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Explanations of Sound Change: Contradictions between Dialect Data and Theories of Chain Shifting

Robert Stockwell and Donka Minkova

Abstract

We argue that certain putatively explanatory principles claimed to govern chain shifting in vowel systems, in particular the 14-15C. English vowel shift, cannot be taken as explanatory because they are readily falsified by facts documented in the Orton data for several dialects outside Southern British English. We assume the strongest possible form of the uniformitarian hypothesis, namely that chain shifts of the past had the same activating principles that can be inferred from the study of living chain shifts, to the extent that such inferences can be made at all. From this point of view we review the New York City shift, the Northern American Cities Shift, the Popular London and Cockney shifts, and the Southern States shift. Finally we examine the facts of the North Midlands shift and show that virtually all the principles which have been evoked to account for the SBE shift are falsified there. This in turn suggests that the SBE shift started from a vowel system which was less 'pure' (pure long/short) than has been believed: possibly full of diphthongs of the types that are demonstrated in modern chains to be likely to engage in shifting.

1. *Terminological preliminaries*

We refer frequently to the work of Labov,¹ especially his 1994 comprehensive survey of his many years of research on chain shifts. However, in two respects we use basic terms and concepts in a significantly different way. The first is the term *peripheral*, and the second is the phonetic values assigned to symbols.

1.1. *Tense/lax vs. peripherality*

We use *peripheral*, a term first introduced into the (historical) phonological literature in Stockwell 1973, as Lindau (1978) later recommended for phonetic purposes generally, namely as a phonetic feature representing what has often been referred to as 'tense/lax'. Tense/lax, she found, have no measurable phonetic correlates, unlike peripherality, which has clear articulatory correlates and is therefore to be preferred. Labov uses [+/- periph] not as a distinctive feature but rather to refer to two tracks, a track on the periphery of the vowel space, and a track removed toward the center from the periphery, but not in the center. These uses are very nearly equivalent, and certainly for 'pure' (non-gliding, non-diphthongal) vowels of the IPA type, we would not differ with Labov: [i e a u o ɒ] are peripheral and [ɪ ɛ æ ʊ ʌ ɔ] are non-peripheral. Presumably [ɚ ə ɔ] should be classified as non-peripheral, but there can be no contrast with respect to peripherality among central vowels.

1.2. *Diphthongs and peripherality*

The difference between Labov and us depends on the question of how diphthongs are to be regarded with respect to peripherality. We take it that all out-gliding front and back diphthongs – Vy and Vw – are peripheral. Labov takes these all to be non-peripheral (1994: 234).

The diphthongs starting in the central area, [ɪy ɪw əy əw ɔw əy], are arguably also peripheral because the glide moves to the periphery. In some theories of the English vowel shift, including Dobson's (1957/1968) and our own (1988), these are the intermediate stages in the development from [i:] to [ay] and of [u:] to [aw] (and are replicated in the London shift discussed below). Labov, whose theory of the directionality of shifting will be tested against the Orton data in this paper, does not take a position on the peripherality of these diphthongs.

There are two arguments for taking front and back Vy and Vw as [+periph]. First, at least the high and mid diphthongs alternate both idiolectally and dialectally with long pure vowels of the same height: {[i:] - [iy] - [ɪy]}, {[e:] - [ey] - [ɛy]}, {[u:] - [uw] - [ɔw]}, [(o:) - (ow) - (ʌw)]. Second, the glides represented by [-y, -w] are potentially at the peripheral extremes and one must assume a strong assimilatory attraction in that direction; indeed, it is hard to imagine that a complex nucleus beginning with any non-central vowel and ending with either of these glides could be viewed, taken as a whole, as non-peripheral. We insist, therefore, that the out-gliding diphthongs which have peripheral (tense) long monophthongal congeners are [+periph].

By the inverse of this logic, we argue that centering diphthongs like [ɪə ɛə æə ʊə

ɔə ə] are [-periph]: first, they glide toward the non-periphery (the center of the vowel space), and second – even more compellingly – they begin with [-periph] elements, namely [ɪ ɛ æ ʊ ʌ ə].

Labov, however, assumes that there are two concentric circles, an outer ring (peripheral) and an inner ring (non-peripheral) (Labov 1994: 234). Long pure vowels rise up the outer ring, and the -Vy and -Vw diphthongs fall along the inner (but not central) ring. To anticipate our conclusions, we believe that long pure vowels are stable, and that the ones which rose in the English vowel shift must have been in-gliding (centering) diphthongs like [ɪə ɛə æə ʊə ɔə ə]. These are the ones that can clearly be documented to rise in living vowel shifts. The ones that fall are the out-gliding diphthongs. Since, as argued above, out-gliding diphthongs are peripheral, it cannot be peripherality which governs chain shifts. Rather it is the diphthongal **type** which determines direction of change. And there is a reason for that, namely dissimilation between the components of the diphthong, for greater perceptual clarity. We return to this point, below.

1.3 *Do peripheral vowels rise?*

The arguments above force full re-evaluation of the well-known Labovian dictum that peripheral vowels rise in chain shifts, i.e. the view that they go up the outside track while something else is free to move down the non-peripheral track. The true peripheral vowels, the ones that everyone would agree are on the periphery, namely [i: e: u: o:], do not participate in observable on-going chain shifts. Most of the ones that do participate in observable on-going chain shifts, the ones documented by Labov, are [ɪə ɛə æə ʊə ɔə ə]. So some principle distinct from peripherality must be invoked. (The situation reported by Trudgill in Norwich (Trudgill 1974) involves fronting of high back vowels as well as shortening of many diphthongs; it does not seem to fit any coherent picture of peripheral vowel chain shifting.)

1.4 *Phonetic symbols*

Though trivial in principle, one's choice of phonetic symbols can lead to massive misunderstandings, and diagrams can look much better, or much worse, than they ought to because, for example, Labov does not follow international standards of vowel representation, and his version of Trager and Smith's system from the '50's is misleading because he has tried to simplify it: for example writing [o], referred to as 'short o', for the American vowel² of POT, HOT, COT, which in fact is [ɑ]; and writing [oh] for [ɔə], which thereby distorts the chain shift of back vowels, making it appear that the vowel of POT, HOT, COT is contained in the 'long' complex nucleus

[oh] when in fact it is not: that vowel would be [ah], the vowel of FATHER.

Another notational problem anticipates our discussion of Orton. We reject the presumption of a regular distinction between [ey] and [ɛy], and between [eə] and [ɛə]. Orton, in the 'Introduction' to the great *Atlas* (1978), levels out the first of these distinctions recorded by the fieldworkers, but not the second one. The result is the presumption of phonemic contrasts which do not exist anywhere, so far as we have been able to determine. We have bitten the bullet and leveled them both in a way which appears perhaps to have been Orton's intent also, namely [ey] vs. [ɛə]. We take [e] and [ɛ] to be allophones of the same phoneme in these contexts, with the higher (peripheral) vowel occurring before the fronting glide, and the lower (non-peripheral) vowel occurring before the centering glide. Where we are drawing diagrams of chain shifts, however, we have consistently stayed with a single symbol at each level of vowel height (i.e., we have written consistently [ɛy] rather than [ey], to avoid the appearance of graphing a change from [ɛy] to [ey] where none has occurred except allophonically).

2. *The Uniformitarian Hypothesis*

As characterized by Lass (1997: 26), this hypothesis, familiar from the 19th century, states that 'Nothing that is now impossible *in principle* was ever the case in the past'. But to be useful in the discussion of chain shifts, the hypothesis has to be restated in probabilistic terms, as Lass has done (1997: 26): 'The general distribution of likelihood in a given domain was always the same in the past as it is now.'

How does this apply to our data? As adumbrated above, if we look only at on-going chain shifts, Labov's first principle, that peripheral³ vowels rise in chain shifts, does not appear to be likely. Only on-going shifts count as basic to understanding the mechanisms. This rules out all 'after-the-fact' shifts, since they are what we seek to explain. It turns out that only a few on-going shifts have been observed in sufficient detail and with sufficient reliability to count as evidence. The ones that we feel sure should carry evidential weight about the nature of vowel shifting in English are the New York City shifts [Labov 1966: (oh) and (eh) variables, *passim*], the Northern American Cities shift (Labov 1994, 188-91 *et passim*), and the Popular London and Cockney shifts (Wells 1982:177); the Norwich shift (Trudgill 1974, 1988) does not 'chain' in a way parallel to these others, since it involves complete fronting of high back vowels. The Southern American shift, which we will discuss below, we argue is not a shift but something else, though highly relevant. All of these can be reasonably

said to have been 'caught in the act', since they are on-going.

3. The evidence of well-documented modern shifts

We have discussed a number of issues related to these shifts and their interpretation in Stockwell-Minkova (1997); what follows is an extension of that discussion especially with reference to the dialect data presented in Orton's *Survey of English Dialects*.

3.1 New York City and Northern American Cities

The striking fact to note about these well-known shifts is that in-gliding diphthongs of which the first segment is non-peripheral are the ones which rise up the periphery. The NYC shift in CAN'T, HALVE, BATH, and COFFEE, DOG, FOG, CAUSE can be represented as in Figure 1:

The New York City Shift

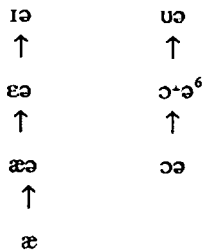


Figure 1

Labov's diagram of the Northern Cities Shift (1994: 191) is shown in Figure 2.

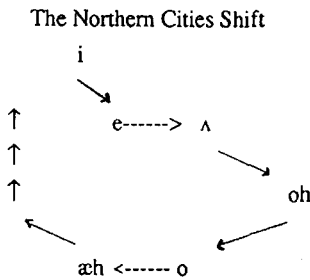


Figure 2

These are confusing pictures, because the link of [oə] to [o], the first stage of the Northern Cities Shift, and the first step in the NYC front vowel shift, [æ] > [æə], – are not shifting but simple shortening ([o]) and lengthening ([æə]), and as such are not proper parts of chain-shifting at all. In the latter case, once lengthened, then the New York chain is activated. In the former case, the [o] appears to be unrounded, fronted, then lengthened again to enter into the front chain. But this appearance is misleading: Labov's [oh] represents a variable over the set [ʊə oə əə], and [o] is a variable over [a ə]. There is no simple link of the type represented in the diagram. What is clear is that the Northern Cities shift is replicating NYC front vowel raising; and it is introducing a new shift, lowering and centralizing of short front vowels. In both localities, NYC and the Northern Cities, the **raising** is agreed by everyone to occur with in-gliding – i.e., non-peripheral – vowels, and the peripheral vowels of the BAIT BEET BOAT BOOT words are stable.

3.2. London

In all of these cases the diphthongs which lower and centralize their first element start out as homorganic out-gliding diphthongs – the things Labov writes VY and VW. In the first stage these are peripheral. In the second and third stages they start as central and glide to the periphery. What defines them as a natural class is not peripherality but glide directionality, diphthongal type as defined in 1.2 above. The last two columns, starting with RP [ay] and [ɔy], are non-homorganic out-gliding diphthongs, and the directionality of the change in them is raising and rounding of the nucleus, which leads to further end-point differentiation. Wells's diagram of the London shift (Wells 1982: 308), with trivial changes made for consistency with our phonetic notation, is shown as Figure 3:

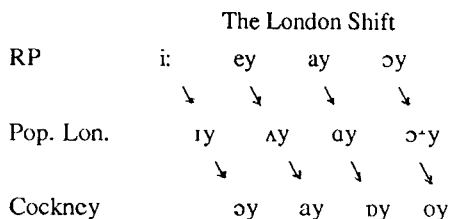


Figure 3

Even more explicitly, then, this shift can be defined as spreading the diphthong, distancing the nucleus from the glide. When the glide is homorganic, the distancing

takes the form of lowering and centralizing of the nucleus. When the glide is non-homorganic and the nucleus is round, the distancing consists primarily of greater rounding of the nuclear vowel: RP /ɔy/ → Pop.Lon. /ɔɹy/, Pop.Lon. /ɔɹy/ → Cockney /oy/.

3.3. *Southern States*

The salient properties which distinguish virtually all Southern States accents, from the Gulf coast up northward through the mountains to the Potomac River in the east and the Ohio and Mississippi rivers in the midlands, and westward to the Rio Grande, are these:

- (1) the starting point of the nucleus in -Y and -W high and mid diphthongs is non-peripheral, significantly more-so than in other modern American accents; thus the nucleus of BEET, BEAD is [ɪy], that of BAIT, BAYED is [ɛy], that of BOOT, BOOED is [ʊw] or even [ɪw], and that of COAT, CODE generally has no rounding at the beginning, thus [ʌw].
- (2) the out-gliding diphthongs which in other accents have nuclear low vowels, thus words like MINE, TIDE, DOWN, LOUD – all with variation depending on whether the coda is voiced – tend strongly toward monophthongization: [ma:n], [ta:d]; or toward resyllabification: [dæyɪn, (læyɪd].
- (3) most notably, the syllabic nucleus of LAW, DOG, BOUGHT is out-gliding [-w]. It is not the case that long open o is changing positions. Rather, the direction of its off-glide has changed – from what Labov would write with -H to what he would write with -W, from in-gliding (centering) to out-gliding [ɔə] > [ɔw]

We argue that these changes are not parts of shifts, though (1) suggests a possible first stage for the historical long [i:] shifting to [ay], and (2) suggests what must have happened to Old English -w diphthongs spelled *eo* and *ea*. It is possible that (3) gives us a clue about how Old English [a:] might have become Middle English [o:].

3.4. *Other shifts*

There are other (partial) shifts that are sufficiently clear and on-going to be noted and used as evidence to support or deny a theory of chain shifting. In Philadelphia, the centralizing of [iy] to [ɪy] in ME, SEE, FEE words resembles or even replicates what

many scholars assume was the first stage of the historical English vowel shift – a stage which takes place only after the historical [i:] had become [iy], the diphthongal type most subject to dissimilation. In Southern British English, the centralizing of [ow] to [ʌw] or even [ɛw] in KNOW, GO, HOME words exemplifies one of the possible directions of dissimilation in out-gliding diphthongs, with the nuclear vowel moving from back to central to front. In Australia the backing and rounding of [ay] to [ɔy] or even [ɔy] in MINE, FIGHT, LIED exemplifies further dissimilation in this diphthongal type. In Australia the lowering of [ey] to [æy] in MATE, LAID, SHAME illustrates the same principle.

4. Modern dialect data with resemblances to the on-going shifts

4.1. The North Midlands

Orton (1952) and Orton et al. (1978) set forth a number of facts about rural dialects spoken in the North Midlands by speakers over 60 years of age in the 1950's who must have acquired their accents by approximately the turn of the century. These dialects, unlike southern British English, appear to have developed through chains similar to those that Labov has found in NYC and in the Northern Cities.

We drew heavily on Orton's description (Stockwell and Minkova, 1988) in one of our efforts to show that the traditional view of the mechanisms by which the southern vowel shift took place were much over-simplified.⁴ The diagram which we drew (Stockwell and Minkova 1988: 371) to represent what may be called 'The North Midlands Vowel Shift' is rather unclear. Figure 4 provides a clearer representation:

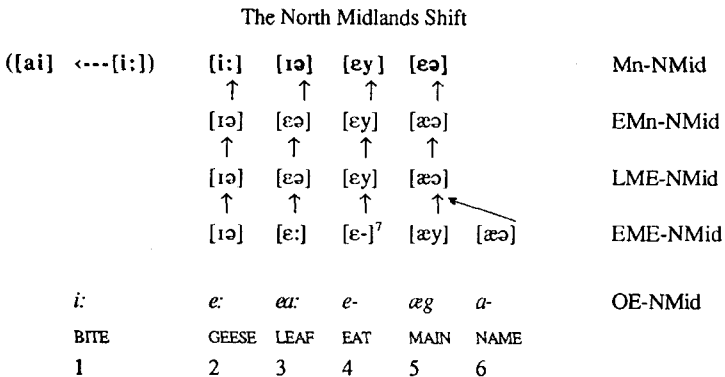


Figure 4

There are certain properties of this vowel shift which we call especially to your attention:

- (1) It is not the case that it can be accounted for by the general statements that peripheral vowels rise and non-peripheral vowels fall (Labov 1994: 234). Note in particular that the vowel of column 5 becomes non-peripheral; and the vowels of columns 3, 5, and 6 are clear instances of non-peripheral vowels rising. On the other hand, the vowel of column 4, which was the focus of Orton's attention in this paper, is an instance of a peripheral vowel which has been stable, not rising, since ME.
- (2) It is apparently possible for [V:] to contrast at any date with [Və], since they do in modern English (North Midlands) at both high and mid levels. The interpretation of Stockwell (1978) and of Stockwell and Minkova (1988) takes the position that the OE long vowels were of only three types – Vy, Vw, Və. This was evidently not rich enough (given the North Midland facts), contrary to criticism, which has claimed that it was too rich, that only V: and V are needed. It is clear that all three plus V: are needed, contrastively at the most basic phonological as well as phonetic levels.

Given that we greatly admire Harold Orton and his work, and remembering that this is written for a celebratory centenary occasion, we bring the following point forward with a due and proper measure of respect. Orton, to our surprise, appears to have placed theory ahead of dialects. To follow our summary, it will be useful to refer to our appendix which reproduces the OE sources⁵ of the (1) EAT, (2) LEAF, (3) CLEAN, (4) GEESE, (5) TREE, (6) STREET, (7) NEED, (8) NAME, and (9) NAIL words. If the OE sources immediately leap to mind, the appendix is otiose.

4.1.1. Pattern 1

We begin with Orton's own summary (1952: 124-25) of what he calls 'four different patterns of development': that is to say, four – quite different – vowel shifting patterns within a small area of England. In Figures 5-10 our symbols are directly translatable into a kind of approximate IPA. Our normalizations are reasonable: We substitute [-y] for the palatal glide in rising diphthongs where Orton uses the IPA iota [i], thus [ɛy] is to be read as [ɛɪ], though [e:] and [i:] are read as standard IPA. Modern

English endpoints are shown in boldface.

Pattern 1, exemplified in Lancashire and South Yorkshire:

| | |
|---------------------------|--------------|
| EAT | > [ɛ y] |
| LEAF, CLEAN | > [iə] |
| GEESE, TREE, STREET, NEED | > [i:], [iy] |
| NAME, NAIL | > [e:], [ɛə] |

The form of the Pattern 1 shift is displayed in Figure 5, where it is apparent that only the development of [e:] corresponds with SBE.

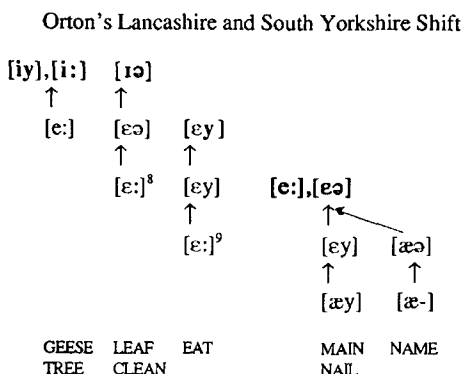


Figure 5

4.1.2. Pattern 2, exemplified by Oldham:

| | |
|---------------------------|--------------|
| EAT, NAME, NAIL | > [e:], [ɛy] |
| LEAF, CLEAN | > [ɪə] |
| GEESE, TREE, STREET, NEED | > [i:] |

The form of the Pattern 2 shift is displayed in Figure 6. Note especially the raising of the clearly non-peripheral [tɛə], and the stability, the failure to rise, of the peripheral [ɛy] (= [ey]). Note also the merger of [tɛə] with [ɛy] and subsequent stability.

4.1.3. Pattern 3, exemplified by Lincolnshire:

| | |
|------------------|--------|
| EAT, LEAF, CLEAN | > [ɪə] |
|------------------|--------|

Explanations of Sound Change

GEESE, TREE, STREET, NEED > [i:]
 NAME, TAIL > [eə]

The form of the Pattern 3 shift is displayed in Figure 7. Note the merger of [ɛy] with [ɪə] and the loss of the former. The main point to note is that after the LEAF and EAT words develop in-glides, they rise.

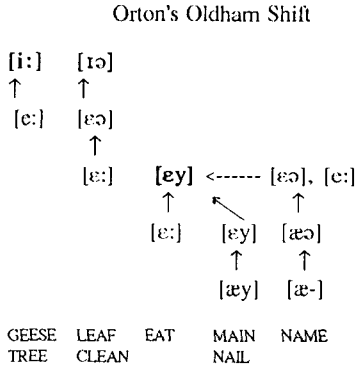


Figure 6

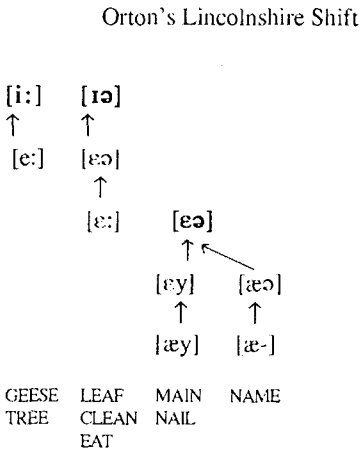


Figure 7

4.1.4. Pattern 4, exemplified by Biddulph Moor, Staffordshire:

EAT, LEAF, CLEAN, NAME, HAIL > [i:] (note mergers)
 GEESE, TREE, STREET, NEED > [ɛy] (note – different – mergers)

The form of the Pattern 4 shift is displayed in Figure 8. The rather startling fact to note is that while there are many more mergers than in Patterns 1-3, the mergers of the second group are counter-indicated by the principle that peripheral vowels rise in chain shifts.

Orton's Staffordshire Shift

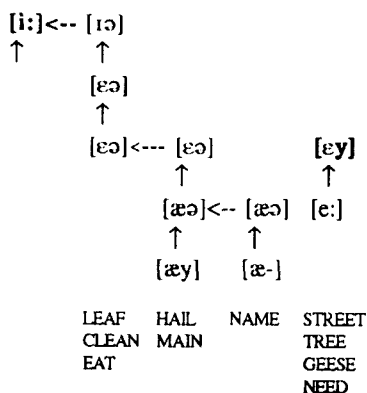


Figure 8

4.1.5. Pattern 5 is Southern British English, virtually the inverse of Pattern 4, with everything rising to the top except for the NAME and HAIL words. The ones that rise are in-gliding, non-peripheral. The ones that remain stable and do not rise are out-gliding, peripheral.

EAT, LEAF, CLEAN, GEESE, TREE, STREET, NEED [i:]
 NAME, HAIL [ɛy]

Explanations of Sound Change

The Southern British Shift

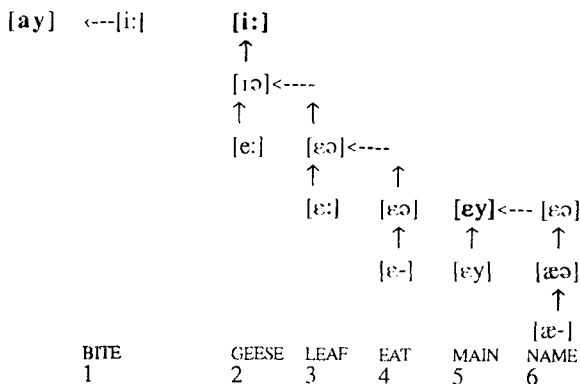


Figure 9

4.1.6. Pattern 6 is Standard American English, differing only in the loss of distinctive length (no figure is needed to represent this additional change).

| | |
|---|------|
| EAT, LEAF, CLEAN, GEESE, TREE, STREET, NEED | [iy] |
| NAME, HAIL | [ɛy] |

Orton offered a more detailed account of intermediate stages only for Pattern 1 (1952: 128). He found it 'incredible that this supposed intermediate sound could for any appreciable length of time preserve its separate identity without colliding and subsequently being levelled with either' e-1 or e-2 (1952: 127). He proposes instead that the EAT words developed from a vowel which was more open than e-2. What is fascinating is that he cites no dialect evidence to support this view. His entire argument is based on merger-avoidance. We reproduce the content of his chart of the Pattern 1 intermediate stages (using our symbols) below, and Orton asserts clearly that the in-gliding stage is purely theoretical: 'On purely theoretical grounds, it seems to me quite possible that so far as concerns Lancashire and South Yorkshire (viz. Pattern 1), the ME sounds we have been considering developed as' [shown below in Figure 10]:

Merger-Avoidance in Lancashire and South Yorkshire (Orton)

| | ME | LME | ENE | NE |
|------------|------------------|--------|--------|--------|
| 4, 5, 6, 7 | > [e:] | > [i:] | > [i:] | > [i:] |
| 2,3 | > [e:] | > [e:] | > [ɛə] | > [ɪə] |
| 1 | > [ɛ:] (lowered) | > [ɛ:] | > [ɛy] | > [ɛy] |
| 8 | > [a:] | > [æ:] | > [æə] | > [ɛə] |
| 9 | > [ay]/(?[æy]) | > [æ:] | > [æə] | > [ɛə] |

Figure 10

4.2. *Implications for vowel shift principles*

Let us review the data: in Lancashire and South Yorkshire the *GEESE*, *TREE*, *STREET*, *NEED* words went through a vowel shift which was like the one we find in the South, namely they were raised from [e:] to [i:].

But the *LEAF* (2) and *CLEAN* (3) words not only did not merge with them, as in the South, but they developed into a nucleus which is not found at all in the South, namely [ɪə]. Furthermore, Orton (1952: 128) speculated that the intermediate stage between the 'long open <e>' of ME and the present-day [ɪə] was [ɛə], which we regularize to [ɛə]. Orton provided no independent argument to support this speculation, but in fact there was a rather strong 'systemic' argument available, namely the parallel development of the later stages of the *NAME* and *NAIL* words to [ɛə], one slot lower in the system. Stockwell (1962: 668, 1978: 341) speculated that even in the South where centering glides do not occur in PDE at all – except as replacements for [-r], a completely independent issue – such glides played a role in the vowel shift. In Orton's Lancashire and Yorkshire data these glides occur with great regularity in the reflexes of the *LEAF*, *CLEAN*, *NAME*, and *NAIL* words. This fact is itself sufficient basis to support Orton's speculation that [ɛə] was the ancestor of Lancashire and Yorkshire [ɪə]. The centering glides are clearly the norm in all of these categories, and the rare [iy] or [ey] that shows up in the data must be taken as interdialectal borrowing from the prestige accent (Orton's suggestion, and, we believe, correct).

And most surprising, the *EAT* (1) words developed an out-gliding nucleus [ɛy] with utter disrespect for the rest of the system. The rest of the system is strongly in-gliding, even in the nuclei that were out-gliding in OE, ON, and OFr (set 9, the *NAIL*

words). It is hard to emphasize sufficiently the contrariness of these developments. No current theory of chain shifting predicts this; and in fact the principal existing theory of vowel shifting, namely Labov's, predicts that exactly the opposite should have occurred in all but the top row, which follows the prediction that peripheral vowels rise.

5. Principles of chain shifting

In order for an analysis of a historical English shift to be supported by the evidence of modern English chain shifts, it appears, from the above Modern English dialect evidence and the on-going shifts, that :

- a. nuclei which move upward have centering glides, and
- b. nuclei which move downward have homorganic out-glides, front with front vowels and back with back vowels.

There is no evidence in living dialects – except Norwich, to which we return below – that any other kind of shifting in complex nuclei is possible: there are no cases of pure long vowels rising, for example. (Remember, the GVS is not counter-evidence to this claim: no one has proved that the shifting nuclei were long pure vowels, and indeed the very fact of their shifting suggests that they were not.)

Our main point about the use of dialect evidence in reconstruction, then, is this: if there is an obvious dominant result – in this case, in Pattern 1 as in Lancashire and South Yorkshire, with massive development of in-gliding (centering) nuclei – our reconstruction should say, these are not innovative but inherited.

But if we say the centering complex nuclei were not innovative but inherited, the question becomes, inherited from how far back in time? What is the time-depth of the centering nuclei? Orton reconstructed, at the EMnE stage, in-gliding nuclei for the LEAF, CLEAN, NAME, and NAIL words. But the *only*, repeat *only* evidence for this reconstruction is the modern dialect evidence. On the other hand, the only evidence *against* this reconstruction is flimsy: the orthography of Anglo-Norman scribes. These scribes were not phoneticians. They had Latin spelling traditions, and had never heard of in-glides and out-glides, to say nothing of schwa. We have no comprehensive descriptions of English pronunciation before the latter half of the 16th century (John Hart is really the first such). Virtually all philologists and linguists have taken the spellings at face value: but should we? We know they didn't mark length: why should

we assume they marked vowel quality reliably? If we don't assume that, then 'some sort of long <e>' could just as well have been [ɛə] as [e:], all the way back, in fact, to Anglo-Saxon and even West Germanic times. And *mutatis mutandis* throughout the system.

6. Centering glides today

We have seen that centering glides are rampant in the north. How about the south? We know they don't exist in London and SBE generally (except as reflexes of [-r], which are irrelevant). Is there evidence that centering glides once existed widely in the south? Well, yes, there is, but it's not very strong. It consists of a small number of rising diphthongs (actually a large number if we include place names) which must have resulted from *Akzentumsprung*. *Akzentumsprung* can *only* operate on complex nuclei – two non-identical vocalic elements, V1+V2, with the further stipulation, at least for English, that V2 must be lower than V1 (and indeed we can probably stipulate that the first element must be not only higher than V2 but must have become, if it was not already, [i] or [u]). If there were no other evidence (there is considerable spelling of strange-looking ME diphthongs in the South, but it is not certain that these complex vowel spellings must be interpreted as in-gliding diphthongs), this should make one suspect that in-gliding diphthongization must have existed as much in the south as in the midlands and north.

One may push a step further and suggest, on the basis of this evidence supporting substantial amounts of in-gliding diphthongization both north and south of the home counties, perhaps the vowel shift even in the home counties was based on the same (and, we believe, if not only, at least primary) phonetic motivation we find evident all over the NW Midlands, namely 'distancing' between the two elements of the diphthong for perceptual optimality. (Labov has called this 'nucleus-glide differentiation'.)

Assuming that the ultimate target of a centering diphthong is a point maximally distanced from the out-glide end-points, i.e. the -y and -w of the peripheral diphthongs, namely some kind of low central [a] or [ɑ], we can argue that the reason that in-gliding diphthongs raise the first element is perceptual optimization: [æə] is worse than [ɛə] which is worse than [ɪə]. In the back, [ɔə] is worse than [ɜə] which is worse than [ɔɪə] which is worse than [uə]. Put another way, Labov has the motivations for chain-shifting in English (and indeed throughout Germanic) backwards: it is not that peripheral vowels rise, because there is no phonetic motivation for that claim to be

true; rather, it is that the elements of in-gliding diphthongs distance themselves from each other for optimal perception, which raises the first element. In fact, true peripheral vowels, rather than rising, are quite stable. [ey] and [ow] have been stable since late Anglo-Saxon times (*they*, *grow*). Whenever [iə] has become [i:] it has remained stable (but [ɪy] races down the middle to [ay] by the same distancing principle we saw above, which forces the nucleus of out-gliding diphthongs to fall, as it has done in London, Philadelphia, and of course most famously Australia and New Zealand). Whenever [uə] has become [u:] it has remained stable unless, as in the upper Rocky Mountain states, *all* the back vowels have lost their rounding (but [ɔw] historically becomes [aw] by the same principle just noted for [ay]). Needless to say, this entails that by the time of the vowel shift, the nuclei which participated in it had all become diphthongs. They were not long vowels, as traditionally conceived. The ones that rose were in-gliding. The ones that fell were out-gliding. The ones that underwent *Akzentumsprung* were certainly in-gliding.

But how, then, do we explain the lack of in-glides (discounting those which derive from post-vocalic -R) among the modern SBE vowels? This is our ultimate wild speculation. Standardization is a kind of purifying and stabilizing process. It throws out excessive variety, and it regularizes spacing and style of articulation. Because of [-r] vocalization, a large number of new in-gliding vowels were created. There was no hope of retaining older ones.

NOTES

¹ We accept the *facts* documented by Labov and colleagues, but not the *interpretation* of these facts. Indeed, we believe the interpretation is to a considerable extent the reverse of what is happening and has happened. We will present arguments concerning the correctness of this reversal, below.

² The examples which follow here and throughout the text written with small capital letters are **types**, not tokens. Wherever they appear, one can read 'words like X, Y, Z'. In this we are following the excellent example of Wells (1982), though we have not selected the same exemplars of the types unless by accident.

³ Sometimes referred to as 'long' or as 'tense' vowels by Labov; but in diagrams of shifts, like the one on p. 234 of his 1994 book, it is clear that these are the ones he understands to be peripheral.

⁴ The passage being referred to is found on pp. 370-71. In reviewing these arguments recently, we noticed that there is a minor error which must have made every careful reader of it wonder what we were saying about the vowel shift in Lancashire and south Yorkshire. On p. 371 where we should have written, 'The Modern English set of contrasts for the above developments is [ai, i:, ɪə, εi, εə],'⁵ we wrote 'The Middle English set of contrasts ... *et seq*', for which we apologize.

⁵ Taken from Orton (1952: 99-101).

⁶ The vowel represented by open o(ɔ) plus the raising/closing sign (ɹ) here is the rounded congener of [ʌ]. It is sometimes referred to by some such phrase as the 'coastal New England short "o"'.⁷

⁷ From MEOSL (OE short e-).

⁸ From OE long *æ* and long *ea*.

⁹ From MEOSL (OE short e-).

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APPENDIX

1. The EAT words: OE short <e> in an open syllable (e-) – *steal* ('handle'), *eat*, *meat*, *kneading*, *speak*, *steal*, *tread*, *weaner* ('piglet'), *meal*, *break*, *besom*, *fever*, Scand *leak*
2. The LEAF words: OE long <ea> – *bean*, *beam*, *beat*, *dead*, *deaf*, *death*, *great*, *heap*, *eastward*, *clee* ('claw of pig's foot'), *lead*, *leaf*, *leap* ('basket'), *seam*, *sheaf*, *steamer*, *threap* ('argue'), *team*, *cheap*, *head*, *cleat* ('metal plate'), *reamy*, *flay*
[Numbers 1-2 are so-called 'long e-2']
3. The CLEAN words: OE long <æ> (i-mut of long <a>) – *clean*, *deal*, *heat*, *heathen*, *each*, *lead*, *lean*, *leavings*, *mean*, *wreath*, *sheath*, *sea*, *spread*, *sweat*, *tease*, *wheat*
4. The GEESE words: OE long <e> (i-mut of long <o>) – *breed*, *breeches*, *feed*, *feel*, *feet*, *geese*, *gleed* ('glowing'), *green*, *heed*, *heel*, *keep*, *meet*, *seech* ('seek'), *teeth*
5. The TREE words: OE long <eo> – *bee*, *fleece*, *fleetings* ('milk curds'), *lief*, *-knead*, *reest* ('ploughshare') *see*, *tree*, *weeds*, *wheel*, *three*
6. The STREET words: Angl OE long <e> from Germ long <æ> – *ate* (pt pl), *greet* ('weep'), *let*, *needle*, *read*, *seeds*, *street*, *cheek*, *breathe*, *dread*, *thread*
7. The NEED words: Angl OE long <e> (i-mut of long <ea>) – *need*, *reech* ('reek'), *sheet*, *sleeve*
[Numbers 4-7 are so-called 'long e-1']
8. The NAME words:
 - (a) OE short <æ> or <a> in an open syllable – *ache*, *blade*, *father*, *lading*, *lame*, *late*, *name*, *rake*, *rather*, *shape*, *shave*, *slade* ('slope'), *snake*, *spade*, *stake*, *swath*, *tale wade*, *water*;
 - (b) Scand short <a> in an open syllable – *cake*, *gape*, *gate*;
 - (c) OFr short <a> in an open syllable – *bacon*, *braces*, *case*, *dateless* ('foolish'), *face*, *favor*, *lace*, *pale*, *scales*, *space*, *place*, *spane* ('wean')
9. The NAIL words:
 - (a) OE <æg> – *day-*, *fain*, *maiden*, *main*, *nail*, *snail*, *tail*;
 - (b) OE <eg> – *ail*, *braid*, *-lay*, *played*, *sail*, *way*;
 - (c) Angl long <eg> – *grey*;
 - (d) Scand <ei> – *baitings*, *gradely*, *grain* ('prong'), *lake* ('play'), *lait* ('search'), *raik* ('wander'), *nay*, *weakly*;
 - (e) Angl long <æg> (i-mut of long <a> + g) – *either*, *key*
 - (f) OFr <ai> – *bailiff*, *gay*, *quay*, *pay*, *ray*, *train*, *complaint*, *chain*
 - (g) OFr <ei> – *pray*. *Rail*, *paint*, *sprain*, *pain*, *reinings* ('reins')