The Vowel Phoneme Mergers in English: Monophthong Phoneme Mergers in the British Isles

Keun-Young Roh

(Seoul National University)

Roh, Keun-Young. 2006. The **Vowel** Phoneme Mergers **in English: Monophthong Phoneme Mergers in the British Isles.** *SNU Working Papers in English Linguistics and Language* 5, *48-60.* This paper attempts to examine the monophthong phoneme merger phenomena across English accents spoken in the British Isles. The main purpose of the paper is four-fold: **(1)** to figure out which phoneme is involved in the mergers, (2) to find out which vowel emerges between the two target vowels after the **merger, (3)** to analyze the direction of mergers, and (4) to investigate the existence of the new form other than the two target vowels after the merger. It is shown that the mergers in the British Isles occur, not changing [high] and [round] feature, and they occur by local raising or fronting. **(Seoul National University)**

1. Introduction

If previously contrasting phonemes cease to contrast, and become merged into a single phoneme, those phonemes are said to undergo a "merger". Various merger phenomena which affect monophthongs and diphthongs occur in English. This paper focuses on the monophthong phoneme mergers across English accents spoken in the British Isles comprising England, Wales, Scotland, and Ireland.

There have been no studies on the patterns of vowel mergers occurring in English. Roh (2004) describes the facts about English vowel mergers like phoneme **A** and phoneme B are merged, and thereby **A** remains while B is lost in the vowel system, building on several references. This paper aims at analyzing the patterns of vowel mergers occurring in English.

The organization of the paper is as follows. Section **2** has four subsections. Subsection 2.1 investigates the vowel phonemes involved in mergers. In section **2.2,** the survived vowel forms after the mergers and their directionalities are presented. Section **2.3** examines those directionalities in detail. In section 2.4, the possibility of the new form other than the two target vowels after the merger is investigated. Section **3** concludes this paper.

2. Monophthong phoneme mergers in the British Isles

The dialects which are the target of analysis in this paper include RP, Cockney, Bristol (The south of England), Birmingham (The north of England), Wales, Scotland, northern Ireland, and southern Ireland. Among these dialects, RP, Cockney, Bristol, Birmingham, Wales except south-east area, and southern Ireland have the twelve monophthong phonemes in their vowel phoneme inventory:

(1) The Vowel Phonemes of Dialects where No Merger Occurs

a, high vowels	/i/	fleece, creep, seem
	/ɪ	kit, ship, milk
	/u/	goose, boost, too
	/ʊ	foot, put, full
b. non-high vowels	/e/	face, tape, name
	/ɛ	dress, step, ready
	/o/	goat, soap, robe
	/ɔ	thought, cause, jaw
	/ʌ	strut, cup, much
	/æ	trap, have, mad
	/ɑ	palm, calm, father
	/ɒ	lot, stop, doll

The vowel phonemes in **(1)** comprise the following vowel phoneme system:

(2) The Vowel Phoneme System of Dialects where No Merger Occur

		front	back	
		unround	unround	round
high	tense	i		u
	lax	I		ʊ
mid	tense	e		o
	lax	ɛ	ʌ	ɜ
low	lax	æ	a	ɒ

Some scholars such as Giegerich (1992) view the schwa /ə/ that is restricted to unstressed syllables as one phoneme. If /ə/ is counted, it can be said that the dialects where no merger occurs have thirteen vowel phonemes. In this paper, thirteen vowel phonemes including /ə (ʌ)/ are assumed.

If one merger happens, one phoneme is merged into the other one between the two target phonemes of merger. Consequently, one phoneme comes to be missing in the vowel phoneme system.

2.1 The target vowel phonemes of mergers

There are four kinds of mergers which affect English monophthongs as shown in **(3):**

(3) Four Mergers in the British Isles

Type	Term by Wells (1982)	Area
a. ʊ ɪ merger	FOOT-GOOSE merger	Scotland Northern Ireland
b. ɒ ɜ merger	LOT-THOUGHT merger	Scotland Northern Ireland
c. a ɪ nerger	TRAP-PALM merger	Scotland Northern Ireland
d. ʌ a nerger	STRUT-SCHWA merger	South-east Wales

Now let us see which vowel phoneme is involved in the vowel phoneme mergers, and which is not. By comparing the basic vowel system in (2) and four mergers in (3), it is figured out that the eight phonemes /ʊ ʌ ɒ ɜ a ɪ a are the targets of mergers while /i-ɪ -ɛ ɪ/ survive the merger intact. Here, it is worth noting that all back vowels (/ʊ ʌ ɒ ɔ a a ɪ except /o/ participate in mergers whereas only /æ among front vowels do:

(4) Asymmetry between Front Vowels and Back Ones

Merger	front	back
Involved	/æ	/ʊ ʌ ɒ ɔ ɑ ə
Not Involved	/i-ɪ -ɛ	/o/

2.2 Which vowel emerges after the merger?

In this section, the merged vowel form after each merger will be investigated. The chosen form between the two target vowels of

each merger is illustrated in (5).

(5)

	Type	Vowel after the Merger
a.	ʊ ɪ merger	u
b. ɒ ɔ merger		ɔ
c. æ ɪ nerger		æ
d. ʌ ə nerger		ə

As demonstrated in (5) above, just one vowel appears after the merger. Let us induce the directionality of four mergers on the basis of the survived vowel after those mergers. Let's refer to the diagram in (6) below:

(6) Four Mergers Represented in the Vowel System

		front	back	
		unround	unround	round
high	tense	i		u
	lax	ɪ		ʊ (a)
mid	tense	e		o
	lax	ɛ	ə ʌ (d)	ɔ
low	lax	æ ← ɑ		ɒ (b)

(c)
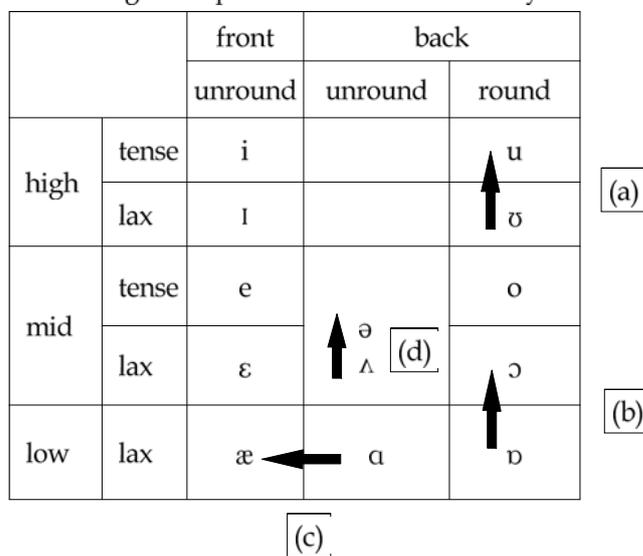
First, let's see the ʊ   ʊ is merged into /u/, which means that the higher or closer form /u/ in terms of vowel height is selected. Second, look at the ɒ ɔ nerger

(5b). In this merger as well, the higher or closer form /ɔ remains after the merger. Third, let us look into the æ ɪ merger (5c), where the /ɑ is merged into /æ This indicates that the fronter form /æ in terms of vowel backness wins. Finally, turn to the ʌ ə merger (5d), where the /ʌ ə , which states that the higher or closer form /ə survives as in (5a) or (5c). These findings about the directionality of four mergers are summarized in (7):

(7)

Type	Survived Form	Direction
ʊ ɪ merger (5a)	u	raising
ɒ ɔ merger (5b)	ɔ	raising
æ ɪ merger (5c)	æ	fronting
ʌ ə merger (5d)	ə	raising

2.3 The analysis of the directionality of mergers

As seen in (7), the direction of mergers is either raising or fronting. Between raising and fronting, raising is prevalent (Three mergers are by raising). This fact means that there is no merger by lowering or backing:

(8)

Direction	
raising	3 mergers
fronting	1 merger
lowering	0
backing	0
Total	4 mergers

Also, raising and fronting are "local". That is, the vowel is merged

with the one right above it or the one right in front of it. For example, in the merger (5b) which is by raising, /ɒ/ is merged with /ɔ/ which is right above it, but not merged with /o/ which is higher than /ɔ/.

Now let us examine the direction of mergers in terms of feature. The features which are changed when mergers occur are as follows (five features [high], [low], [back], [round], and [ATR] that are used for the classification of vowes are considered):

(9) Feature Changes in Case of Mergers

Type	
ʊ ɪ merger	[-ATR]→[-ATR]
ɒ ɔ merger	[+low]→[-low]
æ ɪ merger	[+back]→[-back]
ʌ ə merger	[-ATR]→disappear

In the ʌ ə merger, the feature [-ATR] disappears after the merger as the survived vowel /ə/ doesn't have the feature [ATR]. As we can see from (9), among five features, those which change when mergers occur are [low], [back], and [ATR] while those which do not change are [high] and [round]:

(10)

Changed features	**[low], [back], [ATR]**
Unchanged features	**[high], [round]**

Also, we can note that in one merger, only one kind of feature among [low], [back], and [ATR] which are allowed to change is changed: [ATR] in the ʊ ʌ ə ɒ ɔ merger, and [back] in æ ɪ merger. This means no two or more features are involved in one merger.

Another point we should note is that unlike other mergers where

the value of feature is changed, the feature [-ATR] itself disappears in the ᴀ a nerger (see (9) above).

Putting together the analyses presented so far reveals the following principles that operate in mergers occurring in the British Isles:

(11) a. The mergers occur, not changing [high] and [round] feature.

b. The mergers allow only one among three features [low], [back], and [ATR] to be changed.

c. The mergers occur by raising and fronting.

d. Raising and fronting are local.

The principle (11d) seems to be related to the principle (11a) or (11b). If raising or fronting is not local, (11a) or (11b) is violated. Thus, the mergers by non-local raising or fronting cannot occur. For example, let us suppose one hypothetical merger, the i-o merger into i.

(12) The i-o Merger

		front	back	
		unround	unround	round
high	tense	i		u
	lax	ɪ		ʊ
mid	tense	e	ə	o
	lax	ɛ	ʌ	ɔ
low	lax	æ	ɑ	ɒ

This merger violates (11a) because [high] and [round] are changed: [-high]+ -high], [+round]+ round]. This merger obeys (11b) though: only [back] is changed from + to -. Due to the violation of (lla), the i-o merger doesn't occur.

Let's see the other hypothetical merger, the **e-A** nerger into e.

(13) The **e-A** Merger

		front	back	
		unround	unround	round
high	tense	i		u
	lax	ɪ		ʊ
mid	tense	e	ə	o
	lax	ɛ	ʌ	ɔ
low	lax	æ	ɑ	ɒ

This merger obeys (11a), but two features [back] and [ATR] change simultaneously in the merger. Thus, the merger is blocked by (11b).

Finally, let's examine another hypothetical merger, the i-u merger into i:

(14) The i-ʊ Merger

		front	back	
		unround	unround	round
high	tense	i		u
	lax	ɪ		ʊ
mid	tense	e	ə	o
	lax	ɛ	ʌ	ɔ
low	lax	æ	a	ɒ

This merger violates (11a) and (11b). In this merger, [high] and [round] are changed. Also, two features [back] and [ATR] change simultaneously. Thus, this merger is blocked by both (11a) and (11b).

2.4 The **possibility of** the new **form** after the merger

We are now in the position to consider the existence of the new form other than the two target vowels after each merger. The observation is that no new or third form emerges after each monophthong merger occurring in the British Isles (see (7) above). However, there is a possibility that the examination of the dialects spoken beyond the British Isles can reveal the new form in a certain merger. Thus, it is a tentative conclusion of this paper restricted to accents in the British Isles that no new forms exist after mergers.

3. Conclusion

I have investigated four kinds of monophthong phoneme mergers in

English: ʊ   ɔ ɜ   aː ɪ   ʌ a merger. The main goal of this paper presented at the beginning has been achieved through the research provided in section 2.1 to section 2.4, which is summarized in (15):

(15) English Mergers
     a. The eight vowels involved in the mergers:
         /æ (front) and /ʊ ʌ ɒ ɜ a a (back)

     b. The emergent vowel after each merger and its directionality
         - ʊ ɪ merger: u (raising)
         - ɒ ɔ   ɔ (raising)
         - æ ɪ nerger: æ 'fronting)
         - ʌ ə   *a* (raising)

     c. The principles that operate in four mergers
       - The mergers occur, not changing [high] and [round] feature.

       - The mergers allow only one among three features [low], [back], and [ATR] to be changed.

       - The mergers occur by raising and fronting.

       - Raising and fronting are local.

     d. The possibility of the new form after mergers:
       No (tentative conclusion)

As in (15d), no new form emerges after each merger occurnng across English accents spoken in the British Isles. However, we cannot be sure that this is always the case because the new form in a certain merger can be captured by the examination of the dialects spoken beyond the British Isles. This means further research of monophthong mergers in English will be needed. Also, the mergers affecting diphthongs and other changes such as splits relating to vowels should be examined for the complete analysis of the vowel

merger. Finally, why the mergers obey the principles in (15c) needs further study.

References

Giegerich, H. J. 1992. *English Phonology.* Cambridge: Cambridge University Press.

Gimson, A. C. 1994. An *Introduction to the Pronunciation of English.* 5th edition. London: Arnold.

Lee, J.-Y. 1997. A study of English vowel system. *Malsori* 38.

Roh, K.-Y. 2004. English Dialects and Optimality Theory. Ms., Seoul National University. Seoul, Korea.

Wells, J. C. 1982. *Accents of English* 1, 2, 3. Cambridge: Cambridge University Press.

Keun-Young Roh
rohky800gmail.com