Leeds Studies in English

Front Rounded Vowels in Northumbrian English: the Evidence of *The Orton Corpus*

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Abstract

This paper examines the phonological properties and the historical development of Northumbrian front rounded vowels of the types [ø(ː)] ([ø(ː)ə]) and [œ(ː)] ([œ(ː)ə]), with special reference to the material of the *Orton Corpus*. While studies based exclusively on the *Survey of English Dialects* regard these vowels as two phonemes, or perhaps one, the present paper demonstrates that they constitute three phonemes, /øː/, /œː/ and /œ/ (or /ɔ/), two of which have back as well as front realisations (/øː/ = [øː ~ oː] etc.; /œ/ = [œ ~ ɔ] etc.). In terms of lexical incidence, /øː/ occurs typically in the standard lexical set GOAT, while /œː/ as well as /œ/ (/ɔ/) appears chiefly in LOT and CLOTH. Special features of lexical incidence in the *Orton Corpus* include the use of /øː/ (in North Tynedale) and /œː/ (at most localities) in some subsets of THOUGHT.

The paper also offers explanations of the historical development of Northumbrian front rounded vowels. Lass's (1989) suggestion that they may have developed as an approach to the southern GOAT vowel is accepted in general as regards [ø(ː)], but is otherwise rejected. Instead, it is shown that all three main types, [ø(ː)], [œː] and [œ], may have developed by various native processes, one of which is contextual, while two are context-free. At the same time, it is recognised that the use of front rounded vowels in the *Orton Corpus* and the *Survey of English Dialects* owes a great deal to the influence of external norms of pronunciation.

1. *Introduction*

1.1 Front rounded vowels (FRVs) are a prominent and well-known feature of

traditional Northumbrian speech. In the Basic Material of the *Survey of English Dialects (SED)*, they appear typically in such words as *coat* [kø:t, kɵˑət, kɵᵊt, kœˑət, kœːᵊt] (~[kɯət, kọət]), *fox* [fœks, fœˑks, fœːks] (~[fɔks, fɒks]) and *off* [œf, œˑf, œːf] (~[ɔf, ɒf]) (Orton and Halliday 1962–63: IV.5.11, VI.14.5–6, IX.2.13), that is, in words belonging to the standard lexical sets GOAT, LOT and CLOTH as defined by Wells (1982). In many words of these sets, FRVs were recorded in most of the Northumbrian dialect area, which may be defined as the area represented by *SED* localities 1.1–1.9 and 3.1–3.2. The area comprises Northumberland, most of Tyne and Wear, and a small part of Durham, and is roughly coextensive with the districts which originally had the Northumbrian burr (/r/ = velar/uvular [ʁ, ʀ]) (see e.g. Påhlsson 1972). FRVs are also attested in words of other lexical sets, mainly STRUT (e.g. *gloves* [glø:vz] VI.14.7; *one* [wœn, wœˑn, wœːn, wø:n] VII.1.1, VII.2.6, VII.8.18, IX.8.8) and FORCE (e.g. *board* [bø:d, bøəd, bœːd] I.8.8, I.10.2, V.6.5), but such examples are rare, and seem to be confined to individual items or specific localities. Finally, FRVs occur sporadically as part of various non-centring diphthongs (e.g. [œʉl] *oil* V.2.13, [hœˑɯl] *howl* VIII.8.11, [mʉøn] *moon* VII.6.3).

This paper examines Northumbrian FRVs of the types [ø(ː)], [œ(ː)] and [ø(ː)ə], [œ(ː)ə], that is, front rounded monophthongs and centring diphthongs with a front rounded starting-point. The principal source is the material of the *Orton Corpus*, which was recorded by Harold Orton, or under his direction, between 1928 and 1939 (see Rydland 1998). The corpus contains material from a total of thirty-five localities, thirty-three of which are in the Northumbrian dialect area as defined above. Frequent comparison will be made with the *SED* Basic Material, most of which dates from the early 1950s. The aim of the paper is twofold: first, to analyse and describe Northumbrian FRVs with regard to phonemic status, phonetic realisation and lexical incidence (see section 2); second, to trace and explain their historical origin and development (see section 3).

1.2 The geographical distribution of FRVs is essentially the same in the *Orton Corpus* and the *SED* Basic Material. Both sources record FRVs throughout the Northumbrian dialect area except in the northernmost parts of Northumberland (localities of Berwick and Cornhill) and the districts of Allendale and Knarsdale in south-west Northumberland (localities of Allendale, Allenheads and Coanwood) (see Fig. 1). It may also be mentioned that FRVs are extremely rare in the *SED* material from 1.7 Haltwhistle.

Orton Corpus
1. Berwick
2. Ancroft
3. Cornhill
4. Ford
5. Bamburgh
6. Belford
7. Fenton
8. Bowmont Water
9. Seahouses
10. Wooler
11. Glanton
12. Harbottle
13. Rothbury
14. Rochester
15. Longhorsley
16. Falstone
17. Newbiggin-by-the-Sea
18. Cambo
19. Bellingham
20. Capheaton
21. Wark
22. Hartley
23. Seaton Delaval
24. Humshaugh
25. Matfen
26. Cullercoats
27. Newbrough
28. Acomb
29. Newburn
30. Newcastle
31. Ovingham
32. Coanwood
33. Allenheads

SED
1.1 Lowick
1.2 Embleton
1.3 Thropton
1.4 Ellington
1.5 Wark
1.6 Earsdon
1.7 Halthwistle
1.8 Heddon-on-the-Wall
1.9 Allendale
3.1 Washington
3.2 Ebchester

NORTHUMBERLAND

Alnwick

North Tynedale
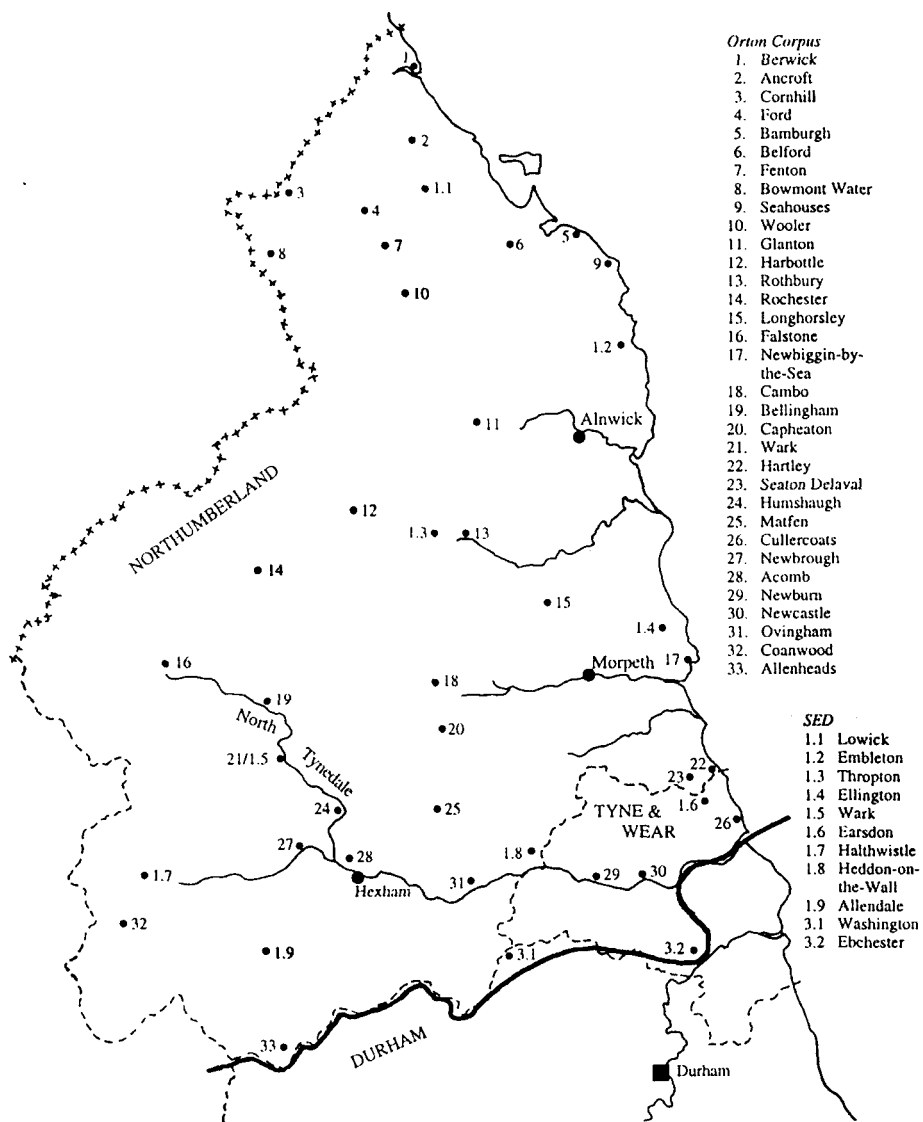
TYNE & WEAR

Morpeth

Hexham

DURHAM

Durham

Figure 1: Northumbrian dialect area. Localities in the *Orton Corpus* and the *Survey of English Dialects*

1.3 The phonological properties of Northumbrian FRVs in the *SED* Basic Material have been discussed by Krause (1989) and Lass (1989). Krause presents a detailed analysis of the data from locality 1.1 Lowick, while Lass gives a general overview of all the Northumbrian material. Both studies distinguish two main types of FRVs, namely close-mid [ø(ː)] and open-mid [œ(ː)] (Lass's symbols); the quantity varies, but is usually long or half-long, less commonly short. Krause analyses them as two phonemes, /øː/ and /œː/ (my notation; Krause writes /øø/, /œœ/), with the phonetic variants [øː (norm), øˑ, øːᵊ, ø] and [œː (norm), œˑ, œˑᵊ, œ]. Further, she demonstrates that /øː/ and /œː/ are normally used in different lexical sets: the former occurs mainly in the standard lexical set GOAT, the latter, in LOT and CLOTH, though it is also attested in a handful of GOAT words. Lass appears to take a different view: his account implies that [ø(ː)] and [œ(ː)] are considered as variants of the same phoneme, with the same lexical incidence. Lass also comments on the origin of Northumbrian FRVs: he suggests that [ø(ː)] and [œ(ː)] in GOAT may represent an approach to the GOAT vowel of RP, more specifically to the starting-point. Lass makes no attempt to explain the development of FRVs in LOT and CLOTH.

2. *Phonological analysis*

2.1 The *Orton Corpus* records the same basic types of FRVs as the *SED* Basic Material, but presents a different picture of their phonology compared to the descriptions given by Krause (1989) and Lass (1989). In the first place, the *Orton Corpus* invites a different phonemic analysis; second, it gives a wider range of phonetic variants; and third, it shows notable differences in lexical incidence.

Phonemes

2.2 A close study of Northumbrian FRVs in the *Orton Corpus* shows that they represent three different phonemes, which may be written /øː/, /œː/ and /œ/ (alternatively, /ɔ/; see Rydland 1995: 568). This analysis differs from Krause's description of FRVs at Lowick in that long and short open-mid [œː] and [œ] are regarded as separate phonemes. There is no discrepancy in the treatment of the close-mid vowels: as in Krause's account, all such vowels are assigned to the phoneme /øː/, regardless of quantity.

This phonemic analysis of Northumbrian FRVs was first proposed in Rydland 1995, which was based upon data from two localities in the *Orton Corpus*,

representing about 10% of the total material. Further study has shown that the analysis is valid for most other areas as well. Apparent exceptions are a number of localities where only one or two of the types [ø:], [œ:], [œ] are attested. However, most of these localities are very sparsely represented in the corpus, and few or none of the relevant words were recorded. The absence of one or two FRVs in the material is therefore in all probability due to chance. Open-mid long [œ:] is special in that it is lacking also in the material for two major localities (Capheaton, Glanton), and there is no evidence that the informants concerned ever used it. This suggests that at least some informants for the *Orton Corpus* had only two phonemic FRVs, namely long close-mid /ø:/ and short open-mid /œ/.

The three-phoneme analysis of FRVs in the *Orton Corpus* follows from their phonetic distribution and, above all, from their lexical incidence, as set out in Table 1. It will be observed that there is a marked incidental difference between close-mid [ø:] on the one hand and open-mid [œ:], [œ] on the other: the former occurs mainly in GOAT, the latter two, in LOT and CLOTH. This indicates clearly that [ø:] is phonemically distinct from [œ:] as well as [œ]. Both contrasts are confirmed by numerous minimal pairs such as the following:

/ø:/ ≠ /œ:/:   [nø:t] *note* ≠ [nœ:t] *not*;   [ø:d] *old* ≠ [œ:d] *odd*;   [ø:n] *own* ≠ [œ:n (~ø:n)] *on*;   [ʁø:d] *road* ≠ [ʁœ:d] *rod*.

/ø:/ ≠ /œ/:   [kø:st] *coast* ≠ [kœst] *cost*;   [kø:k] *coke* ≠ [kœk] *cock*;   [hø:p] *hope* ≠ [hœp] *hop*;   [ø:d] *old* ≠ [œd] *odd*;   [sø:k] *soak* ≠ [sœk] *sock*.

Table 1. Incidence and frequency of [ø:], [œ:], [œ] in the *Orton Corpus*

	GOAT	LOT CLOTH	THOUGHT	NORTH FORCE	Misc. items	Total (tokens)	
Vowel type	Tokens %	Tokens %	Tokens %	Tokens %	Tokens %	No (approx)	%
[ø:]	82	1.5	14[1]	–	2.5	1540	100
[œ:]	2	64	9	18[2]	7	370	100
[œ]	4	84	0.5	1.5	10	1360	100

[1] In North Tynedale only.

[2] Only at Newbiggin-by-the-Sea.

It is perhaps less obvious that there should be a phonemic contrast between the two open-mid vowels [œː] and [œ], both of which occur mainly in LOT and CLOTH. Many items in fact appear with both vowels, in some cases at the same locality, and even with the same informant. This alternation suggests that [œː] and [œ] are phonemically identical. On the other hand, long [œː] occurs also in lexical sets which do not normally admit short [œ], notably in THOUGHT. For instance, [œː] is used in such THOUGHT words as *ball*, *law* and *daughter*. Long [œː] here belongs to formal style: it is a local equivalent of Standard English /ɔː/, though its similarity to the latter is not readily apparent. From a phonemic point of view, the use of [œː] in THOUGHT is important in that it gives rise to minimal and near-minimal pairs between [œː] and [œ] such as [ʁœːt] *wrought* ≠ [ʁœt] *rot*, [tœːt] *taught* ≠ [tœt] *tot* and [bœːt] *bought* – [pœt] *pot*; [kœːl] *call* – [kœlt] *colt*; [fœːn] *fawn* – [fœnd (~fœːnd)] *fond*; [sœːs] *sauce* – [tœs] *toss*. These examples demonstrate conclusively that [œː] and [œ] are phonemically distinct, at least with speakers who use [œː] in THOUGHT. It may be assumed that they are different phonemes also with other speakers, as the phonemic status of [œː] is unlikely to depend exclusively on its use in THOUGHT words.

2.3   The FRVs in the *SED* material, too, can be analysed as three phonemes. This is clear from a close examination of all the data (including unpublished incidental material from the original recording-books; see *SED* 1953–55/61) in the light of the material of the *Orton Corpus*. In accordance with their phonemic norms, the phonemes concerned may be written /øː/, /œː/, /ɔ/ (=[ɔ, ɒ] ~ [œ]; see further 2.5). As in the *Orton Corpus*, there are marked differences in lexical incidence between the phonetic types [øː], [œː] and [œ] (see Table 2), which is a strong indication that they belong to different phonemes. Further, the material turns out to contain a number of minimal and near-minimal pairs for all the contrasts. For instance, the phonemic contrast between [øː] and [œː] is clear from such minimal pairs as [tʃøːk] *choke* ≠ [tʃœːk] *chock*, [køːm (~kœːm)] *comb* ≠ [kœːm] *come* 'came', [nøːt] *note* ≠ [nœːt] *not* and [øːn] *own* ≠ [œːn] *on*. Minimal/near-minimal pairs for the contrast [œː] ≠ [œ] (phonemically: /œː/ ≠ /ɔ/) include such examples as [kœːm] *comb* ≠ [kœm (~kœːm)] *come* 'came', [fœːks] *folks* ≠ [fœks (~fœːks)] *fox*, [plœːt] *ploat* 'to pluck' – [lœt] *lot* and [pœːk] *poke* 'sack' – [spœk] (~[spœːk]) *spoke* (preterite).

In general, the three-phoneme analysis of FRVs in the *SED* material is valid for all the relevant localities, though not necessarily for all informants. Possible exceptions are localities 1.7 Haltwhistle and 3.1 Washington, where the distribution of open-mid [œː] is such that its phonemic status cannot be determined with certainty.

Table 2. Incidence and frequency of [ø:], [œ:] and [œ] in the *SED* written material

	GOAT	LOT CLOTH	THOUGHT	NORTH FORCE	Misc. items	Total (tokens)	
Vowel type	Tokens %	Tokens %	Tokens %	Tokens %	Tokens %	No (approx)	%
[ø:]	**96**	0.5	0.5	0.5	2.5	495	100
[œ:]	23	**65**	–	4	8	350	100
[œ]	5	**90**	–	–	5	105	100

Phonetic variants

2.4 The *Orton Corpus* records several phonetic variants of each of the three phonemes /ø:/, /œ:/ and /œ/. A survey of the principal types is given in Table 3. The greatest amount of variation is found with /ø:/ and /œ/, both of which include back as well as front variants. In most sources, back variants predominate in the environment of a preceding or following burr (see 1.1), which clearly had a backing effect on front vowels (e.g. [ʁöːd, ʁoːd (~ʁøːd)] *road*; [bʁ̃ɔθ, bʁ̠ɔ̞θ, bʁɔθ (~bʁœθ)] *broth*; [böʁə, bɔ̞ʁə, bɔʁə (~bœʁə)] *borrow*). With /œ/, back variants are fairly common also before a following /k/ (e.g. [nɔ̃k, nɔ̞k (~nœk)] *knock*). Front variants of /ø:/ and /œ/ prevail in all other contexts, where they occur in almost 90% of the tokens.

Table 3. Realisations of /ø:/, /œ:/, /œ/ in the *Orton Corpus* (main types)

Phoneme	Norm	Front variants	Back variants
/ø:/	[ø:]	[ø̠:, ø˙, ø̙˙, ø˙ə, ø̙˙ə] (infrequent) [ø] (very rare)	[ö:, ǫ:, o:, ö˙ə, o˙ə] (mainly after [ʁ, ʀ])
/œ:/	[œ:]	[œ˙] (common); [œ̠:, œ̈:, œ̙˙] (rare)	
/œ/	[œ]	[œ̠, œ̈, œ̙] (rare)	[ɔ̃, ɔ̞, ɔ] (mainly next to [ʁ, ʀ] & before [k])

In contrast to /ø:/ and /œ/, open-mid long /œ:/ does not have back variants. Back rounded counterparts of /œ:/, that is, [ɔ:]-type vowels, are in fact common, but obviously belong to a different phoneme, /ɔ:/. This is clear from minimal pairs such as /kœ:l/ *call* ≠ /kɔ:l/ *curl*, /kœ:d/ *cod* ≠ /kɔ:d/ *cord+curd*; /œ:n/ *on* ≠ /ɔ:n/ *earn*.

The phonemic norms of all three front rounded phonemes are typically somewhat retracted from the corresponding cardinal values: the appropriate phonetic label is 'front retracted', or perhaps 'front centralised'. The phonemic norms are illustrated in Fig. 2. Since the front variants are retracted, the realisational range of /øː/ and /œ/ is somewhat less extensive than implied by the symbols in Table 3.
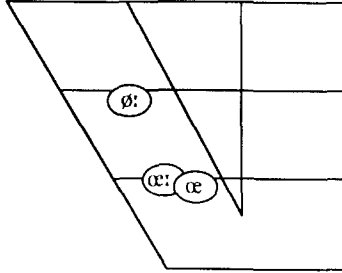

Figure 2. FRVs in the Orton Corpus: phonemic norms

2.5 The principal realisations of /øː/, /œː/ and /ɔ/ (see 2.3) in the *SED* material are set out in Table 4. It will be seen that the *SED* differs from the *Orton Corpus* as regards the frequency of back variants. Thus back variants of /øː/ are extremely rare in the *SED* material. By contrast, back vowels are the regular realisations of /ɔ/ in LOT and CLOTH: they occur in almost 90% of all the tokens, and are essentially context-free, while the corresponding phoneme /œ/ in the *Orton Corpus* shows no more than about 40% of back variants, most of which are context-dependent. The discrepancy, which is large enough to justify the use of different phonemic symbols, is indicative of a gradual shift from [œ] to [ɔ, ɒ] in LOT and CLOTH in the period between the two surveys, probably as the result of approximation to the general northern (and Standard English) vowel of LOT/CLOTH.

Table 4. Realisations of /øː/, /œː/, /ɔ/ in the *SED* material (main types)

Phoneme	Norm	Front variants	Back variants
/øː/	[øː]	[ø‧ə] (?norm at 3.1) [ø‧], [ø] (rare)	[oː] (very rare)
/œː/	[œː]	[œ‧, œ̞ː, œːᵊ]	
/ɔ/	[ɔ, ɒ]	[œ] (infrequent; not at 1.7)	[ɔ̈, ɵ̈, ǫ, ɔᵊ] (very rare)

Lexical incidence

2.6   The lexical incidence of FRVs in the *Orton Corpus* is quite similar to that in the *SED* material as described by Krause (see 1.3), but there are also important differences. The principal facts are set out in Tables 1–2. Both corpora give [ø:] chiefly in GOAT, and [œ:] and [œ] in LOT and CLOTH. The main incidental differences involve the use of [ø:] and [œ:] in THOUGHT in the *Orton Corpus*, and the occurrence of [œ:] in GOAT in the *SED*.

2.7   The *Orton Corpus* gives frequent [ø:] in THOUGHT words in North Tynedale in south Northumberland (localities of Acomb, Bellingham, Humshaugh, Newbrough and Wark). The items concerned belong to two historical subsets of THOUGHT, which will be referred to as *DRAW* and *FALL* (keywords for historical sets are written in italicised small capitals). The membership of these sets is indicated in Table 5. In the corpus material from North Tynedale, [ø:] occurs in about two thirds of all tokens of *DRAW* and *FALL*, while it is almost absent in the corresponding material of the *SED*. The *Orton Corpus* here highlights what is clearly a prominent feature of the local dialect.

Table 5. Historical subsets of THOUGHT with North Tynedale [ø:] in the *Orton Corpus*

Keyword	Northern Middle English vowel	Membership
DRAW	/au/	*claw, dawn, draw, law, sauce, saw, thaw ....*
FALL	/a/+/l/(C)	*all, ball, call, fall, hall, salt, stalk, talk, walk ....*

2.8   The *Orton Corpus* also records [œ:] in THOUGHT in many areas. This feature is absent altogether in the *SED* material. Most items with [œ:] belong to *DRAW* and *FALL*, but other historical sets are also represented. Typical examples include *fawn, haws, law, sauce, saw* (=*DRAW*); *all, ball, fall, hall, small, wall* (=*FALL*); *bought, daughter, fought, ought, sought* (words with Northern Middle English /a/ or /ɔ/ before /xt/).

2.9   The use of [œ:] in GOAT is in the main a feature of the *SED* material. Forms in [œ:] do occur in the *Orton Corpus* as well, but are very rare. If the sources are representative of actual usage, the use of [œ:] in GOAT must have increased substantially in the period between the two surveys (from less than 0.5% to almost

7% of all vowels/tokens), at the expense of [ø:] (from 45% to 40%). The change may reflect uncertainty among the *SED* informants about the original lexical incidence of [œ:] and [ø:].

3. *Historical development*

[ø:]

3.1 Close-mid [ø:] occurs almost exclusively in GOAT words, in which it replaces a variety of traditional vowels, in several historical subsets. The most important of these sets and their traditional vowels are listed in Table 6, which also shows the proportion of [ø:] in each set in the *Orton Corpus*. (The corresponding figures for the *SED* material are very similar.) The use of [ø:] for so many different native vowels suggests that it developed by an adaptive change, that is, by adaptation to an outside norm. This lends support to Lass's theory that [ø:] originated as an approach to the GOAT vowel of RP (see 1.3). It may be objected that [ø:] is an unlikely result of such approximation, and there is in fact a possible native source. This is the traditional diphthong [uə] in the historical set *COAL*, as defined in Table 6. [uə] is not very different from [ø:] phonetically, and could have produced an [ø:]-type vowel by internal fronting (probably context-free). There is no direct evidence of such a change, but it is noteworthy that [ø:] is much more frequent in *COAL* than in any other historical subset of GOAT. This suggests that [ø:] first developed in *COAL*, which in turn points to native [uə] as a possible source. Once [ø:] had become established in *COAL*, it was a prime candidate for use in other GOAT words whenever a standard-like pronunciation was needed. The development and use of [ø:] in Northumbrian dialects may thus be seen as involving two different phonological processes: the phonetic type [ø:] arose by a native change in the historical subset *COAL*, but the spread of [ø:] from *COAL* to other subsets of GOAT was the result of adaptation to Standard English.

3.2 North Tynedale [ø:] in the historical sets *DRAW* and *FALL* (see Table 5) is evidently the outcome of a native change, but is closely connected with the development of [ø:] in GOAT. The traditional North Tynedale vowel in *DRAW* and *FALL* was close-mid back [o:], which also appeared in two historical subsets of GOAT, namely *SNOW* and *COLD* as defined in Table 6 (see Ellis 1889: 640, 674–677 (Ellis's (*oo*) = IPA [o:]); compare also Heslop 1892: xix). The change from

Table 6. Main historical subsets of GOAT, traditional Northumbrian vowels
and proportion of [øː] in the *Orton Corpus*

Keyword	Northern Middle English vowel	Membership	Traditional vowel	% [øː]
COAL	/ɔː/	*coal, coat, foal, nose, throat ....*	[uə]	76
BONE	/aː/	*bone, foam, load, most, soap ....*	[iə, ɪɛ]	31
TOE	/aː/	*no, so, toe ....*	[ĕiː]	21
ROLL	/ɔu/	*bolt, colt, gold, pole, roll ....*	[œu, ɔu]	19
SNOW	/au/	*blow, know, mow, snow ....*	[aː, æː][1], [oː][2]	18
COLD	/a/+/ld/	*cold, fold, hold, old ....*	[aː, æː][1], [oː][2]	20

[1] General Northumbrian.

[2] North Tynedale.

[oː] to [øː] in *DRAW* and *FALL* may have taken place as outlined in Table 7. The
first stage was the emergence of [øː] in *SNOW* and *COLD*, which thus came to have
front [øː] as well as back [oː]. The two vowels may have been phonemically distinct
to begin with, but then underwent phonemic restructuring: at stage 2, they became
variants of the same phoneme, with front [øː] as the norm, while back [oː] was mainly
used next to the Northumbrian burr ([ʁ, ʀ]). This restructuring is bound to have
affected *DRAW* and *FALL*, since traditional [oː] in these sets was identical with a
variant of /øː/ in *SNOW* and *COLD*. The third and final stage was the necessary
phonological adjustment, which involved the substitution of [øː] for [oː] in *DRAW*
and *FALL*, except in phonetic environments favouring back vowels.

Table 7. Suggested development of North Tynedale [øː] in *DRAW, FALL*

Historical sets	Traditional vowel	Stage 1	Stage 2	Stage 3
DRAW, FALL	[oː]	[oː]	[oː] = /ʔ/	[øː, oː] = /øː/
SNOW, COLD	[oː]	[øː] ~ [oː]	[øː, oː] = /øː/	[øː, oː] = /øː/

[œ]

3.3   The development of open-mid, short [œ] poses few problems. In the *Orton Corpus*, this vowel is the regular Northumbrian reflex of Middle English short back /ɔ/, except in certain phonetic environments. This indicates that [œ] derives from Middle English /ɔ/ by independent (context-free) fronting (see 3.5 for the probable date of this change).

[œː]

3.4   Open-mid long [œː] seems to have originated as a contextual variant of short [œ] in such words as *dog*, *job* and *on*, that is, before voiced consonants in monosyllabic LOT words. This is by far the commonest environment of [œː] in the *Orton Corpus*, and accounts for 95% of all occurrences in LOT. But [œː] was evidently phonemicised at an early date, probably because there were irregularities in its phonetic distribution. In the *SED* material, [œː] is usual in a much wider range of contexts, e.g. before voiceless consonants in LOT and CLOTH, including words of more than one syllable (*drop* [dʁœːp'] VII.8.20, *boss* [bœːs] VIII.1.25, *topping* [tœːpən] III.4.8, *offal* [œːfəl] III.11.6; see also 1.1).

The adoption of [œː] in lexical sets other than LOT and CLOTH seems to have been motivated by a number of factors. In THOUGHT, [œː] was apparently introduced as a formal variant, by speakers who considered it as the equivalent of Standard English /ɔː/ (see 2.2). The same explanation may apply to many examples of [œː] in NORTH and FORCE. The spread of [œː] to GOAT is more difficult to account for. The theory put forward by Lass, that [œː] in GOAT is an approach to the GOAT vowel of RP, is hardly tenable. A more likely cause is the native vowel correspondences in the historical sets *DRAW*, *FALL* and *SNOW*, *COLD* (see Tables 6–7). As shown in Table 8, the traditional vowels in these sets were [aː, æː] (=/aː/; see Rydland 1993: 44) in most Northumbrian dialects, while the commonest modern equivalents were [œː] in *DRAW*, *FALL* and [øː] in *SNOW*, *COLD*. The fact that [œː] and [øː] here correspond to, and alternate with, the same traditional vowels, may have created uncertainty about their lexical distribution, and thus paved the way for the use of [œː] in GOAT.

Table 8. Vowel correspondences in *DRAW, FALL* and *SNOW, COLD*
(general Northumbrian)

Historical set	Modern vowel	Traditional vowel
DRAW, FALL	[œː]	[aː, æː]
SNOW, COLD	[øː]	[aː, æː]

Chronology

3.5 The FRVs of modern Northumbrian seem to be a recent phenomenon. Thus there is no trace of such vowels either in Ellis 1889 or in Wright 1905, where GOAT words appear with traditional vowels such as those listed in Table 6, and LOT and CLOTH have back [ɔ]. The closest approximation to FRVs in these sources is Ellis's (œ₁`) = IPA [ɵ·] (central rounded) in *all* and *know* at 1.7 Haltwhistle (1889: 660). These forms are of questionable authenticity (the material from Haltwhistle was transcribed 'conjecturally' (Ellis 1889: 654)), and it is very doubtful if they are connected with the development of Northumbrian FRVs. If the material collected by Ellis and Wright is representative of contemporary usage, FRVs cannot have emerged until after about 1880 or 1890. However, there is reason to suspect that short [œ] may be a good deal older: this vowel is not very different from back [ɔ], and could easily have been mistaken for the latter by Wright's and Ellis's sources, most of whom had no phonetic training. In the absence of evidence to the contrary, it may be conjectured that short [œ] developed at an early date, possibly even in early Modern English. Long [øː] and [œː], on the other hand, in all probability did not arise until the end of the 19th century.

4. Conclusions

The *Orton Corpus* sheds new light on the modern phonology as well as the historical development of Northumbrian FRVs. The material shows that FRVs constitute three distinct phonemes, not two or one as suggested by other studies (see 1.3, 2.2), and provides essential data about the phonological relationship between FRVs and the corresponding back vowels (see 2.4). This information enables us to give a more satisfactory phonological analysis of FRVs in the *SED* material (see 2.3, 2.5). Further, the *Orton Corpus* reveals important features of lexical incidence not

brought out by the *SED* (see 2.6–8). Finally, the *Orton Corpus* gives significant clues to the historical development of FRVs: they appear to originate in various native developments, but their distribution is partly the result of approximation to outside models of pronunciation (see 3.1–4).

The value of the *Orton Corpus* for the study of Northumbrian FRVs lies in the insight it gives into their original use. This insight provides a clearer understanding of the phonological properties of FRVs, as well as their historical development. By the time the *SED* started fieldwork in the area, the original distribution had been modified, and the resultant patterns tend to obscure synchronic as well as historical relationships. In the matter of Northumbrian FRVs, then, the *Orton Corpus* is an invaluable supplement to the *Survey of English Dialects*.

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