Mergers, near-mergers and phonological interpretation

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Introduction

The issue treated in this paper is a phenomenon which has caused linguists of very different theoretical persuasions considerable concern. The matter at hand is that of phonemic mergers and all that they entail. A merger is taken to exist when two systemic sounds which were distinguished by speakers come not to be so, i.e. they become a single sound. Mergers always involve the collapse of a phonemic distinction by one sound becoming identical with another. Later shifts will mean that the merged sounds move together. If one views mergers from the point of view of lexical sets this becomes obvious. A famous merger from the history of English is the collapse of a phonemic distinction between the sounds in the elements of the MEET and MEAT lexical sets. The long mid front vowel which resulted from this in turn was raised to /iː/ at a later stage of the Great Vowel Shift, i.e. the members of the MEAT and MEET lexical sets had become indistinguishable. Change in the value of the resulting vowel meant that both lexical sets were affected. The mention of these lexical sets also illustrates a further aspect of mergers, namely that they frequently involve a residue which remains as an indication of the distinctiveness which obtained before the merger. In the case of the MEAT class, there are a few words, like break and great, which did not partake in the merger as their lack of the /iː/ vowel in present-day English shows. Another general point concerning mergers, which is of central concern in this paper, is that a merger, once it has occurred, renders the recovery of the former distinctiveness impossible for later generations of language learners. This assumption requires (i) that the merger is not just phonemically, but also phonetically, complete and (ii) that language learners are not exposed to varieties of their language in which the merger has not taken place.
Well-known examples of mergers

Varieties of English provide many examples of mergers, only some of which are present in either the British or the American standard. A selection of these are presented here to indicate the range of available mergers. In this context it is essential to distinguish between those mergers which are independent of the phonetic context in which they occur and those which are not.

**Context independent**
1) The merger of ME /e:/ and /æ:/ to /i:/ (meat / meet) (general southern British English)
2) The merger of ME /ai/ and /a:/ to /ei/ (tail / tale) (general English)
3) The merger of /b/ and /ɔ:/ to /ɑː:/ (cot / caught) (forms of American English)
4) The merger of the SQUARE and NURSE lexical sets to the NURSE value (fair / fur) (forms of Ulster English, recent Dublin English)
5) The merger of /uə/ and /ɔː/ in words like poor and pour (forms of RP)
6) The merger of /v/ and /w/ to [β] (vet / wet) (18c/early 19c southern British English)

**Context sensitive**
1) The merger of /ɔːt/ and /oːt/ to /oː(ə)/ (morning / mourning) (most varieties of English)
2) The merger of short vowels before historic /t/ to /ɔː/ or /ɔː:/ (tern / turn) (most varieties except perhaps Scottish and Irish English)
3) The merger of /e/ and /ә/ to /t/ before nasals (pen / pin) (south-west Irish English, southern American English)
4) The merger /ei/, /e/ and /æ/, often to /ɛ/, before /t/ (Mary / merry / marry) (to varying degrees in various forms of American English)
5) The merger of /ɛ/ and /æ/ before /t/ (merry / Murray) (Philadelphia English)

With the exception of (6) above (Trudgill, Schreier, Long and Williams 2002), the mergers are all vocalic. It should be mentioned that the application of a general phonological process may lead to mergers, above all consonantal ones, but these phenomena are regarded as outside the remit of the current paper. For instance, final devoicing in German and most Slavic languages leads to a merger of voiced and voiceless obstruents in word-final position, resulting in voiceless segments. There is a difference in kind here. Final devoicing is an active process in the phonology of certain languages and applies to any segment meeting its structural description. The mergers being considered in this paper
are, on the other hand, historical changes which took place due to shifts in the sound structure of varieties of English and which have, in the main, ceased to be active.

The environment for context-sensitive mergers

Context-sensitive mergers are frequently determined by the presence of a following sonorant, i.e. /n, l, r/. It is interesting to consider why this subset of sounds involve mergers, as vowel mergers do not seem to be determined by obstruents, i.e. a merger of, say, /e:/ and /i:/ to /i:/ before /t/ would be unusual. Before attempting an answer to the question as to why sonorants so often determine mergers, one should mention that the determining element must follow the vowel affected, i.e. it must be in the coda of the syllable of which the vowel represents the nucleus.

Sonorants are most likely to have the observed determining effect in mergers because of their vowel-like quality. It is furthermore known that coda sonorants tend to become absorbed into the nucleus of the syllable they occupy, something which is widely attested in the history of English, consider the loss of consonantal /l/ in *talk, walk*, etc. or the more recent south-east English loss of vocalised /l/ in pronunciations like [mu:k] for *milk* or the development of words with historic syllable-final /-r/ in non-rhotic varieties.

Another characteristic of the vocalic environment before sonorants is that it tends not to show the entire range of contrasts available in a language, e.g. /ɔː/ in English does not occur before /r/ and /au/ does not occur before /m/.

Quality and quantity of mergers

Vocalic mergers can be of two types, those which involve a shift of one of the vowels in phonological space and those which involve a change in the quantity of one of the two vowels. Both kinds are attested with context-sensitive mergers in the environment of sonorants. A typical quality change before sonorants would be the raising of vowels before syllable-coda nasals, seen historically in English in *think* (cf. German *denken*) and of course in the name of the language and country itself. The merger of /e/ and /u/ to /i/ before nasals is attested synchronically in American English of the Lower South and in south-west Irish English, leading to the well-known *pen — pin* merger. The acoustic motivation for this is the anti-resonance between 800 and 2000 Hz (Fry 1979: 118f.), found with nasals, which has the effect of depressing the first formant of the flanking vowel, hence raising it acoustically.

Quantity mergers are common before /r/. In the history of English
varieties have progressively lost the length distinction for vowels before /-r/ with an attendant merger of quality, e.g. err and earn; tern and turn. Indeed a distinct short vowel quality is only maintained if the /r/ is simultaneously the onset of a further syllable, cf. very /-e.r-/ but verve /-a/-, /-a:-/. Other examples of merger before tautosyllabic /r/ are found with back vowels, cf. those varieties which do not distinguish words of the type horse and hoarse, i.e. show /ho(r)s/ rather than /ho:s/ and /ho:s/ respectively. Note that non-rhotic varieties of English never maintain this historical distinction, i.e. the absorption of /r/ into the syllable nucleus would seem to have precluded the maintenance of the distinction.

The reporting problem

Before coming to discuss further cases of mergers, one should point out a difficulty when looking at possible cases of historical mergers. This is what I dub the reporting problem. By this is meant that the orthography is inadequate for representing many distinctions which may be crucial in distinguishing segments suspected of having merged. An illustration of this can be made by citing data for two varieties which in the orthography would look identical. For instance, one of the major distinctions between varieties of English in the north of Ireland and in the south lies in the realisation of the vowel in the FACE lexical set. In the south this set has a monophthong, i.e. [fe:s], while in the north the vowel has an off-glide, i.e. [feʊs] (Milroy and Harris (1980: 203ff.) comment on a similar type of glide for Belfast in their discussion of mergers). The orthography of English cannot make this distinction but this is crucial in keeping apart speakers from the north and the south of Ireland. To quote an example from a much better known variety of English, take the RP realisations of words like poor and paw. For some speakers who do not have the merger of these two syllable nuclei, the difference lies in the presence of a shwa at the end of first word, as a reflex of an historic /r/, i.e. [pəʊ] versus [pə:]. For historical stages of English many linguists have expressed doubts about the accuracy of reports, e.g. Milroy and Harris (1980: 206-9) doubt many of the orthoepists’ comments on mergers in 16th century London English.

Another aspect of the reporting problem is seen when linguists are dealing with a variety of which they have had little if any direct experience. For instance, in supraregional varieties of English in the south of Ireland, there is a distinction between dental and alveolar points of articulation for stops in the THINKER [tɪŋkə] and TINKER [tɪŋkə] lexical sets. Not all non-Irish linguists are able to perceive this distinction which all non-local southern Irish speakers are aware of. Yet another instance would be the apico-alveolar fricative which
one finds, again in southern Irish English, intervocally and word-finally in unchecked position, i.e. the sound in *pity* [pɪti] and *cat* [kæt]. The literature on Irish English abounds with inaccurate descriptions of this /t/-realisation, e.g. as an /s/ sound, as an affricate, as a flap to mention some examples.

All one can say here about the reporting problem is that one should be careful about supposed mergers. In the following a particular case of reported merger from the history of English is scrutinised somewhat.

The intersection of trajectories in change: is the result always a merger?

The case in question is that of long low front vowels in 16th and 17th century London English. This issue is normally discussed with reference to the development of the vowels in words of the MATE and MEAT lexical sets in London in the early 16th century (as documented in many orthoepic treatises and in verse rhyme, cf. Barber 1976: 292f.).

<table>
<thead>
<tr>
<th>Sets</th>
<th>ME outset</th>
<th>16th century</th>
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<tr>
<td>MEET</td>
<td>/ɛ:/</td>
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<td>[i:]</td>
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<tr>
<td>MEAT</td>
<td>/ɛː:/</td>
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</tr>
<tr>
<td>MATE</td>
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(Labov 1994: 296)

In essence, the matter is as follows: the vowel in the MATE set was rising from /aː/ on its way to its later destination of /ɛː/ (still later /ei/ in RP) and went through an intermediary stage /ɛː:. The vowel in the MEAT lexical set still showed the open front vowel /ɛː/ which it had since Middle English, i.e. it had not been raised to /ɛː/ on the way to /iː/ (the late nature of this shift is known from the retention of a mid vowel in many conservative varieties such as Irish English). The vowel in the MATE lexical also showed an /ɛː/ by having evolved from Middle English /aː/ through /æː/.

If there was a merger at the point where the rising MATE met the unshifted MEAT then after this the two should have continued on their way together, something which is known not to be the case. By the seventeenth century in London it is the words of the MEAT and MEET classes which have merged, with the MATE set distinct from both (Trask 1996: 282). There are basically two explanations of the unexpected situation of the 17th century.

1) In the 16th century MATE and MEAT did indeed merge but were separated out by the adoption of pronunciations distinguishing between MATE and MEAT from low prestige varieties of English in London in
the course of the 17th century. This would make the situation an instance of the very common change from below (Trask 1996: 284). In support of this view linguists often point out additionally that such mergers are typical of looseknit networks where phonological distinctions do not have the vital function of reinforcing a closely bound community (Croft 2000: 193).

2) In the 16th century MATE and MEAT did not merge entirely. The situation was one of near-merger and later this separated out to give the distinctly different pronunciations which appear in the 17th century and which have characterised southern British English since.

For the purpose of the present discussion I have dubbed explanation (1) an external explanation, as it depends on an influence from outside the variety with the merger and I call explanation (2) an internal explanation, as it relies completely on developments within the variety in question.

What is a near-merger?

Turning for a moment to the internal explanation, one can consider the contentious question of near-mergers. A near merger is found where a speaker consistently makes a small articulatory difference between items of two lexical sets but cannot distinguish these audibly, specifically when the pronunciations are offered to the speaker for evaluation. It must be emphasised that the essential crux of the near-merger assumption is that speakers cannot hear the phonetic distinction which linguists tease out in a spectrographical analysis and by examining vowel formants through plotting F1 (Y-axis) against F2 (X-axis). What might such fine phonetic distinctions look like? For vowels, a slight difference in height, length, peripherality might be present. Or the presence of an up-glide or in-glide after one of the vowels, something like [eɪ] or [ɜː]. For consonants, a minimal distance in point of articulation, slight affrication for stops, differences of voice onset time which might slightly devoice or voice obstruents are some of the phonetic possibilities.

Labov (1987: 319) states that near-mergers have ‘important consequences for functional explanation. It appears that the communicative role of phonemic contrasts can be suspended for a considerable period of time without disrupting the integrity of the word classes and the system they participate in. There is no doubt that phonemes do function to distinguish words. But the historical development of the system of phonemes is not narrowly controlled by that communicative function.’

One particular theoretical consequence of assuming the reality of near-mergers is the following: the articulatory and auditive sections of a
language’s phonology must be acquired separately for near-mergers to be passed on from one generation to the next (Labov does not discuss this, except for mentioning ‘a considerable period of time’ by which I assume that he means across several generations).

This does not have to apply within a generation, after all one can imagine speakers producing closer and closer realisations of two segments and that at some stage they no longer hear the distinction although they still make one, however slight phonetically. But if the near-merger is transmitted across generations then children must acquire fine phonetic distinctions which they do not hear. However, the hearing must be the basis for picking up the distinction in the first place. The only way out of this impasse is to maintain that language learners unconsciously note fine phonetic distinctions which they are not consciously aware of and cannot distinguish later, should this be demanded of them. In the case of the MATE / MEAT pair this would imply that throughout the 16th century a certain group of Londoners acquired two finely distinguished versions of /ɛ:/ which were then separated out in the 17th century without any external assistance.

The fate of near-mergers

To be clear about Labov’s standpoint: near-mergers can separate out, i.e. an increase in phonetic distinctiveness of the two elements may occur and the two elements can become re-aligned to different phonemes in the sound inventory of speakers. But can they? There are no reported cases of this happening. However, this is what is assumed — going on the internal explanation — for the undoing of the putative MATE — MEAT near-merger in the 17th century.

One reason I propose for maintaining that near-mergers have never separated out into fully-fledged phonemic oppositions is that they are only short-lived, crucially they seem only to occur within the lifetime of an individual. If someone makes a fine phonetic distinction between two sounds which he/she does not perceive, then this may well be the terminal stage in the loss of a distinction. One can imagine a scenario in which the distinctiveness of two sounds is being lost and that there is a differential rate for production and perception. When production of two sounds drops below a threshold of distinctiveness then human perception gives up on this and the speaker/hearer regards the two sounds as the same. To clinch the case for MATE — MEAT being “just” a near-merger in 16th century London English, which was later separated out into the distinction between /ɛ/, /ei/ and /i:/, one would have to be able to point to at least a few others cases where it is known definitively that this has happened. But, unfortunately for the proposal of near-mergers, such cases do not seem to exist.
How could mergers be ‘de-merged’?

**Internal motivation (i): Underlying representations**

In the early days of generative phonology, linguists such as Morris Halle apparently believed that sounds could have different underlying representations but be phonetically identical. Applied to the historical case considered above, this interpretation would suggest the MATE class had a different underlying representation (mentally for speakers) than did the MEAT class, this then allowing them to unravel the merger in the following century. Halle (1962) and later Chomsky and Halle (1968) justify the assumption of deriving surface contrasts from differing underlying forms by reference to the well-known vowel alternations as in *divine : divinity, serene : serenity, sane : sanity*, etc., a somewhat different but related phenomenon.

Apart from the ontological status of underlying representations, there is a serious flaw in this interpretation: there is no principled manner to account for what segments speakers would be retained for possible later ‘unmerging’. There does not seem to have ever been a classical generative phonologist who suggested that speakers of English retain different underlying representations of, say, the NOSE and KNOWS lexical sets, just in case they might want to distinguish in a later generation between vowels deriving from ME /ɔ:/ and ME /ou/. In fact the assumption that speakers maintain distinct underlying representations after mergers would mean that languages become increasingly more complex by retaining historical distinctions. If one continues this line of thought, it becomes absurd: how long do speakers maintain former distinctions in their set of underlying representations? Do speakers of English maintain a distinction between /k/ and /x/ underlyingly although the latter element has long since disappeared from standard English? The answer is obviously ‘no’, but the question still needs to be addressed of how speakers decide on what distinctions to maintain for future ‘unmerging’ of mergers. For the *serene : serenity* cases, one could postulate that speakers maintain a different underlying form, here a long vowel in the second syllable of *serenity*, which is shortened by the trisyllabic shortening rule, as long as a morphological alternation links two forms synchronically. But nothing linked the MATE and MEAT lexical sets morphologically in the history of English so there would never have been a synchronic motivation for speakers to maintain a vowel different from that on the surface. Furthermore, even assuming that one accepts the scenario of different underlying representations and surface forms, there would be no means for language learners to determine what vowel they should postulate for the underlying representation as there was, and is, no morphological alternation to suggest this.
Internal motivation (ii): Lexical diffusion of changed pronunciations

The essence of this argument is as follows: there was a merger of MATE and MEAT in early 16th London English, but not for all tokens of each class. The residue of non-merged tokens later provided the means for undoing the merged tokens by reinstating the non-merged vowel values for the entire set. It is true that there are changes which must have progressed by lexical diffusion because residues remain, frequently in phonetic environments which are inherently resistant to the change. A classic example is the lowering and unrounding of early modern /u/ which often did not take place where the following segment was inherently rounded and/or back in articulation, hence the current pronunciations of bush and bull where a rounded alveolo-palatal fricative and a velarised lateral follow the vowel respectively.

The concern here is with a scenario which might have obtained and which could have led to total merger being avoided. But for this to be credible one should be able to point to cases where the residue of lexical diffusion was turned around at some later point and became the default value in a lexical set. However, the residue scenario does not help in interpreting the MATE — MEAT merger as the input of MEAT was [ɛ:] and the raised value of MATE was also [ɛ:]. Instead one might postulate a subset of the MEAT lexical class which had already become higher than [ɛ:], i.e. [ɛː]. In this situation such items who have exerted a pull effect on the other members of the lexical set, those which had [ɛː] and which were represented similarly to the members of the MATE lexical set in 16th century London English and which are the attestational basis for the assumed merger (see detailed discussion in Labov 1994: 298ff.).

Applied to the case of the MATE — MEAT merger the scenario would look something like the following.

Long low and mid front vowels in early modern London English

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<th>ME outset</th>
<th>16th century</th>
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</tr>
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<tbody>
<tr>
<td>MEAT</td>
<td>/ɛ:/</td>
<td>majority: [ɛ:]</td>
<td>[ɛ:] (later [i:])</td>
</tr>
<tr>
<td></td>
<td></td>
<td>subset: [ɛː]</td>
<td></td>
</tr>
<tr>
<td>MATE</td>
<td>/æ:/</td>
<td>[ɛː]</td>
<td>[ɛː]</td>
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This scenario is entirely speculative, but if it could be shown, or if parallel situations could be demonstrated, then it would provide a principled manner in which an apparent merger could have been undone internally.
External motivation: Adoption of non-merged segments from another variety

The standard wisdom on this view since the seminal article by Weinreich, Labov and Herzog (1968), and which can be traced to a suggestion by E. J. Dobson (1968 [1957]), is that the apparent reversal of mergers stems from the adoption of a different phonological subsystem which was available in the social environment of speakers with the merger in question. Specifically, in the case of 16th century English, those varieties which did not have the MATE — MEAT merger provided a pronunciation model later in the 17th century so that the merger was undone. In his discussion of the matter, Labov (1994: 302) stresses that the group in society which is most likely to have had the raising of /e:/ and /a:/ to the merged value /e:/ were in the interior of the social hierarchy, neither the lower, underprivileged class nor the higher, aristocratic group. This mid-range section of London society was represented by people such as merchants, clerks, teachers, etc. This group would also have been that which would have written most and hence provided attestations for the merger under consideration here. The survival of lower prestige varieties of London English which did not have the merger would have offered a model to Londoners in the following century for the unravelling of a merger which previous generations had undergone.

When one looks around for parallel cases of such unmerging then one can find them. To conclude this paper, two such instances are listed to show how such externally motivated ‘unmerging’ is attested in different contexts.

Two attested cases of ‘unmerging’ consonantal mergers

1) During the first half of the 19th century those speakers of southern British English who had the merger of /v/ and /w/ to [β] in the VET and WET lexical sets undid this merger as a result of exposure to varieties which did not have it. The merger is no longer attested for British English though remnants are found in extraterritorial varieties (Trudgill et al. 2002).

2) Pre-19th century Dublin English had alveolar stops in the THINKER and TINKER lexical sets. The high influx of migrants from the west of Ireland meant that varieties appeared in Dublin which did not have this merger (western speakers used the dental stops of Irish in the THINKER lexical set). The dental stop realisation was adopted in the THINKER lexical set by the middle classes in Dublin (probably as a means of dissociation from speakers of popular Dublin English which had the dental — alveolar merger, Hickey 2000). This then became part of the supraregional form of southern Irish English which stems from late 19th century / early 20th century middle-class Dublin usage.
Conclusion

When postulating a scenario for language change in the past, maximum plausibility of the case one is presenting must be strived for. Such plausibility can be increased by pointing to other instances of the type of change under consideration and the explanation being offered. Preferably, parallels should come from the present to ensure that one can check on these.

Synchronic evidence for the existence of near-mergers is slight and its assumption across generations is very speculative as it throws up questions about the transfer of near-mergers from one generation to the next which have not been addressed by those linguists who have put forward this scenario for consideration. Furthermore, no instances can be demonstrated to have existed in any concrete case.

With reference to the question of ‘unmerging’ discussed in the latter sections of this paper, the internal explanations put forward both suffer from a lack of parallels which would strengthen their case. Neither differing underlying representation and surface forms nor the switchover from minority to majority case in a lexical diffusion scenario can be supported by other parallel instances. The external explanation on the other hand has two strong advantages. The first is that it has the support of contemporary sociolinguistic observation which often shows the adoption of pronunciations from one variety into another. The second is that the merger would appear to have held for only one section of 16th century London society, a mobile middle group, a section known from contemporary sociolinguistic investigations to be particularly innovative.

Given the lack of hard evidence here, the external explanation gains more credence: the body of evidence for transfer phenomena in contact situations is very considerable and the likelihood — among speakers of the same language — is increased if transfer leads to distinctions hitherto unavailable and/or if it serves an additional social function of either accommodation or dissociation among social groups, especially in urban settings.
References