebrew letter *nun* (נ), even before bilabial stops and despite the homorganic nasal consonant assimilation which is a well-known and unsurprising aspect of earlier Old French phonology. The use of *nun* may indicate length as well as nasalisation of the preceding vowel (see Gess 1996, forthcoming, for discussion of the similar use of the Roman letter *n* in Old French texts).

4 Structure preservation revisited

The evidence presented in the preceding sections shows that compensatory lengthening accompanied Old French consonant loss, which was complete by the middle of the 13th century, despite the absence of a pre-existing vowel length contrast. These findings directly contradict de Chene & Anderson's claim that compensatory lengthening depends on a pre-existing vowel length contrast, i.e. that it is structure preserving.

Despite the fact that their principal claim is untenable, one of de Chene & Anderson's key assumptions in making their case raises an interesting question. Recall their assertion that phonemic length was introduced into the language via the coalescence of identical vowel sequences. What convinces the authors that compensatory lengthening should be structure preserving, while another process such as vowel coalescence should not be? In other words, what is it about vowel coalescence that should allow

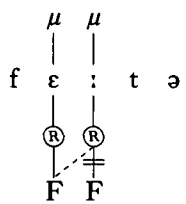
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it to introduce phonemic vowel length into a language, and what is it about compensatory lengthening that should prevent it from doing so? The answer to this question is that there is no theoretical justification for such a position. Since it is certain that one of the processes introduced phonemic vowel length into the Old French language (and we have shown above that it was compensatory lengthening), why should we put any weight behind the notion of structure preservation as a force in phonological change?

Structure preservation as it applies to phonological change must be distinguished from structure preservation as it applies to a synchronic grammar. According to the latter, discussed mostly in the Lexical Phonology literature, lexical rules cannot introduce novel structures. Since there is no question that novel structures can be introduced postlexically, the relevance of structure preservation to phonological change is immediately called into question. A realistic view of language change, according to which child language acquisition is key, highlights the tenuous bearing that structure preservation has on the process. If an adult grammar can produce non-structure preserving forms, via postlexical processes, and the child builds a grammar on the basis of adult forms, why should the child not posit forms that are not structure preserving with respect to the adults' underlying forms? The idea that the child cannot create novel forms in this way is based on the unrealistic (but unfortunately pervasive) notion of language change as grammar change, where the grammar is some reified entity that exists outside of its speakers. We must keep in mind that only historical linguists have the privileged (but warped) view of a grammar as a developing system through time (see Andersen 1973 and Hale 1997 for illuminating discussions of this issue).

Let us return to the problem at hand, compensatory lengthening in Old French. In Gess (1998a), consonant loss in Old French was analysed as the deletion of any material dominated by a mora and incompatible with the feature [−consonantal]. The result of the process was as shown in (6), where the second underlying mora is attached to the original root node (®), whose underlying features (F) have been left unrealised. Other features spread from the preceding root node, producing a phonetic long vowel. Phonetic symbols are notational devices and are not part of the formal representation.

(6) *Consonant loss in Old French*



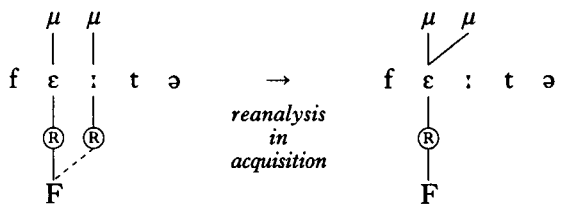
We can attribute the retention of the second mora to the constraint MAX-μ, a faithfulness constraint requiring underlying moras to be realised.

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Now, for a certain generation of speakers, the configuration shown in (6) was the result of a postlexical process. For the subsequent generation, there is no reason that such a configuration would not be reanalysed as two moras attached to one root node, especially if we assume that UG provides for a long vowel segment as a primitive category, but not for a moraic empty root node.

So what happened in the Old French change is that the configuration in (6) was reanalysed and phonologised through the acquisition process, as shown in (7).

(7) *Reanalysis and phonologisation via acquisition*



Results from previous studies challenging de Chene & Anderson's claim that compensatory lengthening is structure preserving, mentioned in the introduction, suggest that it is so only in the most trivial way possible, i.e. that it is mora conserving and nothing more. The present study supports this finding. The fact that compensatory lengthening is mora conserving falls out from two fundamental aspects of the Optimality Theoretic framework – faithfulness (in the guise of the constraint MAX-μ) and the basic principle of minimal violation.[6] Again, these principles operate on the adult's postlexical phonology. Also at play, of course, is the effort made by the child to reconstruct as precisely as possible the adult grammar, as she perceives it. Faithfulness is crucial here too. Structure preservation as a force of its own, separate from these principles (or others like them, i.e. other faithfulness constraints), is a questionable theoretical construct, at least as applied to phonological change.[7]

[6] In the case of Old French consonant loss, minimal violation also explains the retention of the features [+nasal] (for /N/) and [+high, +back] (for velarised /l/), which are compatible with the feature [−consonantal] and thus do not violate the triggering constraint.

[7] I do not wish to suggest that there are no systemic pressures on the language learner. For example, it may be more likely that compensatory lengthening will be phonologised if the language does have pre-existing long vowels (cf. the 'priming effect' discussed by Kiparsky 1995: 656). I have shown here simply that this is not a prerequisite for phonologisation to occur, as Kiparsky, following de Chene & Anderson, suggests it is.

Other aspects of change, such as analogy, are clearly structure-dependent (although analogy is not phonological change proper, as pointed out by Hale 1997: 12, but 'the diffusion of linguistic variants'). Nevertheless, analogy may also be shown to fall out from principles which have been proposed in the Optimality Theoretic literature (see, for example, Reiss 1997).

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Attributing mora conservation to violable principles of UG allows for the possibility of exceptional cases. It is up to further research to determine whether and under what circumstances (i.e. due to what overriding constraints) compensatory lengthening can be non-mora conserving.

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