How much shifting actually occurred in the historical English vowel shift?

Robert Stockwell

The traditional picture of the English vowel shift that took place in the south of England between 1200 and 1600 was represented as in Figure 1 by Otto Jespersen (1909: 232), who named it the "Great Vowel Shift":
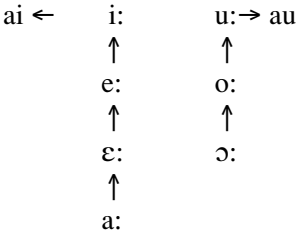

Figure 1

This says, each lower vowel moves up to the next higher position, and the highest vowel becomes a diphthong. Jespersen dates the change to around 1450.

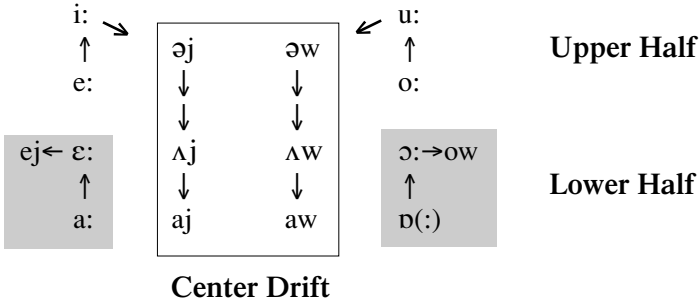A quite non-traditional picture, the one for which I shall argue, is shown in Figure 2:

Figure 2

In Figure 2, mergers are shaded, diaphones are inside the box, and true chain shifts are shown in the upper left and right peripheries. (I shall return to the term "diaphone" shortly: for now, think of them as allophones which are non-contrastive by virtue of their distribution across dialects.)

The claim embodied in Figure 2 is an elaboration of a claim that Donka Minkova and I made (Stockwell and Minkova 1988), namely that the lower half of the traditional Southern British English vowel shift is a series of mergers among the available contrastive units, ultimately favoring [ej] and [ow] as the only occupants of that space. I shall call this "implosion", whereby a set of two or three or more contrastive entities within a substantially overcrowded vowel space merge to a single unit. Obviously "implosion" is just a mnemonic, not a characterization of a process: it is the opposite of a chain shift because nothing is displaced and everything is merged. I claim that the fundamental condition for a chain, namely the no-merger condition, is only supported among the vowels with the feature [–LO].

The most conspicuous part of the vowel shift, which I shall call the "center drift", is not a chain at all. "Center drift" is the diphthongization, centralizing, and lowering (in either order, chronologically) of [i:] and [u:] to some variant of [aj] and [aw]. The defining feature of sound changes which are arranged in a chain is this: Any two adjacent contrastive entities – any two links in the chain – must move in lockstep, without merger. They always maintain their distance and their functional contrast. But in these famous vowel-shift instances of drifting down the center, on the contrary, nothing is ever displaced, no merger occurs, and no phonological change has occurred. All the variants, top to bottom, co-exist. They are non-contrastive in all dialects and all accents. The only thing that suggests that each step downward calls for analysis as a new phoneme or phoneme cluster is distinctive feature theory. This is a kind of hangover from structuralist days and the notion "once a phoneme always a phoneme". That is, once the diphthong moves from [+HI] to [–HI], or from [–LO] to [+LO], features that are distinctive elsewhere in the vowel system, one might argue that they must be taken as distinctive here too.

But I see no reason to accept that consequence of the theory. We know that in childhood all speakers build their own grammars. When it comes to learning language, everyone is an island. From that point of view, when people are still immature and haven't traveled much or mixed in wider social circles, [ʌj] and [ʌw] (Canadian or Virginia pronunciations) may not

immediately be perceived as allophonically related to [aj] and [aw]. But the island joins the mainland as it matures. As we expand our linguistic horizons and talk with Australians and Cockneys and Canadians and Virginians and Philadelphians, and as we go to school and learn that the front diphthongs are called "long I" (for good non-phonetic reasons, like regularities in morphophonemic alternations), and we grow up using dictionaries where the front diphthongs are marked as "long I", these dialect variants become functionally single phonemes. (The back diphthongs are not marked or referred to as "long U", because of the "OU" spelling that French scribes introduced in the 12th and 13th centuries, leaving "long U" as the name for the earlier IW vowel, the vowel of CUTE, BEAUTY, FEUD). If we prefer to keep "phoneme" for a narrower sense, we can use Hans Kurath's term "diaphone" (Kurath 1961) – i.e., dialect variants that function like allophones. The two most important criteria of phonemic identity, namely psychological unity and functional equivalence, are found in these diaphones at least among sophisticated adult speakers. "Canadian raisings" are hardly noticed by the rest of us because they are increasingly familiar diaphones of /aj/ and /aw/.

It has been claimed – I am only one of many – that the center drift through the sequence [ij] to [əj] (pace Lass) to [ʌj] to [aj] to [ɔj] (Cockney) or [a:] (Southern American) – and similarly for the corresponding back diphthong – is plausibly motivated in the dissimilatory stages (i.e., as it gets further from [ij] and closer to [ɔj]) by perceptual optimization of the diphthong followed at the assimilatory stage by articulatory optimization (producing the Southern long monophthong [a:] for [aj] in words like MINE, TIDE). Across a much wider range of phenomena, it is the main theme of Boersma (2000), who attributes the notions of "minimization of articulatory effort" and "minimization of perceptual confusion" to Passy (1891). These notions are made much more explicit in Boersma's study than in the numerous previous studies where they have been invoked to account for the tendencies of high vowels to diphthongize and of wide diphthongs to become narrow diphthongs or monophthongs. I claim that it is a phonetically conditioned low-level drift, not in principle different from the development of intervocalic flapping of /t/ or /d/ in *latter-ladder*, or of nasalization in *can't* and *don't*. This drift could of course end up being rephonologized, but it hasn't been rephonologized yet, at least not in mainstream varieties of English.

With regard to the formulation of **center drift**, I shall put aside as irrelevant to my focus here one aspect of the formulation of the details of the drift, namely: did the new diphthongs first drop down one step and then move to center, or first move toward center and then drop down? The argument has recently been vigorously revived in Lass 1999. His account fails to explain why the putative [ej], derived from [ij] in Lass's first stage of the vowel shift, did not merge with the diphthong [ej], both inherited and borrowed. This diphthong was extremely salient in that area of the vowel space. A corresponding argument, point for point, applies to the putative [ow] from [uw], except we never can say anything about it on the basis of early phonetic descriptions because of the French spelling <ou>.

Let me also make clear that in raising the notion of diaphones I am not turning the clock back to the early structuralist notion of "overall patterns". The overall pattern allowed all accent differences to be represented with a selection of symbols from a single very rich and reasonably coherent set of benchmarks which were attributed to everyone's phonological competence equally, whether they made a given specific contrast or not. Overall pattern notation is still in use, in an only slightly modified form, by Labov (1994), whose work is often misunderstood because the Trager-Smith system is now unfamiliar and not generally taught. It nevertheless has an honorable history that includes such names as Batchelor (1809), Sweet (1891), Bloomfield (1933), Trager and Smith (1953), and Hockett (1955). Modern scholars commonly forget that it was the surface phonemic notation system, with minor modifications, used by Chomsky and Halle (1968) as the output of their morphophonemic (i.e., abstract phonological) rules.

With respect to the vowel shift, my view favors the reality of received orthography and the good sense of lexicographers. I take it, following this line of thought, that the most famous part of the vowel shift, the only part – center drift – that it shares with other West Germanic languages, is diaphonic drift, not a chain shift. "Long I" and "Long U" are the right designations for these entities, and they cover a range of instantiations from Edinburgh to Baton Rouge. This is not only true as a diachronic claim, I think it is true also as a synchronic claim about the reality of these entities in the perception of sophisticated speakers: but for my argument against "chaining" to go through, it only has to be true as a diachronic claim.

Now I would like to turn to my second main point, an anti-chaining view of the bottom half of the vowel shift that Minkova and I argued for in 1985.

We apparently did not make it clear, or if clear then not convincing, since half-a-dozen full-scale histories of English, or more, have been published subsequently and none of them have had their vision altered by the new light we offered.

The metaphor of a set of links in a chain, as noted above, entails lockstep without merger. The metaphor proposed here, to explicate what Minkova and I were suggesting, entails multiple mergers to a single focal point. I think it can legitimately be viewed as a form of optimization. As implied earlier, it is motivated by a universal principle which says that over-crowding an area of vowel space is to be avoided, i.e., too many similar-sounding nuclei in the same vowel space create a non-optimal situation. The over-crowding in this instance resulted from the introduction of highly-similar [ej]-type and [ow]-type nuclei from a variety of sources:

1. From Old English with vocalization or epenthesis in the sequence V + [x/ç], resulting in [Vw] or [Vj]
2. From Scandinavian loans
3. From French loans
4. From Middle English Open syllable lengthening of the three [–HI] short vowels.
5. From the <ea> words like *great, break, steak, yea*. The rest of the words in this set are a special problem, really for everybody, the famous *meet-meat-mate* problem.

These were powerful forces for merger. We are talking about very large numbers of words containing diphthongs similar enough to [ej] and [ow] such that overcrowding could destabilize the inherited contrasts. In Figure 3 I have tried to represent the implosion picture for low and mid front vowels, and for low and mid back vowels.

Below are lists of representative examples. Some explanation of notation is needed. Where the modern English form is shown in parentheses, it means that the example was at one point in its history a proper Middle English example which underwent further (and for this argument irrelevant) development or dialect interference that removed it from the merger class to which it earlier belonged. The dotted g of OE editors is here written <j> after front vowels. The ambiguous symbol <ʒ> is used after back vowels when it is responsible for later lowering of the vowel, as in *daughter*, which
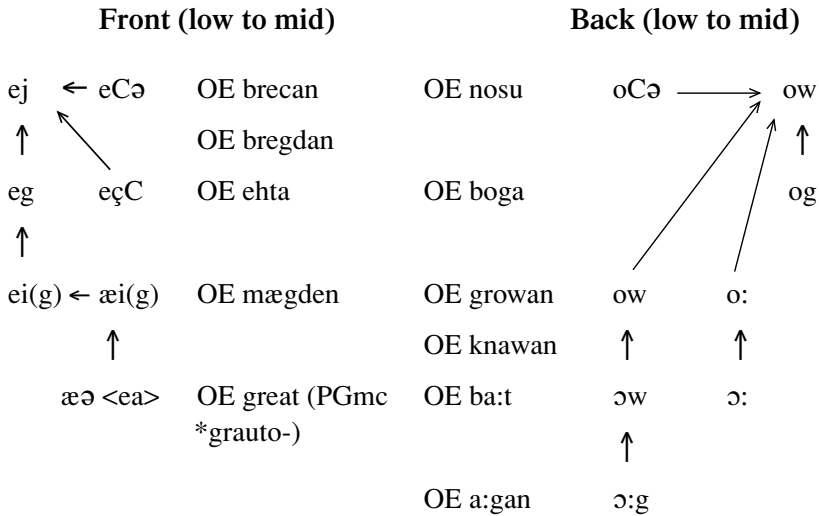
Front (low to mid)   **Back (low to mid)**

ej	← eCə	OE brecan	OE nosu	oCə ——→	ow
↑		OE bregdan			↑
eg	eçC	OE ehta	OE boga		og
↑					
ei(g) ← æi(g)		OE mægden	OE growan	ow	o:
			OE knawan	↑	↑
æə <ea>		OE great (PGmc *grauto-)	OE ba:t	ɔw	ɔ:
				↑	
			OE a:gan	ɔ:g	

Figure 3

otherwise should be [do:tr]. Middle English Open Syllable Lengthening (MEOSL) added many more examples: all of the <-aCe> and <-oCe> words like *bake* and *nose*, discussed below. Length of vowels with glides is not indicated except where absolutely necessary to identify the items in question. Length was always assimilated to the coda glide of the stressed syllable – i.e., -V(:).wV → -Vw.V, and –V(:).jV → -Vj.V. A putative contrast between long vowel plus glide, and short vowel plus glide, is completely spurious at least in the history of English, because the two types, if they once existed before resyllabification took place, always develop identically afterwards. The story in Scandinavian is quite different but clearly irrelevant here.

In addition to the direct reflex relations shown above, there are, as noted above, the results of MEOSL; these new long vowels merged immediately with the phonetically most similar diphthongs. Examples: *ache, ale, bake, bale, bane, bathe, blade, blaze, cake,* and dozens more; and similarly *nose.* The precise nature of the intermediate stage(s) of this merger is not clear. It cannot have been simple raising because that would merge with the inherited OE 'long æ', which is the only vowel in this area that did NOT merge to [ej] – cf. OE *hælan, nædl,* MnE *heal, needle.* The best guess would appear to be that since the lengthened vowel would have started out

as [æ:] or even more probably [æə] and would have been an orphan in the system (there being, by this time, no in-gliding diphthongs remaining, though they were common in OE), it fell in with the out-gliding [æj] and merged with [ej] accordingly.

From Old English

Mergers to [ej]	Mergers to [ow]
break < OE <brecan> (= eCə > [ejC]) MEOSL	bow < OE boga (vocalization)
braid < OE <bregdan> (<eg> = [ej])	close < OF closen
brain < OE <bregn> (= [ej])	dough < OE <da:h>, ME [dɔ:x] (glide epenthesis)
clay < OE <clæg> (= [æj] > [ej])	(daughter) < douʒter < OE dohtor) (glide epenthesis)
day < OE <dæg> (= [æj] > [ej])	flown < OE flogen (vocalization)
eight < OE <ehta> (= [eç > ejç > ej])	grow < OE <growan> (resyllabification of /w/ from onset to coda)
fey < OE <fæg> (= [æj] > [ej])	know < ɔ:w < OE <cna:wan> (glide assimilation and resyllabification)
(fight) < OE <fehtan> (= [eç > ejç > ej])	nose < ɔ: < OE <nosu> MEOSL
gray < OE <græg> (=[æj] > [ej])	(nought) < ME <nouʒt>, OE <noht> (glide epenthesis)
(high) < hejʒ < OE he:h (glide epenthesis)	own < ɔ:u < OE <a:gan> (vocalization)
maiden < OE mejden < OE <mægden>	(sought) < ME <souʒte> < OE <sohte> (glide epenthesis)
may < OE mej, mæj <mæg>	mow < mowan < ma:wan (raising and resyllabification)
rain < OE rejn, ræjn <rægn>, <regn>	blow < blowan (like *know*)
way < OE wej <weg>	snow < sna:wan (like *know*)
weigh < wejan < OE <wegan>	
whey < OE hwæj (<hwæg>)	

| Borrowed | |
From Scandinavian	From French
	assail < OF asailier
bait v. < ON beita 'to bait bears'	bay < OF baie
gain < ON gegna	change < OF changer
hail < ON heila 'to drink health'	complain < OF complaigne
main < ON megen 'strength'	dainty < OF deinte
nay < ON nai	fail < OF faillir
raise < ON reisa	faith < OF feit, feid
rein(deer) < ON hreinn	May < OF maie
they < ON þei-r	pay < OF paie 'please'
though < ON þoʒ	plain < OF plein
wave < ON waive 'turn aside'	pray < OF preie
	rail < OF reille
	saint < OF seint
	scale < OF escaille
	train < OF traine
	traitor < OF treitre
	wait < ONF waitier

Among the mergers to [ow] from earlier [a:w] and [o(:)w], it is extremely difficult, probably simply impossible, to sort out a stage when a contrast between [ɔw] (as a reflex of [a:w]) and [ow] existed. It is my belief that in Old English the Roman alphabet character <a> represented a low back vowel, long as well as short, probably with some rounding, from the earliest Old English times. One can give only a probabilistic argument for this view. The argument has two parts: (1) unconditioned rounding is unheard of as a process in the history of English, though the reverse (unconditioned unrounding) is common. For [a] or [ɑ] to have become, without conditioning, a rounded vowel [ɒ] or [ɔ] is hard to believe, given that there are no parallels. I conclude, therefore, as a matter of probability, that it must have been rounded, to some extent, already, such that the Middle English [ɔ:] was a direct inheritance, not the result of sound change. (2) It is totally reasonable

that this OE vowel should have been spelled with the Roman alphabet sym-
bol <a>. What other vowel in the system could the symbol <a> possibly
have been used for? The system of Old English simple vowels, each of
them both long and short, is shown in Figure 4:

$$
\begin{array}{lc}
i & u \\
\\
e & o \\
\\
æ & a/ɔ
\end{array}
$$

Figure 4

The association of <a> with low central quality, rather than low back
(round), was established much later, when [æ] was retracted in words like
water, *wash*, *father*, and many words like *calm, part,* were borrowed from
French and Latin with <a> representing [a]. These nearly all turn out to be
long vowels in Modern English. The corresponding short vowel exists – al-
most exclusively in America – as a reflex of short <o> (*cot, pot, lot)* and, in
what is now the majority American accent, as a reflex of historical [ɔ:]
(*caught, bought,* which in this accent rhyme with *cot).* This difference of
interpretation (merger to diphthongs rather than raising and much later
diphthongization) raises difficult problems for the view (e.g. Lass 1999,
discussed below) that assumes merger of the RAISE vowel to a long mono-
phthong, and similarly the *grow* vowel. The diphthongal quality found over
the past three centuries is taken by Lass as innovative rather than conser-
vative.

   Lass (1999: 91ff.), basing his views primarily on the orthoepical testi-
mony of John Hart (1569) and Alexander Gil [b. 1564]) argues that al-
though Present-Day English reflexes show "an apparently simple pattern,

seas	ɛ:	→	i:		know	ɔʊ	→	əʊ
days	ai	→	eɪ		no	ɔ:		
daze	a:							

Figure 5

the real story is much more complex" – which is no doubt true: the question is whether it can be reconstructed with any degree of precision or accuracy. Lass (1999) represents the "apparently simple pattern" as in Figure 5 (his example 31, p. 91; I have added the arrowheads for clarity):

Lass (1999: 58 ff.) has reservations about interpreting the orthoepists: "[In interpreting the writings of the orthoepists like Hart, Gil, and Wallis (1653)], Vowels are a special problem. Since the modern high/low, back/front grid had not been developed, we may be faced with nearly uninterpretable articulatory descriptions, or impressionistic terms like 'thin', 'clear', etc." ... But his confidence in Hart outweighs his caution (1999: 63ff. on Hart): "Given his demonstrable acuteness of ear (if not feel for tongue position), we have no reason to disbelieve his claim that pairs like <i, i> (*did, teeth*) and <u, u> (*but, do*) differ only in length, not quality. So his transcriptions for *did* and *teeth* ought to be interpreted respectively as [containing a minimal contrast between phonetic [i] and [i:]." There are many problems with this view, and since it has become or is about to become the establishment view, just because Lass says it was this way – The *Cambridge History of the English Language* represents the Anglistic establishment, as it properly should – some reasons for dispreferring it must be given. I give the reasons by short title below. Each of them could be extensively elaborated.

1.   The Mopsey argument. Very shortly after Hart, Alexander Gil (b. 1564), who grew up as a native speaker of what was spoken in London at the time that Hart was writing, gives in 1619 a lucid criticism of Hart's descriptions, acknowledging that the long monophthongal types exist but asserting that they exist only as affectations (among "the Mopseys" – Gil's name for, as Lass says, "a type of affected, over-delicate, hypercorrecting female speaker" (1999: 92). For his own speech, and for his perception of what he calls "our sounds", Gil explicitly and clearly describes diphthongs for the vowels of *pray* and *known*, and explicitly rejects both the long monophthongal affectations and Hart's monophthongal transcriptions, in particular "<prë> for <prai>, <knön> for <knoun>" (Lass 1999: 91).

Lass's own attempt to demolish the Mopsey argument, is, I believe, flawed. His example 32 is reproduced (with a trivial correction of the heading in the righthand column) as Figure 6 below.

Mopseys	Ancestor of Modern Standard
/ai/ days	/aɪ/ days
/ɛ:/ seas	/a:/ daze
/a:/ daze	/ɛ:/ seas

Figure 6

The (relevant parts of the) paragraph which immediately precedes Figure 6 read(s) thus: "[The merger of] /ai/ and /ɛ:/ must belong to a different lineage. If these had merged in the sixteenth-century ancestor of the modern standard, they would eventually have fallen together in /i:/; instead of /deɪz/ *days* we would say **/di:z/ to rhyme with *seas*, etc." But this argument is not very strong: they could just as well have merged /ai/ and /ɛ:/ as /ej/, as in fact they did in Anglo-Irish (not just *great, break, steak, yea* but the whole set of *ea* words). In fact Lass's notion of three somehow parallel lineages (the Hart Mopseys, Popular London, and the General London Standard, all "kept separate until well into the 17th century" – Lass 1999: 92) is, I believe, unsustainable.

2. The Latin argument. Since these diphthongal pronunciations must have existed in Hart's day, though he failed to describe them, his description must be based on something other than observation. Since he was among the leading Latinists of his day, and since Latin long/short pairs are consistently described both in the Latin grammars of his time and in the grammars of Latin written in the immediate post-Classical period as differing only in duration, it seems probable that he was projecting this description, the only model he had, directly onto the closest corresponding English pairs. Unfortuantely this can never be proven, either way.

3. The argument from Middle English Open Syllable Lengthening. This is the traditional one that Lass himself presented with no phonetic explanation in volume II of the *Cambridge History of the English Language* (CHEL II). The pre-Lass standard explanation of the Open Syllable Lengthening of *wicu > week* depended on the assumption that "short *i*" was at approximately the same height as "long *e*", and that "short *e*" was at the same height as "long open *e*". That is the clear and necessary implication of Lass's own account of OSL as it applies to high and mid vowels (CHEL II: 48):

i: i   u   u:

e: e   o   o:
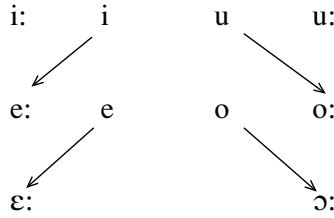
ɛ: ɔ:

Figure 7

He simply creates a rule of "lowering" applying to the high and mid short
vowels. It is completely unmotivated, unless it has the phonetic content of
Figure 8:

i: u:

ɪ   ʊ

e: o:

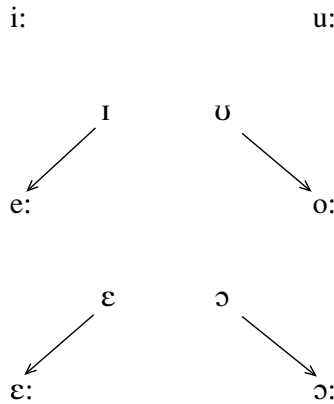ɛ   ɔ

ɛ: ɔ:

Figure 8

Lass rejects the phonetic implications of Figure 8 in favor of an arbitrary
rule of lowering when lengthened. The only reason for this rejection is to
preserve his assessment of John Hart's excellence as a phonetician. The
price he pays for rejecting the phonetic motivation seen in Figure 8 is to call
all of these lengthenings and shortenings – examples like *week, sick, wood,
door, evil,* etc. (see Trnka 1959 or Stockwell 1961 for complete lists) –
"sporadic", which is surely a court of last resort, since when lengthened,
sporadically or regularly makes no difference, they merge with the lower,
not the higher, long vowel. This fact is not sporadic, even if the lengthen-
ings and shortenings themselves are.

Finally, by way of summary, note especially that my claim is **not** that in the vowel space from low to mid, both in the front and in the back, there was no raising to [ej] and [ow], – there is no denying that implosion in some instances involved raising – but rather that such raising resulted in merger with [ej] and [ow], **which were nuclei that already existed in substantial numbers.** They did not merge with the next higher vowel of an on-going chain. There was a complete destabilization and ultimately collapse of all contrasts in the vowel space that might be called long low and long mid front; and similarly a collapse in the corresponding back vowel space. Furthermore it is unlikely to be accidental that the diphthong which was the target of the merger, conspicuously in the front and to a lesser extent in the back, had already been borrowed in large numbers from Scandinavian and French, though there are significant numbers of native examples also. Nonetheless, the imports, rather like Honda and Toyota for American auto manufacturers, provided a new standard of excellence for [–HI] vowels

When [ej] and [ow] became so common, it is not surprising that the only similar-sounding vowels ([e:] and [o:]) in their respective areas moved higher, becoming [i:] and [u:] as in *beet* and *boot*. In these instances the push kind of motivation favored by Karl Luick (1896), Richard Carter (1975), and Roger Lass (see Lass 1987: 226–227 for a succinct presentation of the evidence) makes some sense. Whether this development justifies positing a push **chain** (with only one link) depends on whether the highest vowels had already become diphthongs. Stenbrenden (2001) reports evidence from the Linguistic Atlas of Early Middle English (in progress at Edinburgh University) for diphthongization of an earlier date (numerous <ei, ey> spellings for Middle English reflexes of Old English 'long i' and of other Old English spellings that result in Middle English 'long i' forms). These apparently antedate the evidence for raising (*seemed* written *symed*). If this is so, it is damaging to any push-chain theory. In Stockwell-Minkova (1988), we pointed to other serious data problems in the Luick-Lass-Carter argument for a push chain, that argument being based on some Scots and Northern English dialects. Frankis (1986) has pointed to other Germanic data which, at the very least, argue for a more conservative position than the push-chain theory allows. It seems doubtful whether this question can ever be resolved satisfactorily, but either resolution of it – push or drag – fails to impact the main argument about mergers made above.

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