The realization of dental obstruents adjacent to /r/ in the history of English

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Abstract. Considerable fluctuation among ambi-dental fricatives and alveolar stops exists in the environment of /r/ from Early Middle English down to the present day. The traditional explanation for the distribution of fricatives and stops whereby the latter are found after /r/ and the former before /r/ is examined and concluded to be incorrect as the forms establishing the first half of this distribution represent insufficient evidence for it. In a revised view of the phenomenon it is regarded as a basic shift from a fricative to a stop without change in place of articulation. The dental stop arising from this shift is later lenited in some instances. Present-day dialectal evidence is used to support the view that /d/ from /ð/ before /r/ was a dental stop.

0. Introduction

Among the more unusual sound changes in English that have occurred after Old English is that which shifts ambi-dental fricatives to stops in the environment of /r/\(^1\). The change is by no means uniform and unidirectional. There are shifts of /ð/ to /d/ and some of /ð/ to /ð/\(^2\). Both the dialectal evidence\(^2\) and the orthoepic evidence of Early Modern English\(^3\) show considerable fluctuation in the degree and direction of shift. One similarity in all the examples offered is that they first and foremost involve voiced sounds. A second similarity explicit in the title is of course that the fluctuation is only in the environment of /r/. Any account of the shift of stop to fricative or vice versa among dental obstruents must also offer a motivation, for the shift only occurring in the environment of /r/ and for its only affecting voiced segments on the whole. For convenience of reference I will term both the stops and the fricatives, which are involved in the shifts discussed in the present paper, coronal obstruents. This class of segments includes ambi-dental fricatives /θ/ and /ð/, alveolar stops /t/ and /d/ as well as dental stops /t/ and /d/. The relationship of the dental plosives to the other two groups of obstruents will be seen to be relevant in the proposed motivation for the shifts involved. Thus although the general term ‘coronal’ is used in the body of the article it will be seen that the specific term ‘dental’, found in the title, is justified in the light of the conclusions arrived at towards the end.

To begin with it is expedient to consider the main views on the shifts involved which are found in the relevant literature.

1. The complementary shift view

It is tempting to treat fluctuation in the realization of dental obstruents in post Old English times as involving two shifts in complementary distribution. This line is taken by Jespersen\(^4\). He postulates a shift from fricative to stop after /r/ : /rð/ \(\rightarrow /rd/\)
and of a stop to a fricative before /r/ : /dr/ → /ðr/. Unfortunately such a neat
distribution is scarcely acceptable. The principle difficulty lies with the first half of
it. To support the view that /ð/ generally becomes /d/ after /r/ Jespersen quotes three
forms, given in (1).

(1) a burden ← Old English byrดน
   b murder ← Old English morðor
   c afford ← Old English geforðan

The first of these could well have /d/ because of the further Middle English form
burden ‘undersong’. The second could have /d/ due to the Middle English form
mudre while the last has /d/ in absolute final position. This is an exceptional
phonotactic position. All other examples of dental obstruents and /r/ are intervocalic.
The /d/ in (1c) can be accounted for by the general fortition of dental fricatives after
sonorants in word-final position as in

(2) Old English peofþ → þeft ‘theft’

Jespersen continues to give a variety of words which are recorded as earlier having
a stop rather that the present-day fricative: further, farther, farthest. But here the
obstruents are post- and pre-/r/. One could equally maintain that a stop articulation in
further is due to the following /r/. For furthest with /d/ one can easily appeal to
analogy with the base form with a stop pronunciation.

2. Fricative to stop before non-syllabic /r/

The next set of examples of shift involve /ð/ to /d/ before /r/. It is usual in traditional
grammars on Middle English to maintain that the shift to a stop only occurs, to begin
with, before a non-syllabic sonorant, including /r/. This is doubly unfortunate. To
begin with such dissimilations as

(3) a fæðme → fæðme ‘fathom’
   b næðle → nedle ‘needle’

are different from the shifts in the environment of /r/. They are due to a general
phonotactic constraint in Old English which forbids sequences of two segments, both
of which are [+continuant]. This is a very general constraint which is attested
abundantly. The forms in both (2) and (3) manifest it as do certain Latin loan-words
in Old English such as tractus → Old English traht; crypta → Old English cruft.

The second infelicitous aspect of the traditional treatment of plosivization of
/ð/ is the reference to the non-syllabic nature of the following /r/. A number of forms
which show the fortion of /ð/ to a stop had indeed a syllabically marginal /r/, consider Old English spiðra ‘spider’ which shows an unstressed final vowel as the
core of the second syllable with the /r/ in the onset of this syllable. But on the
disappearance of this final vowel in the Middle English period the /r/ became
syllabic (as in the present-day pronunciation in rhotic dialects) and still the
plosivation of /ð/ took place. And although the plosivization of /ð/ to /d/ does not get under way until Middle English\(^1\) there are examples of it to be found in Old English before syllabic /r/: *ædr → ædr ‘vein’\(^1\). Thus the view of Jordan\(^2\) that forms like broder ‘brother’ and oder ‘other’ arose from inflected forms like brodrē etc. (where /r/ is non-syllabic, i.e. forms the onset, is unnecessary and diversionary.

3. **Revised view**

To account for the alternation of /ð/ and /d/ it is best to start with the instances of the shift of /dr/ to /dr/. Assuming that the question of the syllabicity of /r/ is an incidental issue one has several attested shifts in early Modern English as follows

\[
\begin{array}{ll}
(4) & a \quad o\dder \quad \rightarrow \quad oder \\
    & b \quad bro\dder \quad \rightarrow \quad broder \\
    & c \quad fe\dder \quad \rightarrow \quad feder \\
    & d \quad le\dder \quad \rightarrow \quad leder \\
\end{array}
\]

As the stops in the forms of the right-hand column arose from ambidental fricatives I assume that these stops were dental and not alveolar. This distinction of place of articulation is essential. It is made by Luick\(^3\) and Jespersen\(^4\) and offers the clue to the reverse development. Up to this I have transcribed the stop of the shift as /d/ but evidence points to [d]. To establish the dentality of the stop several considerations must be made. Let me begin these by looking at the situation in Irish English.

4. **Evidence from Irish English**

The first point to note in this connection with the possible dental articulation of stops is that English orthography does not offer any means for indicating the dentality of stops. In dialect writing the sequence dh or ddh\(^5\) is sometimes used to indicate a dental [d]. It is also the representation found with Irish writers who wish to refer to the dental pronunciation of stops before /r/. In certain lower class and rural varieties of Irish English /t/ and /d/ have a dental pronunciation before /r/; the Standard English ambidental fricatives /θ/ and /d/ are also realized as dental stops giving cases of neutralization like the following:

\[
\begin{array}{ll}
(5) & a \quad ether \quad [i:\ddr] \\
    & b \quad eater \quad \rightarrow \quad [i:\ddr] \\
\end{array}
\]

In works on Irish English this dental [t] is equated with the dental [t] of Irish\(^6\) which is not so much described as dental but as spread out with a large area of contact; the distributed articulation of [t] is, however, an incidental feature of its dentality: when the tongue is raised to just behind the teeth the blade and apex makes considerable contact as opposed to the smaller area found with alveolar stops where the apex alone makes contact with the upper passive articulator.
5. On the phonetic realization of /r/

A consequence of Irish English dental stops is that the /r/ which follows them is slightly trilled. This has a simple phonetic explanation. The tongue is drawn back from its advanced position at the teeth and the apex is curved backwards as is normal for a continuant realization of /r/ ([ɾ]). During the retraction of the apex the tongue begins to vibrate as it is held in the escaping airstream. Due to the Bernoulli effect a trill results ([ɾ]). The rolled articulation of /r/ is a consequence of the dentality of the preceding stop and does not cause it. Thus when Luick maintains that it is the rolled nature of /r/ which led to the fortition of /ɹ/ then he is confusing cause and effect. There is no justification for assuming that Old or Middle English /r/ was generally trilled. Even if there was it would not be a natural conclusion from this that the /ɹ/ which fortifies after /r/ would be dental.

6. The primacy of the fricative to stop shift and later reversals

If one grants the validity of the /ɹ/ → [d] shift and that it was original the remaining developments are easy to account for. Quite a number of words which in Old English had /d/ acquire a pronunciation with /ɹ/ in Middle English.

(6) a father ← Old English fæðer
b gather ← Old English gaderian
c weather ← Old English weder

With the fortition of /ɹ/ to /d/ (see (4)) there was a general dental allophone of /d/ before /r/ (the present-day situation for the varieties of Irish English referred to above). With the relaxation of lenis stops the result was the ambidental fricative /ɹ/ (see (6)). This led to instances of original /d/ fricativizing to /ɹ/ as well as some of original cases of /ɹ/ being lenited after a period of fortition as /d/ (= [d], see (4) again).

There appears to have been a general neutralization of dental stops and ambidental fricatives in the environment of /r/ from the transition of Old to Middle English well into Early Modern English times. It also appears to have affected voiced and voiceless stops, the result of this neutralization being [d] or [ɾ]. With this assumption one can account for the occurrence of the Old English word swart ‘black’ in Middle English and for the co-existence of /ɹ/ and /d/ which is well attested for Early Modern English. Dialectally this situation lasted much longer: Wright (late 19th century) has several transcriptions which clearly indicate the dentality of [d].

(7) a drag [dɔɾæg]
b drench [dɔɾɛnʃ]
c drop [dɔɾæp]

Wright also notes for those dialects (Ireland and Northern English generally) that
have dental [d] initially that they also have [ð] medially when preceded by a vowel and followed by /r/. This applies both to words which have /ð/ in Standard English and those which have /d/.

(8)

a bladder [blaðə(r)]
b consider [kənsiðə(r)]
c gather [gaðə(r)]

The forms in (8a+b) imply however that Northern dialects of English previously had a dental realization of alveolar stops with a later shift of [d] to [ð]. The general chronological evidence supports this assumption. Dobson notes\(^2\) that the first instances of /ðr/ to /dr/ are recorded from the late 13th. and 14th. centuries and that the fricativization of /d/ to /ð/ as in father took place about 1400. The consecutive chronological order of plosivization and fricativization accounts for the shift of /ð/ to /d/ in the Early Modern English forms in (4) and taken together both are seen in the dialectal fluctuation found from Early Modern English to the present-day.\(^2\)

It remains to remark on the fact that only the voiced ambidental fricative is fortified in the history of English (with the exception of one or two forms such as swart). This is phonetically credible as the voiced sound is articulated more weakly and so the fricative character would not have been as marked as with the fortis voiceless member of the pair. The transition from a fricative to a stop is easier and less auditably obtrusive for a lenis segment that for a fortis one. Again this type of shift has general support outside of this particular instance, for example in the fortition of /ð/ to /d/ in personal pronouns and demonstratives in other Germanic languages such as Swedish\(^2\) and German,\(^2\) cf. the second person singular personal pronoun, /mu → du/.

Notes

5. See E.J. Dobson, *op.cit.* 955 for this view.
6. Again see Dobson, *loc.cit.*
This is also widespread in Early Modern English and present-day dialects, see J. Wright, *op. cit.* 23ff.

A. Campbell, *op. cit.* 172.


K. Luick, *op. cit.* 968.

O. Jespersen, *op. cit.* 208.

O. Jespersen, *loc. cit.*


K. Luick, *op. cit.* 970.


E.J. Dobson, *op. cit.* 955.

J. Wright, *op. cit.* 228+231.

E.J. Dobson, *op. cit.*, 955f.

