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The volume's website will include the additional notes in the appendix – here, the mark **[appendix]** in the main text shows where these notes are relevant.

'Lenition in English'

Patrick Honeybone

1. Introduction

The idea that certain kinds of segmental change are instantiations of an overarching type of change called "lenition", which together form a continuum of changes that consonants can undergo, has long played a role in historical phonology. But not *that* long: the term was introduced at the end of the nineteenth century (see Honeybone 2008), and the modern concept of lenition can be traced back to the 1950s, only really becoming common in phonological discussion in the 1970s. There is thus no entry for *lenition* in the detailed contents to Luick's (1914-1940) masterwork on English historical phonology, nor is there any mention in the index to Dobson's (1957/1968) remarkable volumes on Early Modern English phonological change. This absence may also partly be due to the facts that the concept was largely developed on the basis of changes in Celtic and Romance languages, and that not *that* many developments in the canon of English phonological change can be clearly classified as lenitions. So why should historians of English be interested in lenition? Should we reject it as irrelevant as we rethink the history of the language?

There are several reasons why this may be too hasty. Lenition now has a firm place in the discourse of both theoretical and historical phonology (as shown in the articles in Brandão de Carvalho, Scheer and Ségéral 2008), it takes up a non-negligible portion of the discussion of English consonantal phonology in influential work such as Lass and Anderson (1975) and Harris (1994), and the idea drew from and is now connected to phonological metaphors such as "softening" and "weakening" (it is now typically synonymous with the latter) that are more easily linked to the history of English. Luick does, for example, call *some* of the types of change which are now grouped as lenitions *Erweichung* ("softening"), and, more recently, Minkova (2009) devotes a whole collection to the discussion of phonological weakness in English. In this piece, I discuss (in the next and final sections) some fundamentals about what lenition might actually be; in section 3, I consider several phenomena that can be described as lenitions from the history of English.

2. What counts as lenition?

The types of change that are typically recognized as lenitions include "spirantization" (a segment becoming a fricative, e.g., p becoming f), "approximantization" (becoming an approximant, e.g., d becoming ð), "debuccalization" (losing oral articulation to become a glottal, e.g., x becoming h), and "voicing" (a change in laryngeal features, e.g., s becoming z, also describable as "fortis" becoming "lenis"); segmental loss is sometimes included in their number, too. One central aim of lenition theory has been to formally unify these types of change as the 'same kind of thing'. One step in this direction is to note that they are all crosslinguistically common; another is that place of articulation is unchanged (except, perhaps, in debuccalization); another is that lenition processes often affect whole natural classes of segments (e.g., all lenis stops), although they are also described for single segments, or segment pairs **[appendix]**.

The phonological environment in which such changes occur also needs consideration. Some kinds of change involve the innovation of a synchronic process, in which case the environment can be seen in segments' surface distribution; other

kinds of change involve the reanalysis of underlying representations on the basis of surface forms, so that the environment of an earlier synchronic process can be preserved in the distribution of contrasting segments in the words of a language. Both types of change can be perceived as lenitions: for example, a debuccalization can be represented as x > h if it involves underlying reanalysis, and as x → h if it involves the innovation of a synchronic process. They can be related if we see the latter as an "early stage" in the life cycle of a phonological process, and the reanalysis of once-derived segments into underlying representations as the "last stage" (see Bermúdez-Otero and Trousdale, this volume, for more on the "life cycle of phonological processes"). Section 3 gives examples of both of these types of change.

What do lenitions have in common? Many answers have been given to this question: some see lenition as the loss of segmental material; others as an increase in sonority; still others try to link lenitions to an increase in "ease of articulation". All of these definitions suffer from problems, and I rely here on a quite simple definition until section 4. This derives from Vennemann's claim that "a segment X is said to be weaker than a segment Y if Y goes through an X stage on its way to zero". It is standard in discussions of lenition to cite this notion (it is recorded in Hyman 1975, 165), and it is typically used to link different segment-types in terms of their relative "weakness" on a continuum (sometimes called a "hierarchy of phonological strength"), along which segments are assumed to be likely to progress diachronically. Such scales can be seen as "lenition trajectories", expressing, although not explaining, the connectedness of the changes involved. Several such scales have been proposed; the most widely cited is probably that in Lass (1984: 178), shown in Figure 1.

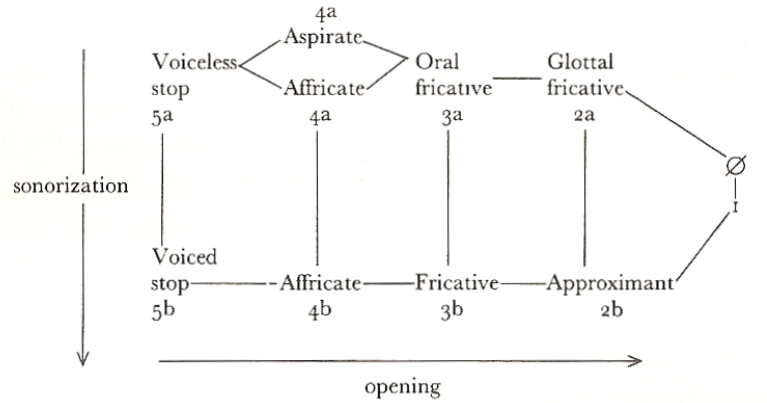

FIGURE 1

Any step in the direction of the arrows counts as lenition for Lass, thus affrication, spirantization, debuccalization (to the glottal fricative) and approximantization are linked to voicing (all the segments in the 'b' line are voiced/lenis) as two sub-types of lenition: "opening" and "sonorizing". Deletion ("to zero") is seen as the final stage of lenition, indicated by 'Ø' at 'stage 1' of the scale. Some of these changes are controversial as cases of lenition (see, e.g., Szigetvari 2008), and further changes have also been included in the group (e.g., "glottalling" debuccalization to [ʔ]), but the Vennemann-Lass idea has a clear diachronic rationale, and it will serve as our initial basis.

The second strand of argumentation in lenition theory concerns the contexts in which it occurs. The relevant environments are referred to, in one well-established terminological tradition, as either "strong" or "weak" positions (see Scheer and Ségéral 2008). Weak positions are those which are typically thought to promote

lenition (that is, they have some characteristic that causes lenition to occur). Strong positions are those where lenition is disfavoured. Strong positions include: word-initial ([#__], as in *taktat*)[1] and post-coda ([c.__], *takt*), which can both be seen as types of syllable onset. Weak positions basically comprise: codas (of which there are two kinds: pre-consonantal [__.c] *takt*, and word-final [__#] *taktat*), and "intervocalic" position, sometimes referred to as "medial" ([v__v], *tatat*). Intervocalic position needs further thought for two reasons: (i) the segments on either side of the position can, in fact, be very sonorous consonants as well as vowels, and (ii) the degree of stress of surrounding syllables can, but need not, affect the position: some lenitions occur in all types of intervocalic position (this is common in Romance languages, for example), but in some cases, lenition only occurs if the vowel following the segment is not stressed (that is, lenition occurs if the segment is foot-medial, *tát*, but not if it is foot-initial, *tatát*). This means that there can be two types of intervocalic environment: a stronger [v__v́] and a weaker [v́__v].

These environmental restrictions do not imply that all lenitions occur in all weak positions – some only occur intervocalically (sonorization is common here), and some only in codas (where debuccalization is common). In some cases, furthermore, lenitions can occur across the board, in both weak and strong positions (but never only in strong positions, it is predicted).

3. Lenition in English

Has there been lenition in English? English lacks the widespread lenitions found in the history of Romance and Celtic. But there *are* English phenomena that can be seen as lenitions. I discuss several here: a widespread synchronic sonorization, a spirantization that has left its mark on general English contrasts, a synchronic case of opening lenition from one dialect, and what look like historical voicings.[2]

3.1 Contemporary coronal stops

One English phenomenon often described as a case of lenition is "flapping"; it is also known as "tapping", but "flapping" is the more common name (see Carr and Honeybone 2007), so I adopt it here **[appendix]**. Flapping is a synchronic process that has been innovated into many varieties of Present-Day English, including some Irish and Southern Hemisphere, and most American dialects (including "General American", henceforth GA). It affects only /t/ and /d/, typically resulting in the alveolar flap [ɾ], a lenis segment, in a process which could be written as: t, d → ɾ. The data in (1), partly taken from Giegerich (1992), show common GA non-phrasal realizations of /t/ in the first column, and of /d/ in the second. Flapping also occurs

[1] The exemplificatory conventions are to be understood as follows: '#' = word boundary; '.' = syllable boundary; 'c' = any consonant; 'v' = any vowel. In the pseudo-example words (*taktat* and *tatat*), the segment in the environment in question is underlined (a convention I adopt for real words below). The use of word boundaries here raises an issue: there is a conflict between their recognition in lenition environments and the assumption that lenition can be innovated at the first stage of its life cycle as a low-level phonological process, because such processes are expected to apply across word boundaries. It is possible that at least some of the environmental issues typically discussed for lenitions are relevant to the stages at which they become deeply phonologized, beyond the lowest levels of phonology.

[2] I do not discuss cases of segmental loss here, for want of space. The phenomena known as "non-rhoticity" and "*l*-vocalization" have surface patterns which might exemplify this "last stage" of lenition. Hay and Clendon (this volume) and Bermúdez-Otero and Trousdale (this volume) consider quite different approaches to these phenomena, and the appendix to this chapter on the volume's website also discusses them **[appendix]**.

with a less constrained environment across word-boundaries, but I focus on the more restricted case here.

(1)

t̲ip	[ˈtʰɪp]	*d̲ip*	[ˈdɪp]
*wri**t̲**ing*	[ˈɹaɪrɪŋ]	*ri**d̲**ing*	[ˈɹaɪrɪŋ]
*bo**tt**om*	[ˈbɑrəm]	*ma**d̲**am*	[ˈmarəm]
*par**t̲**y*	[ˈpʰɑɹi]	*par**d̲**on*	[ˈpʰɑɹn̩]
*pe**t̲i t̲e*	[pʰəˈtʰiːt]	*a**d̲**apt*	[əˈdapt̩]
*pe**tt**y*	[ˈpʰɛri]	*li**d̲***	[ˈlɪd]

In its lexical instantiation, flapping is limited to the medial/intervocalic-type environment, specifically to the weaker foot-internal [v́__v] (compare *pe**t̲t̲**y* and *ma**d̲**am*, where flapping occurs, with the first /t/ in *pe**t̲**ite* and the /d/ in *a**d̲**apt*, where it does not), although the crucial part of this is, in fact, the absence of stress on the following syllable, rather than the preceding presence of stress. The environment should really be described as intersonorant, rather than intervocalic, as flapping can occur with a vowel *or* a very sonorous consonant (such as a rhotic or nasal) on either side (*par**t̲**y*, *par**d̲**on*). The second /t/ in *pe**t̲i t̲e*, along with *t̲ip*, *d̲ip* and *li**d̲***, show that word-edge segments are not affected (unless a word occurs in a phrase surrounded by vowels). Productive alternations of the type *wri**t̲e*** [ɹaɪt] ~ *wri**t̲**ing* [ɹaɪrɪŋ] show that flapping is a synchronically active process.

Does the concept of a lenition continuum help us understand flapping? It is often argued to be a lenition because the input can be voiceless, or "fortis", and the output is "lenis". A flap is also typically recognized as more sonorous than a stop, although it does not fit neatly on Lass's lenition trajectory in Figure 1 – perhaps it needs to be recognized as an alternative route from stop to approximant, and if so, flapping would involve movement along a lenition trajectory as both sonorization and opening. Flapping fits in with the environmental expectations for lenition processes, as long as the stress-based splitting of the medial environment is recognized.

Flapping was presumably innovated endogenously into one (or more than one) of the varieties that currently show it, and has since spread exogenously around the world. As such, it competes with other processes affecting the realization of /t/. Kallen (2005), Hickey (2009), and most prominently Harris (1994) characterize a number of processes in different dialects as ways of leniting /t/; for example, /t/ is affected in Liverpool lenition, discussed below, and is the only segment involved in "glottalling" in most (typically British) varieties which feature it (like flapping, glottalling occurs foot-internally in its wide distribution, but is also found in codas).

3.2 Medial *d*-spirantization

Another English phenomenon that could be described as lenition is what I call here "medial *d*-spirantization". Like flapping, this involves only a coronal stop – this time, only /d/ – but, unlike flapping, it is a change that has long reached the underlying representations of the language, and has left its mark on all reference varieties (such as RP and GA). Dobson (1968, 956) writes that this change occurred "about 1400", during the Middle English period.

The change can be expressed as d > ð. The precise environmental patterning is similar, but subtly different, in different dialects (as Luick 1914-1940 describes). The environmental issues considered here are those relevant to the forms inherited by dialects that formed the basis of the reference varieties. The data in (2) exemplify

representative words that all had /d/ before the change, as can be seen in the ME spellings in the first of each pair of columns (taken from Mossé 1968 and Wright and Wright 1928). After the change, only words of the type given in the first pair of columns retained the stop – the fricative developed in words like those in the second pair. Because the change occurred before spelling was standardized, it is shown in orthography.

(2)

[d]	[d]	[d]	[ð]
dai	*day*	*moder*	*mother*
ded	*dead*	*hider*	*hither*
wedlok	*wedlock*	*weder*	*weather*
sadel	*saddle*	*fader*	*father*
bladder	*bladder*		
wonder	*wonder*		
shulder	*shoulder*		

As (2) shows, the spirantization did not occur word-initially ([#__] as in ***day***, ***dead***) or in coda position ([__.c] in ***wedlock***; [__#] in ***dead***). All the relevant occurrences of [ð] are medial. The two sets of columns show that spirantization did not occur in *all* medial positions, however. The words where it occurred fit into the medial/intervocalic/intersonorant environment, but ***wonder*** and ***shoulder*** show that it did not occur between any two sonorants – it is more restricted in this respect than flapping. Furthermore, ***saddle*** and ***bladder*** show that it did not occur in all fully intervocalic environments: as the ME spellings ***sadel*** and ***bladder*** show, these words contained an intervocalic lenis coronal stop, in almost exactly the same phonological environment as in ***fader***, but these stops did not spirantize. In fact, it was crucial for spirantization that there was a following /r/ in the word (Dobson 1968, 956 describes it as [ɽ] or [ər]). This excludes spirantization in ***sadel***. The change did not occur in ***bladder*** because its coronal stop was a geminate at this point in the history of English. Geminates frequently resist lenitions that affect their singleton congeners.

This segmental conditioning, requiring a following rhotic, might mean that we should not consider this change as a lenition, because lenition environments are typically expected to be definable without reference to segmental context. However, it is more classically a case of lenition than flapping in some ways: spirantization fits squarely on Lass's lenition trajectory in Figure 1. Furthermore, everything else about the environment in which it occurs complies with what is expected of lenitions. It is difficult to be sure whether foot-structure affected the change because few words would have had the relevant environment, but the presence of [d] (that is, the lack of [ð]) in ***adorn*** (which the OED dates to at least 1385), with a stressed final syllable, may show that it did, in which case intervocalic /d/ with following /r/ only spirantized if it was foot-medial. This further ties the change to the kind of patterning expected of lenitions.

3.3 Lenition in Liverpool English

The phenomena discussed thus far have only certain lenition-like elements. The pattern of realization of underlying stops in Liverpool English, on the other hand, well displays the fundamental characteristics of lenition outlined in section 2. It involves synchronic phonological processes that are variable along sociolinguistic lines: while speakers can produce stops, as in other varieties, they also have a range of lenited

realizations at their disposal. Liverpool lenition can affect all the underlying stops in the system, but is most salient and common in /t, k/ and /d/ (Watson 2007). As shown in (4), this largely involves affrication and spirantization, although some debuccalization is also found. In what follows, I focus on the lenition of /t/ and /k/ for exemplification, largely borrowing from Honeybone (2001) and Watson (2006a, 2006b, 2007), but it should be remembered that other stops may lenite, too.

The data in (3) show possible realizations of /t/ and /k/. Pronunciations for forms in isolation are shown, and two notes are necessary to explain the transcriptions: (i) the symbol [θ͡] represents a slit alveolar fricative, the precise phonetic nature of which need not detain us here (Pandeli et al. 1997 provide a full description); (ii) the precise place of the dorsal fricative that is derived from /k/ can vary with the frontness or backness of the preceding vowel – I abstract away from that here, using [x] for all dorsal fricatives, as the determination of place is a separate phenomenon.

(3)

taken	[ˈtθ͡eɪxn̩]	*come*	[ˈkxʊm]
attack	[əˈtθ͡ax]	*banquet*	[ˈbaŋkwɪθ͡]
city	[ˈsɪθ͡i]	*okay*	[ɛʉˈkxeɪ]
witness	[ˈwɪθ͡nəs]	*crackers*	[kxɾaxəz]
alright	[ɔːlˠɾaɪθ͡]	*basicly*	[ˈbeɪsɪxli]
not	[ˈnɒh]	*book*	[ˈbʉːx]
biscuit	[ˈbɪskɪh]		

The data in (3) should be interpreted thus: the realizations of /t/ and /k/ show the *most* lenition that is standardly found in the relevant environments in the speech of a speaker with a "strong" Liverpool accent, of the type recorded for Watson (2006a, 2006b, 2007), and discussed in Honeybone (2001). Forms with less lenition and occasionally even more lenition may be found in each environment, and there is variation from speaker to speaker, but the forms given in (3) aim to be representative. Lenition is common: in the non-debuccalizing final environment (as in *alright*), Watson (2006a) finds the following results in a large corpus of stop realizations, elicited from 16 adolescent speakers: /t/ was realized as a stop 8% of the time, as an affricate 37%, and as a fricative 55% of the time.

The situation can be understood by assuming (i) that, in Liverpool English, /t/ and /k/ are subject to the lenition trajectories given in (4), which can be seen as a specific instantiation of Lass's continuum in Figure 1, following his numbering; and (ii) that, if forms with a low lenition number occur in a particular environment, forms with a higher number can also be found (thus if an environment allows lenition up to the fricatives of stage 3, then stage 4 affricates and stage 5 stops are also possible, but lenition beyond stage 3 would be unexpected).

(4)

5		4		3		2
t	→	tθ͡	→	θ͡	→	h
k	→	kx	→	x		

The data in (3) imply that affrication is possible in word-initial and foot-initial positions ([#__] in *taken*, *come* and *crackers*, and [v__v́] in *attack* and *okay*). Many

post-consonantal onsets are stops (as in ***banquet*** and ***biscuit***) – this requires some special consideration, which I leave until section 4. Foot-medial position ([v́__v] in ***city*** and ***crackers***) allows fricatives, as do internal codas ([__.c] in ***witness*** and ***basicly***) and word-final position [__#] in ***alright*** and ***book***). Debuccalization to [h] is very restricted, but it is common in the environments where it is possible (Watson 2006b counts [h] in 73% of the occurrences of ***not*** and 100% of the occurrences of ***biscuit*** in his recordings, when they occurred in the right environment). Debuccalization requires absolute finality: /t/ must be word-final but also ***utterance***-final. Furthermore, the /t/ must either be (i) in an unstressed syllable in a polysyllabic word (as in ***biscuit***) or, (ii) if the word is monosyllabic, it must belong to a group of "monosyllabic function words (and high frequency 'pseudo' function words like ***get*** and ***got***) with short vowels", including ***not***, ***what***, ***that*** and ***at*** (Watson 2006b, 58). Condition (i) means that it occurs in words like ***biscuit***, ***delicate***, ***Robert*** but not in ***acrobat***, ***cigarette***, ***teapot***. Condition (ii) is shown by the fact that debuccalization occurs frequently in the phrases ***Do you want one or not***? and ***He said what?*** but never in ***Did you tie that string in a knot?*** or ***The sixty watt?*** (Watson 2006b). This shows that the weakest of all environments here is [__#], but that the environment needs to be split (like the intervocalic environment) to take into account phrasal position and syllable stress, or typical stressability and/or lexical factors in the case of monosyllabic words.

It seems likely that the basics of this case of lenition were innovated into Liverpool English in the nineteenth century (Knowles 1973 and Honeybone 2007). It is also likely that its precise current patterning has developed and extended over time, to allow for more lenition in more environments. Watson (2006b) shows, for example, that debuccalization has increased recently: it was only found in monosyllabic function words in the 1960s, but has since expanded, occurring in final unstressed syllables more generally.

3.4 "Voicing" in the history of English

The final cases of lenition-like phenomena considered here are from the relatively distant history of English, and were long ago lexicalized into underlying phonology. Aside from the sonorization aspect of flapping, they are some of the few cases from English involving laryngeal change, which could be seen as "voicing".

The data in (5) exemplify a change that affected all fricatives in certain varieties of English, as part of the transition from Old to Middle English. (5) gives orthographic evidence for the change, comparing Middle English forms from non-affected dialects in the first of each pair of columns (the first form given for each word in Mossé 1968) with forms (taken from Luick 1914-1940) from a text written in a dialect that was affected by the change (the ***Ayenbite of Inwyt***) in the second of each pair of columns.

(5)

[f]	[v]		[s]	[z]	
fader	***uader***	'father'	***synne***	***zenne***	'sin'
fram	***uram***	'from'	***swerd***	***zuord***	'sword'

(5) shows the letters ‹u› and ‹z› being used where other forms of ME (and PDE) use ‹f› and ‹s›, implying that the segments in the affected varieties had undergone a change. This phenomenon has been referred to as "Old English Fricative Voicing" (e.g., by Lass 1991-93) and as "the Voicing of Initial Fricatives in Middle English"

(e.g., by Fisiak 1984). I refer to it as the 'Southern English Fricative Weakening' (SEFW), using the lenition metaphor of phonological 'weakness'. Fisiak (1984) demonstrates that the dialects of the South of England and parts of the West Midlands show evidence of it **[appendix]**.

Honeybone (2005a) considers the full details of the case, but we can note here that, while the SEFW is typically described as having occurred domain-*initially* (which would make it very odd as a lenition), it is not clear that *any* underived fortis fricatives remained after the process was innovated, because the new initial segments joined medial/intersonorant segments that were already all lenis. This means that the change may not have had any environmental conditioning at all, essentially occurring across the board. It also fits nicely on a lenition hierarchy, as a sonorization of the type f, θ, s, ʃ > v, ð, z, ʒ.

A different type of laryngeal change that is typically seen as a case of lenition is final devoicing. This has been innovated into many languages, including Dutch, Catalan, Russian and German, and although it seems to go the "wrong way" on a lenition hierarchy (from voiced to voiceless), it is seen as lenition because it occurs in classic lenition environments: word-final/coda ([__#] and [__.c]). English is odd in this regard. It seems to feature a case of final obstruent *voicing*, which is essentially unheard of in the history of languages: the Late Middle English Final Weakening (LMEFW), discussed in detail in Honeybone and Spaargaren (forthcoming), which affected forms that made it into the standard varieties. Some representative LMEFW data is given in (6), which shows pre-change and post-change phonology and spellings in each of the three pairs of columns, for fricatives and affricates (stops were not affected) at three places of articulation. It is taken from Luick (1914-1940), Jespersen (1933, 1949), Dobson (1968) and Jordan (1974), and involves segments that *were* word-final, despite the occasional orthographic ‹e›.

(6)

[f]	[v]	[s]	[z]	[tʃ]	[dʒ]
actif	*active*	*was*	*was*	*knowleche*	*knowledge*
pensif	*pensive*	*soules*	*soulez*	*sausiche*	*sausage*

As for the SEFW, the data in (6) only shows words with the environment where the change is noticeable: word-final. Although the precise timing of this change is difficult to pin down, Jespersen (1933) places the beginning of the process in the 15th century.

Both the SEFW and the LMEFW seem somewhat odd as lenitions – one affects all segments and the other seems to be a final *voicing*. Does it help us to view them as cases of lenition? One controversial development in phonological theory offers an explanation, showing how they can make sense as lenitions. It is standard to describe all changes that alter segments' laryngeal specifications as cases of "voicing" or "devoicing". This implies that when obstruents are lenis, they are positively characterized by the feature [voice], and that the changes alter segments' values for [voice], and thus start or stop featuring vocal cord vibration – that is a standard definition of 'voicing', after all. A dissenting analysis, which has been called "Laryngeal Realism" (Honeybone 2005a, Iverson and Salmons 2006; with similar ideas found in Harris 1994, Iverson and Salmons 1995 and Jessen and Ringen 2002), points out that the obstruents of languages like English are not well characterized using the feature [voice]: fortis stops are aspirated, there is never assimilation to lenis segments (only ever to fortis segments), and lenis segments do not show consistent

vocal cord vibration (this is only guaranteed if a segment is in a spontaneously voiced environment, such as intervocalic). This has led such analysts to propose that, while languages like Spanish and Russian (which *do* have reliable vocal cord vibration in lenis segments, show assimilation to lenis segments, and do not have aspiration in fortis stops) make the contrast between fortis and lenis using the feature [voice], languages like English use a different feature, such as [spread glottis]. Fortis obstruents are assumed to be specified by [spread] and lenis obstruents are, in fact, laryngeally unspecified, and so have been misidentified as voiced segments of the type /b, d, v, z, dʒ/. In fact they are laryngeally neutral segments, which could be characterized as /p^{o}, t^{o}, f^{o}, s^{o}, tʃ^{o}/, and they contrast with segments that are positively specified for [spread], which could be characterized as /p^{h}, t^{h}, f^{h}, s^{h}, tʃ^{h}/ (although this does not imply that fricatives feature surface aspiration).

If the Laryngeal Realist analysis is adopted, the SEFW and the LMEFW can been seen as cases of "delaryngealization", which involves segments like f^{h}, s^{h}, tʃ^{h} losing their laryngeal specification to become purely orally articulated segments (of the f^{o}, s^{o}, tʃ^{o} type, which can receive passive voicing from surrounding spontaneously voiced vowels or sonorants at the phonetic level), and is thus the counterpart of debuccalization. If lenition typically involves the loss of segmental material (a theoretical characterization defended by Harris 1994 – see next section), then delaryngealization fits the bill as a case of lenition, with the LMEFW occurring only in a weak environment, and the SEFW essentially occurring without environmental restriction. This means that neither change truly was a "voicing", and that they are of a different nature to the intervocalic voicings described in other languages. If this analysis is on the right lines, Lass's continuum-like lenition scale needs some reinterpretation, to encompass two types of sonorization.

4. Rethinking the unity of lenition: shifting the focus to lenition inhibition

We have now considered a number of phenomena from the (history of) English that are lenition-like. Some of them, such as Liverpool lenition, fit in well with what is expected of lenition; others, such as medial *d*-spirantization, have certain characteristics that might not be expected. There are not *that* many more changes from the history of English that would clearly count as lenitions (apart, perhaps, from a range of cases of segmental loss). To return to the questions posed at this chapter's start: why should historians of English be interested in the concept? Does it help to think of these phenomena as lenitions? And if so, what *is* it that lenitions have in common?

The notion of lenition groups together a set of (synchronic and diachronic) segmental changes that would otherwise be unconnected. They are not cases of assimilation, harmony or dissimilation; they do not simply involve the rearrangement of segmental material, as in diphthongizations, or of phonological systems, as in vowel shifts. All these other types of change bring analytical expectations with them – if we recognize that a change belongs to a particular type of phenomenon, our investigation can be guided by the expectation of what is possible and impossible in such changes. While we should never blindly follow such expectations, they can direct our attention to details in the patterning of a change that would otherwise be missed, or force us to a reanalysis which in the end turns out to be the right one, because something about the change does not make sense in terms of our expectations (the reanalysis in section 3.4 in a case in point). This is a good reason to try to retain the notion of lenition, despite the problems with its precise definition.

A wide range of theoretical proposals have been made to unify lenition changes: from within the models of Dependency Phonology (e.g., Anderson and Ewen 1987), Government Phonology (e.g., Harris 1994) and Optimality Theory (e.g, Kirchner 2004), among others. No proposal persuasively covers everything. Harris' characterisation of lenition as the loss of subsegmental material is often compelling, but cannot account for affrication, for example, as in Liverpool English, where nothing is "lost". Kirchner's assumption that all lenitions reduce articulatory effort may provide an initial motivation for the diachronic innovation of certain types of process, but there is no straightforward definition of articulatory effort, and Kirchner needs baroque theoretical machinery to formalize the idea (a massively powerful effort minimization constraint is balanced by a vast number of faithfulness and fortition constraints) **[appendix]**.

Although phonologists seem to perceive that lenitions have something in common, they have not succeeded in coming to terms with what that might be. The position adopted here is that the search for a definition needs redirection. If we take a step back from the attempt to see commonalities in the processes involved, the *environments* in which they occur (or, rather, in which they do *not* occur) can provide a definition for lenition. This is not a highly 'phonological' definition because it does not derive from any primitive of a phonological theory. Rather, it is a 'historical phonological' definition because it relies on factors that are relevant to the innovation of lenitions, harking back to the Vennemann-Lass-type definition, of section 2. There have been attempts to define lenition in terms of a specific set of environments in which it can occur, but this faces problems because these environments can be subtly different (as shown above). One overarching generalization *can* be made about the connection between the types of changes that count as lenition and the environments in which they occur, however.

Some background: a distinction can be made among three types of relationship between change and environment. There are (i) *conditioned changes*, which can be thought to be "caused" by the environment in which they occur due to the influence of neighbouring segments or other phonological entities, (ii) *strongly unconditioned changes*, where phonological environment plays no role at all, and (iii) *weakly unconditioned changes*, which are not context-free in that they may not affect every occurrence of a segment, but which cannot be seen to be caused by the environment in which they occur.

The best understanding of lenition is that the term groups together phenomena that can effect *weakly unconditioned* change in consonants. Lenitions can be affected by their prosodic and melodic environment, but are not caused by it. This approach allows lenition theory to focus not on what causes lenition, or on environments that promote its occurrence; rather, it directs the focus onto the environments where lenition is *inhibited*. If we simply assume that the changes involved in lenition are those that can occur spontaneously in historical phonology (for a range of phonetic and phonological reasons), then we can assume that they *will* occur unless they are inhibited by their phonological environment.

Lenition inhibition can be affected either by a segment's *prosodic* or *melodic* environment. Prosodic inhibition involves the strong positions (see sections 2 and 3: word-initial, post-coda and foot-initial). Even these environments *can* allow lenition to occur (the SEFW, for example, left no relevant fricative unaffected), but only if weaker prosodically-defined environments, such as word-final and medial/intervocalic and/or foot-internal, also allow it. This means that weak positions don't *promote* lenition – they just inhibit it less than strong ones. This approach opens

the door to a proper consideration of lenition environments, a research programme that can only be intimated at here: some of these environments need to be split in terms of their potential for inhibition (section 3 shows this for both medial and word-final positions), and the relative strength of environments requires attention (e.g., the weaker environments can fail to inhibit a lenition individually or together, and the set of strong environments do not always pattern together).

We saw the effect of melodic inhibition in medial *d*-spirantization and Liverpool lenition: if a neighbouring segment shares subsegmental material with the potentially leniting segment, this can inhibit the innovation of a change (Honeybone 2005b). Geminates were not affected in medial *d*-spirantization, as they share all features, and /nd/ and /ld/ clusters, which share place, also protected the /d/. In Liverpool lenition, a preceding homorganic nasal can inhibit the process (as in *banquet*), as can /s/ which shares a laryngeal specification with a following stop (as in *biscuit*). Prosodic and melodic inhibition are independent of each other and do not always affect a lenition either singly or together; some lenitions are only inhibited by prosodic factors and others by only melody, but the two also often conspire. For this idea to be predictive, there must be (independent) implicational hierarchies among the sets of prosodic and melodic environments, such that for a change to occur in one type of environment, it must also occur in another.

The central idea is simple: lenition involves only those types of change that can show this weakly unconditioned patterning. They are the changes that occur spontaneously to segments if left unchecked. A range of factors may be responsible for them, and lenition trajectories of the type in (1) may well be helpful as a summary, but they should be seen as epiphenomenal and not definitional. Importantly: when we encounter a change of this type, then the set of analytical expectations just discussed can guide our investigation, to make sure that we understand and describe it fully. This definition means that we should not expect an underlying unity in the characterization of the segmental changes involved in lenition. This may seem inelegant, but strikes me as correct: we need to recognize both the diversity of process types as well as the unity of patterning in lenition inhibition, if we are to really understand what lenition is.

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Appendix: additional notes for the web version

Appendix to section 2

Lenition is sometimes compared to a putative opposite type of change, known as "fortition". Changes of the opposite type to most lenitions (e.g. h > x or f > p), however, are either not found or not common, and they typically involve the repair of phonologically "odd" segments, such as θ, w or j.

Some work also extends the "weakening" metaphor (which lenition is typically linked to) to the notion that certain types of segments are inherently weaker than others and are thus more likely to change. This includes some of the work in Minkova (2009) and Lutz (1991; this volume is also well worth consulting for other ideas about phonological weakness in the history of English, including material on the weakness of /r/ and /l/, which is relevant to the next section of this appendix). I do not consider this type of *inherent phonological weakness* here; rather, I consider *positionally endowed weakness*, which relates the extent to which we expect a segment to change to the environment in which it occurs (see Honeybone 2008 for a consideration of different ways in which the term 'weakness' and its pair-mate 'strength' have been used in phonology).

- Lutz, Angelika (1991). *Phonotaktisch gesteuerte Konsonantenveränderungen in der Geschichte des Englischen*. Tübingen: Niemeyer.

Appendix to section 3

If lenition *does* include deletion, or at least vocalisation, then many British and British-influenced varieties of English show considerable relevant effects in the (history of) their liquids. The phenomena known as non-rhoticity and *l*-vocalisation involve patterns of the surface occurrence of the English rhotic and lateral which fit with much of what is discussed in the main body of this piece. These phenomena have been analyzed in many different ways. I do not consider them in detail here; rather, I simply show how they can, from a certain viewpoint, be seen as cases of lenition.

The data in (a) compare the realisation in isolation of representative words in GA, a rhotic variety of English, with those from a non-rhotic variety from the north of England which I have labelled GN, for "General Northern", in part following Watt (2002). The transcriptions use [r] for the rhotic segments, to avoid having to worry about phonetic detail or the difference between rhotic realisations.

(a)

	GA	GN
raft	[ˈraft]	[ˈraft]
Henry	[ˈhɛnri]	[ˈhɛnri]
around	[əˈraʊnd]	[əˈraʊnd]
very	[ˈvɛri]	[ˈvɛri]
orchid	[ˈɔrkɪd]	[ˈɔːkɪd]
star	[ˈstɑr]	[ˈstɑː]

A comparison of Present-Day GA and GN shows that the rhotic occurs in onsets in both varieties (word-initial [#__] in *raft* and post-coda [c.__] in *Henry*) and in both types of intervocalic environment (the "stronger" foot-initial [v__v́] in *around* and the "weaker" foot-medial [v́__v] in *very*). The environments where standard

non-rhotic accents lack a rhotic are the two coda environments (medial pre-consonantal [__.c] in *orchid* and word-final [__#] in *star*). Flapping and medial *d*-spirantisation can be seen as cases of lenition because they occur in the intervocalic weak positions, even though they do not occur in the coda positions; the rhotic has been lost in GN and similar dialects in the inverse set of weak environments: in the coda positions but not intervocalically. Harris (1994, 232) also describes "conservative dialects spoken in the Upper South of the United States" which also lack the rhotic in words such as *very*, meaning that the foot-medial intervocalic position is also weak in these varieties in terms of non-rhoticity. The diachrony of this case of *r*-loss is complicated and occurred over a long period (see, for example, Wells 1982, McMahon 2000), but it can be seen as ɾ > Ø, which fits into Lass's lenition trajectory.

There have been several waves of *l*-vocalisation in the history of English, and one quite recent one has left a similar pattern in some dialects for the lateral to that shown for the rhotic in (a). This *l*-vocalisation likely originated in London English and is currently spreading exogenously through British varieties. Wells (1982, 259) describes it as "probably less than a century old in London". The data in (b) compares General Northern with London English (the transcription of the vocalised lateral uses one of the possibilities offered by Wells 1982).

(b)

	GN	LE
laugh	[ˈlaf]	[ˈlɑːf]
Burnley	[ˈbɜːnli]	[ˈbɜːnli]
aloud	[əˈlaʊd]	[əˈlæːd]
silly	[ˈsɪli]	[ˈsɪli]
Belfast	[ˈbɛɬfast]	[ˈbɛʊfɑːst]
fill	[ˈfɪɬ]	[ˈfɪʊ]

The *l*-vocalisation change can be expressed as ɬ > ʊ. This fits as a case of lenition in some sense, although it does not exactly feature on Lass's trajectory – it involves the realisation of a consonant as a vowel, which is a more sonorous segment, so it may be reasonable to view it as a case of lenition. The environments in which /l/ can be vocalised are the same as those in which rhotics are absent in standard non-rhotic dialects: codas. As is clear from the GN transcriptions in (b), this is also where /l/ is realised as 'dark' in many varieties, so it is likely that the dark-*l* forms a diachronic stage in the picture: l > ɬ > ʊ (see Bermúdez-Otero & Trousdale, this volume, for further discussion), which also raises the question of whether *l*-darkening should count as a case of lenition.

Given that both non-rhoticity and *l*-vocalisation occur word-finally, sandhi phenomena are possible when a word is phrase-medial and before a vowel-initial word. These are well attested, as described in many places (for example Wells 1982). Non-rhoticity has led to linking-*r*, which has also been reanalysed as intrusive-*r*, and linking-*l* is also attested (see, for example, Johnson & Britain 2007), as is, in a small number of varieties, intrusive-*l* (see, for example, Gick 2002).

- Gick, Bryan (2002) 'The American intrusive L'. *American Speech* 77: 167-183.

- Johnson, Wyn, and Britain, David. (2007). 'L-vocalisation as a natural phenomenon: explorations in sociophonology', *Language Sciences* 29: 294-315.
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Appendix to section 3.1

There is a large literature on flapping, and I discuss only certain issues here. Carr and Honeybone (2007) give some further details, and also refer to Iverson and Ahn (2007), who pursue the line of argumentation that the sonorizing and flapping parts of the phenomenon, described together below, should, in fact, be separated.

- Iverson, Gregory, and Ahn, Sang-Cheol (2007). 'English voicing in dimensional theory', *Language Sciences* 29: 247-269.

Appendix to section 3.4

There is also evidence for the SEFW from present-day non-reference traditional dialects, as shown in (c). This is taken from fieldworker transcriptions of twentieth century southern dialects which were recorded for the *Survey of English Dialects* (Orton *et al*., 1962-1971). These show transcriptions of initial lenis fricatives where reference English has fortis segments.

(c)

[v] in *farmer*
[ð] in *thumb*
[z] in *six*
[ʒ] in *shilling*

This evidence indicates that the *SED* fieldworkers wanted to transcribe a difference that they perceived between the laryngeal state of the fricatives in southern traditional dialects and those in reference English. While a contrast between two series of fricatives has developed in reference English since OE, no such contrast is recorded here. Rather, the fieldworkers equated the fricatives of these southern varieties with only one of the series that exist in present-day reference English – the series that is typically referred to as "voiced".

- Orton, Harold, Barry, Michael, Dieth, Eugen, Halliday, W.J., Tilling, P.M. and Wakelin, Martyn (1962-1971). *Survey of English Dialects,* 4 volumes. Leeds: E.J. Arnold.

Appendix to section 4

The Government Phonology and Dependency Phonology approaches to lenition work with models of segmental structure to predict which type of changes will pattern together. For example, Harris (1994), following the impetus of Lass (1976), sees all

cases of lenition as the literal weakening of a segment – as the loss of (privative pieces of) segmental structure (for example, a stop "loses" its closure in spirantization, and a segment loses its oral articulation in debuccalization); this is expected in environments where segmental licensing is weak (Harris also offers a predictive theory of licensing).

Kirchner's OT approach to lenition essentially ignores both diachrony and complex cases of environmental patterning, focusing on the "primacy of intervocalic position as a context for lenition" (2004, 315). It uses the massively powerful effort minimization constraint LAZY, which knows in advance the potential effort required for every phonological configuration, and ranks all candidate outputs in terms of this (although there is no simple definition of articulatory effort, and it is not clear that fricatives are easier to pronounce than stops, for example, because fricatives require a controlled amount of distance to be kept between articulators, whereas stops only require articulators to run into each other). This constraint is balanced by a vast number of faithfulness and fortition constraints, and the innovation of any lenition requires this machinery to be spontaneously reranked, so that LAZY comes to dominate faithfulness (although the OT model predicts the demotion of LAZY to be just as likely as its promotion). The whole position which assumes that lenition involves the reduction of articulatory effort (as Kirchner, and some others, have assumed) is demolished by Kaplan (2010), who shows through carefully controlled experimental investigation that intervocalic sonorization and spirantization do not result from articulatory effort reduction. She induced behaviour that involved speakers using less effort in speech, but this did not increase the amount of sonorization or spirantisation as they spoke.

- Kaplan, Abby (2010). *Phonology Shaped by Phonetics: the Case of Intervocalic Lenition*. PhD dissertation, University of California, Santa Cruz.
- Lass, Roger (1976). *English Phonology and Phonological Theory*. Cambridge: Cambridge University Press.