

Vowel Change Accompanied by Accent Shift

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Introduction

This paper is written to analyze the vowel change accompanied by accent shift as the title indicates. All the examples examined here are gathered from *A Pronouncing Dictionary of American English* (to be referred to as the *PDAE* hereafter) by Kenyon and Knott.

The term “accent” or “accented” here means especially primary accent or secondary accent, though John S. Kenyon preserves his attitude to accept four levels of accent, primary, secondary, light and weak accent.

According to the levels of accent, the direction of shifting, and the presence or absence of secondary accent, accent shift may broadly be divided into the following five categories: the progressive shift in primary accent, the recessive shift in primary accent, the progressive shift in secondary accent, the recessive shift in secondary accent and the zero shift in secondary accent.

The progressive shift in primary accent is examined in Chapter 1, the recessive shift in primary accent in Chapter 2, and the progressive shift in secondary accent, the recessive shift in secondary accent, and the zero shift in secondary accent in Chapter 3, laying stress on the presentation of the actual examples. Some of the facts which seem important are given in conclusion.

In English, shifting accent plays an important role. It may be attributed to affixation (ani¹mate vs. ani¹mation), dialectal difference (cor¹diality vs. cordi¹ality (*Brit*)), gender (e¹questrian vs. e¹questri¹enne) or jargon (an¹gina vs. angina (*in medicine*)). It may result from rhythm (bi¹focal vs. bi¹focal lenses), contrast (dis¹proof vs. ¹proof and ¹dis¹proof), emphasis (¹contrarily vs. con¹trarily (*esp. if emph*))⁽¹⁾, or may sometimes change a part of speech (¹intern (*n.*) vs. in¹tern (*v.*)). Furthermore, it occurs in the variant pronunciations under the same entry (¹decade vs. dec¹ade).

As shown above, there are many types of shifting accent in English, but the main purpose of this paper is not to investigate the occasions in which shifting accent occurs but to examine the relationship between the accent shift and the vowel change. The writer of this paper presumes that any one of the types previously mentioned or any other types would serve this purpose. In this paper the last example in which accent shift occurs in the variant pronunciations under the same entry has been selected, because it includes abundant examples.

The vowel change due to the accent shift is divided into three patterns, /X/ /X/, /X/ /X,Y/ (/X,Y/ /X/), and /X/ /Y/. The pattern /X/ /X/ means that there is no change in the corresponding syllables to be compared, as in ¹re¹set /i/ vs. re¹set /i/. The pattern /X/ /X,Y/ (or /X,Y/ /X/) means that there is at least one vowel which does not change in

the corresponding syllable, as in **l**Lytell /aI,I/ vs. Ly**l**tell /I/ The pattern /X/ /Y/ means that the vowels in the corresponding syllables to be compared all change under the influence of accent shift, as in **l**detour /i/ vs. de**l**tour /I/.

Chapter 1. Progressive Shift in Primary Accent and Vowel Change

Since English is characterized by what has been called stress-timed rhythm, the accent in the word is connected with the number of syllables in the word. The figure at the head of the abbreviation for each pattern examined here stands for the number of syllables in the word, and the following two ordinals with an arrow between them stand for the position of the syllables with primary accent before and after accent shift has taken place. Thus , 2-1st 2nd, for example, means that the primary accent on the first syllable of the two-syllable word shifts to the second, and 3-1st 2nd that the primary accent on the first syllable of the three syllable word shifts to the second.

The following tables show the number of examples of the progressive shift in primary accent and their most frequent examples. The underlined parts of the words in the examples show the vowels to be compared.

The abbreviations used in **Tables 1-7** are shown below:

2a=2-1st 2nd

3a=3-1st 2nd , 3b=3-1st 3rd , 3c=3-2nd 3rd

4a=4-1st 2nd , 4b=4-1st 3rd , 4c=4-1st 4th , 4d=4-2nd 3rd , 4e=4-2nd 4th , 4f=4-3rd 4th

5a=5-1st 2nd , 5b=5-2nd 3rd , 5c=5-2nd 4th , 5d=5-3rd 4th

6a=6-1st 2nd , 6b=6-3rd 4th , 6c=4th 5th

7a=7-4th 5th

1.1 No Vowel Change

Table 1 /X/→/X/

	2a	3a	3b	3c	4a	4b	4c	4d	4e	4f	5b	5c	5d	6a	7a	Examples	Total
i	7	3	2	1	0	1	0	0	0	0	0	0	0	0	0	re <u>co</u> unt (2a)	14
I	19	26	12	2	5	0	0	6	1	0	2	1	0	0	0	di <u>ct</u> ator (3a)	74
e	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	Be <u>ir</u> ut (2a)	10
ε	17	17	15	1	4	3	0	0	1	0	2	0	0	0	1	de <u>ca</u> de (2a)	61
æ	28	15	33	2	5	4	0	2	2	0	0	0	0	0	0	ma <u>nd</u> olin (3b)	91
α	19	9	13	2	0	2	0	0	0	1	0	0	0	0	0	co <u>ntro</u> vert (3b)	46
ɔ	3	1	0	0	1	0	0	0	0	0	0	0	0	0	0	al <u>mo</u> st (2a)	5
o	16	8	9	0	0	0	0	0	0	1	0	0	1	0	0	lo <u>ca</u> te (2a)	35
U	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	cu <u>ckoo</u> (2a)	7
u	5	1	1	1	0	0	0	0	1	0	0	0	0	0	0	bo <u>uill</u> on (2a)	9
ɜ	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B <u>urn</u> ett (2a)	2
Λ	5	8	3	3	1	2	0	0	0	0	0	0	1	1	0	su <u>tt</u> ee (2a)	24
aI	7	9	0	1	3	0	1	0	0	0	0	0	0	0	0	Wy <u>om</u> ing (3a)	21
aU	4	1	2	0	0	0	0	0	0	0	0	0	0	0	0	do <u>wn</u> hill (2a)	7
ɔI	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	appo <u>int</u> ee (3b)	3
I,aI	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	tr <u>yc</u> yllable (4a)	1

e, aI	1	0	0	0	0	0	0	0	0	0	0	0	0	0	Aileen (2a)	1
ɛ, æ	0	0	1	0	0	0	0	0	0	0	0	0	0	0	Darien (3b)	1
æ, a	0	1	1	0	0	0	0	0	0	0	0	0	0	0	Dantean (3b)	2
ɑ, v	1	1	0	0	0	0	0	0	1	0	0	0	0	0	Tehuantepec (4e)	3
o, ɔ	2	0	0	0	0	1	0	0	0	0	0	0	0	0	choral (2a)	3
Λ, a	0	1	0	0	0	0	0	0	0	0	0	0	0	0	pomegranate (3a)	1
jU, IU	2	0	0	0	0	0	0	0	0	0	0	0	0	0	Curie (2a)	2
ju, Iu	2	3	0	0	0	0	0	0	0	0	0	0	0	0	museum (3a)	5
Λ, a, v	1	0	0	0	0	0	0	0	0	0	0	0	0	0	frontier (2a)	1
ju, Iu, u	1	0	1	0	0	0	0	0	0	0	0	0	0	0	nuance (2a)	2
Total	156	107	93	16	20	13	1	8	6	2	4	1	2	1		431

1.2 Partial Vowel Change

Table 2 /X/→/X, Y/ (X, Y/→/X/)

	2a	3a	3b	3c	4a	Examples	Total
i→i, I	1	0	0	0	0	decrease (2a)	1
e→I, e	1	0	0	0	0	début (2a)	1
æ→æ, ə	5	0	0	0	0	gamete (2a)	5
ɑ→ɑ, ə	0	1	0	2	0	fiancée (3c)	3
ɔ→ə, ɔ	0	1	0	0	0	Augustine (3a)	1
o→o, ə	1	0	0	0	0	romance (2a)	1
Λ→Λ, ə	1	0	0	0	0	sometimes (2a)	1
ɜ→ɜ, ə	1	0	0	0	0	berlin (2a)	1
Ur→Ur, ə	1	0	0	0	0	Urdu (2a)	1
ɔ→ɔ, wɑ, wɔ	0	0	1	0	0	Guadalupe (3b)	1
aI, I→I	1	0	0	0	0	Lytell (2a)	1
ɛ, e→e	2	0	0	0	0	ecru (2a)	2
ɛ, Λ→ɛ, ə	1	0	0	0	0	hello (2a)	1
ɑ, æ→æ, ə	1	0	0	0	0	batik (2a)	1
ɑ, o→o	0	0	0	0	1	stomatoscope (4a)	1
o, ɔ→o, ɔ, ə	1	0	0	0	0	Moran (2a)	1
o, ɑ, v→o	1	0	0	0	0	pogrom (2a)	1
Total	18	2	1	2	1		24

1.3 Complete Vowel Change

Table 3 /X/ /Y/

“ all accented vowels (with a few exceptions...) , when they lose their accent, become one of the three unstressed vowels /ə, I, ə/. ”⁽²⁾ In this study, all of the 272 instances of Pattern /X/ /Y/ , with 21 instances in the other category (see Table 3.4) become one of the three unstressed vowels when they lose their accent. It would be, therefore, a great convenience to subdivide /X/ /Y/ into four , /X/ /ə/ , /X/ /I/ , /X/ /ə/ and the others.

Table 4 /X/→/ə/

	2a	3a	3c	4a	4d	4e	4f	5a	5b	5d	6b	7a	Examples	Total
i→ə	2	0	0	0	3	0	0	0	0	0	0	1	asth <u>e</u> nia (4d)	6
I→ə	4	2	0	1	6	0	0	1	0	1	0	0	cer <u>u</u> se (2a)	15
e→ə	5	1	1	0	1	0	2	0	0	0	0	0	can <u>i</u> ne (2a)	10
ε→ə	7	5	1	3	2	1	0	0	0	0	1	0	Wed <u>d</u> ell (2a)	20
æ→ə	19	20	2	2	3	0	1	1	0	0	1	0	Ad <u>e</u> lbert (3a)	49
ɑ→ə	13	11	2	8	4	0	1	1	1	1	0	0	com <u>b</u> ine (2a)	42
o→ə	0	1	0	0	2	0	0	0	0	0	0	0	Ti <u>r</u> olean (4d)	3
U→ə	0	1	0	0	0	0	0	0	0	0	0	0	Ts <u>u</u> shima (3a)	1
Λ→ə	2	1	0	0	0	0	0	0	0	0	0	0	mou <u>s</u> tache (2a)	3
aI→ə	1	0	0	0	0	0	0	0	0	0	0	0	fin <u>a</u> nce (2a)	1
e, æ→ə	1	0	0	0	0	0	0	0	0	0	0	0	ban <u>a</u> l (2a)	1
æ, ɑ→ə	1	1	0	0	0	0	0	0	0	0	0	0	pash <u>a</u> (2a)	2
ɑ, e→ə	1	0	0	0	0	0	0	0	0	0	0	0	Yah <u>o</u> o (2a)	1
ɑ, v→ə	0	0	0	0	1	0	0	0	0	0	0	0	scop <u>o</u> lamine (4d)	1
ɑ, Λ→ə	1	1	0	0	0	0	0	0	0	0	0	0	com <u>b</u> at (2a)	2
ε, æ, e→ə	0	1	0	0	0	0	0	0	0	0	0	0	A <u>r</u> ius (3a)	1
ɔ, ɑ, v→ə	0	1	0	0	0	0	0	0	0	0	0	0	cor <u>o</u> nal (3a)	1
Total	57	46	6	14	22	1	4	3	1	2	2	1		159

Table 5 /X/→/ɪ/

	2a	3a	3c	4a	4d	4f	5a	5b	5d	Examples	Total
i→ɪ	25	5	0	1	1	1	0	0	2	det <u>o</u> ur (2a)	35
e→ɪ	1	0	0	0	0	0	0	0	0	Med <u>o</u> c (2a)	1
ε→ɪ	8	13	1	5	1	0	2	3	0	dec <u>o</u> rous (3a)	33
aI→ɪ	3	1	0	0	1	0	0	0	0	div <u>a</u> n (2a)	5
ε, ɑ→ɪ	0	1	0	0	0	0	0	0	0	en <u>v</u> elope (3a)	1
Total	37	20	1	6	3	1	2	3	2		75

Table 6 /X/→/ɸ/

	2a	3c	4d	5c	Examples	Total
ɑr→ɸ	1	0	0	0	Charl <u>o</u> tte (2a)	1
ɔr→ɸ	0	1	0	0	imp <u>o</u> rtune (3c)	1
ʒ→ɸ	11	1	2	2	sur <u>m</u> ise (2a)	15
Total	12	2	2	1		17

Table 7 /X/→the others

	2a	3a	3b	4a	4d	Examples	Total
ε→i	0	2	0	1	0	he <u>j</u> ira (3a)	3
ɑ→o		2	0	0	0	Prov <u>e</u> nce (2a)	2
I→aI		0	4	0	0	tr <u>i</u> valence (3a)	4
I→e		1	0	0	0	St. Joh <u>n</u> (2a)	1
æ→ɑ		1	0	0	0	Bagd <u>a</u> d (2a)	1
U→u		0	0	1	0	Four <u>i</u> er (3b)	1
u→U		1	0	0	0	tou <u>u</u> can (2a)	1
u→aU		1	0	0	0	ca <u>o</u> ut <u>u</u> chu <u>o</u> uc (2a)	1
wɑ→ɔI		1	0	0	0	po <u>i</u> lu (2a)	1
i→I,ə		1	0	0	0	pe <u>c</u> an (2a)	1

I→ə, aI	0	0	0	0	1	empyre <u>a</u> l (4d)	1
ju, Iu→jə	0	0	0	0	1	hercu <u>l</u> ean (4d)	1
wɔ, o→wə	1	0	0	0	0	qu <u>o</u> hog (2a)	1
ju, Iu→jU, IU	0	0	0	1	0	cun <u>e</u> iform (4a)	1
u, Iu, ju→U, IU, jU	1	0	0	0	0	S <u>u</u> ez (2a)	1
Total	10	6	1	2	2		21

Some facts concerning the progressive shift in primary accent and the resulting vowel changes shown in this study follow.

a. In all, there were 727 instances of the progressive shift in primary accent throughout the *PDAE*. Of these instances, 290 or 30.9 percent were two-syllable words, 303 or 41.7 percent three-syllable words, 108 or 14.8 percent four-syllable words, 21 or 2.9 percent five-syllable words, and 5 or 0.4 percent six- and seven-syllable words. It is clear that more than 80 percent of all instances of the accent shift in primary accent examined here belong to two-syllable and three-syllable words against less than 20 percent for four-through seven-syllable words.

b. The instances were divided into eighteen different patterns according to the number of syllables and the position of the primary accent. Apart from the figures above, the two-syllable words had only one pattern of shift in primary accent (2-1st 2nd), the three-syllable words had three patterns (3-1st 2nd, 3-1st 3rd, 3-2nd 3rd), the four-syllable words had six patterns (4-1st 2nd, 4-1st 3rd, 4-1st 4th, 4-2nd 3rd, 4-2nd 4th, 4-3rd 4th), the five-syllable words had four patterns (5-1st 2nd, 5-2nd 3rd, 5-2nd 4th, 5-3rd 4th), the six-syllable words had three patterns (6-1st 2nd, 6-3rd 4th, 6-4th 5th), and the seven-syllable words had only one pattern (7-4th 5th). Theoretically, a greater number of syllables allows for more patterns to occur, but the materials examined here show that four-syllable words had the most numerous patterns.

c. The vowel change due to the shift in primary accent was made up of three patterns, /X/ /X/ , /X/ /X, Y/ (/X, Y/ /Y/), and /X/ /Y/ . The pattern /X/ /Y/ was, for convenience, subdivided into four sub-patterns: /X/ /ə/ , /X/ /I/ , /X/ /ə/ , and /X/ /ə/ the others. The frequency of these patterns is summed up as follows.

Table 8

1		X→X	431
2		X→X, Y (X, Y→X)	24
3	X→Y		
	a	X→ə	159
	b	X→I	75
	c	X→ə	17
	d	X→the others	21
Total			727

Chapter 2 Recessive Shift in Primary Accent and Vowel Change

Since the same instances as in Chapter 1 are used in the examination of the recessive shift in primary accent and the vowel change, the patterns appearing here parallel those of the progressive shift in primary accent.

What must be said in particular here is that the syllabic consonants /l/ and /n/ , which never occur in the instances of the progressive shift, occur in those of the recessive shift. In the accented syllables, the vowels intervene and no consonant can be syllabic, but in the corresponding unaccented syllables the consonants /l/ and /n/ are syllabic, as in *Renais^lsance* vs. *Re^lnaissance*, *car^ltel* vs. *cartel* .

The materials here are dealt with by the same method as in the previous chapter. Thus , 2-2nd 1st means that the primary accent on the second syllable of the two-syllable word shifts to the first, and 5-4th 2nd means that the primary accent on the fourth syllable of the five-syllable word shifts to the second.

The abbreviations used in **Tables 9-15** are shown below:

2a=2-2nd 1st

3a=3-2nd 1st , 3b=3-3rd 1st , 3c=3-3rd 2nd

4a=4-2nd 1st , 4b=4-3rd 1st , 4c=4-4th 1st , 4d=4-3rd 2nd , 4e=4-4th 2nd , 4f=4-4th 3rd

5a=5-2nd 1st , 5b=5-3rd 2nd , 5c=5-4th 2nd , 5d=5-4th 3rd

6a=6-2nd 1st , 6b=6-4th 3rd , 6c=6-5th 4th

7a=7-5th 4th

2.1 No Vowel Change

Table 9 /X/→/X/

	2a	3a	3b	3c	4a	4b	4d	4e	4f	5a	5c	Examples	Total
i→i	25	2	23	2	0	0	0	0	1	0	0	concrete (2a)	53
I→I	12	10	3	0	6	1	0	0	0	2	0	permi <u>t</u> (2a)	34
e→e	33	6	9	7	0	0	0	1	0	0	1	locat <u>e</u> (2a)	57
ɛ→ɛ	16	3	6	1	0	3	1	1	0	0	0	add <u>re</u> ss (2a)	31
æ→æ	15	7	8	1	1	4	0	1	0	0	0	fin <u>an</u> ce (2a)	37
ɑ→ɑ	13	1	5	0	0	1	0	0	0	0	0	gar <u>ag</u> e (2a)	20
ɔ→ɔ	3	1	1	1	0	0	0	1	0	0	0	rec <u>al</u> l (2a)	7
o→o	16	4	3	0	1	2	0	0	0	0	0	alm <u>ost</u> (2a)	26
U→U	2	0	0	0	0	0	0	0	0	0	0	det <u>ou</u> r (2a)	2
u→u	15	0	6	1	0	0	0	0	0	0	0	Beyrou <u>th</u> (2a)	22
ʃ→ʃ	7	1	4	0	0	1	0	0	0	0	0	rese <u>ar</u> ch (2a)	13
Λ→Λ	4	5	1	0	0	0	0	0	1	0	0	inculc <u>ate</u> (3a)	11
aI→aI	18	1	3	1	0	0	0	0	0	0	0	def <u>y</u> (2a)	23
aU→aU	6	1	1	0	0	0	0	0	0	0	0	discou <u>nt</u> (2a)	8
ɔI→ɔI	6	0	1	1	0	0	0	0	0	0	0	typho <u>id</u> (2a)	8
e, æ→e, æ	0	1	0	0	0	0	0	0	0	0	0	strat <u>um</u> (3a)	1
æ, ɑ→æ, ɑ	0	0	0	0	0	0	0	1	0	0	0	Beluchist <u>an</u> (4e)	1
ɑ, ɔ→ɑ, ɔ	6	0	1	0	0	0	0	0	0	0	0	cret <u>on</u> ne (2a)	7
ɑ, ɔ→ɑ, ɔ	1	0	1	0	0	0	0	0	0	0	0	Pan <u>am</u> a (3b)	2
ɔ, ɔ→ɔ, ɔ	2	0	0	0	0	0	0	0	0	0	0	sar <u>ong</u> (2a)	2

o,ɔ→o,ɔ	5	0	0	0	0	0	0	0	0	0	0	recourse (2a)	5
u,Iu→u,Iu	2	0	0	1	0	0	0	0	0	0	0	cashew (2a)	3
ju,Iu→ju,Iu	2	0	0	0	0	0	0	0	0	0	0	perfume (2a)	2
u,Iu,ju→u,Iu,ju	1	0	0	0	0	0	0	0	0	0	0	nonsuit (2a)	1
U,Iu,jU→U,Iu,jU	0	0	1	0	0	0	0	0	0	0	0	premature (3b)	1
Total	210	43	77	16	8	12	1	5	2	2	1		377

2.2 Partial Vowel Change

Table 10 /X/→/X,Y/ (/X,Y/→/X/)

	2a	3a	3b	3c	4e	5c	Examples	Total
i→i,I	2	0	1	0	0	0	batik (2a)	3
e→e,I	1	0	0	0	0	0	ballet (2a)	1
ε→ε,ə	1	1	3	0	0	0	Jolliet (3b)	5
a→a,ə	2	0	0	0	0	0	cannot (2a)	2
u→u,U	0	0	0	4	0	0	thereinto (3c)	4
Λ→ə,Λ	0	1	0	0	0	0	inundate (3a)	1
ɔI→ɔI,I	1	0	0	0	0	0	Gascoigne (2a)	1
ɑr→ə,ɑr	1	0	0	0	0	0	Bernard (2a)	1
ε→I,ə,ε	0	0	2	0	0	0	soviet (3b)	2
o→o,ə	0	1	0	0	0	0	anchovy (3a)	1
i,e→i	0	0	0	0	1	0	evacuee (4e)	1
i,I→I	0	1	0	0	0	0	museum (3a)	1
e,aI→e	1	0	0	0	0	0	Ukraine (1a)	1
i,ε→ε	0	0	0	0	0	1	Elizabethan (5c)	1
ε,e→ε	0	1	0	0	0	0	contrary (3a)	1
ɑ,æ→æ	1	0	0	0	0	0	pecan (2a)	1
ju,Iu→ju	1	0	0	0	0	0	legume (2a)	1
Total	11	5	6	4	1	1		28

2.3 Complete Vowel Change (/X/ /Y/)

Table 11 /X/→/ə/

	2a	3a	3b	3c	4a	4d	4f	5a	5b	5d	6a	6b	Examples	Total
i→ə	0	4	0	0	0	0	0	0	0	0	0	0	paresis (3a)	4
I→ə	0	3	0	0	4	3	0	1	0	0	1	0	carillon (3a)	12
e→ə	0	13	0	0	0	5	0	0	0	0	0	1	decadence (3a)	19
ε→ə	2	4	0	0	6	1	0	0	2	0	0	0	contemplate (3a)	15
æ→ə	10	10	1	0	3	3	0	0	0	0	0	0	extant (2a)	27
ɑ→ə	6	3	2	0	4	0	1	0	1	0	0	0	choral (2a)	17
o→ə	1	9	0	0	1	3	0	0	1	2	0	0	viola (3a)	17
u→ə	0	0	0	0	0	1	0	0	0	0	0	0	coadjutor (4d)	1
Λ→ə	1	7	0	0	2	0	0	0	0	0	0	0	obfuscate (3a)	10
aI→ə	0	12	0	0	2	1	0	0	0	0	0	0	inquiry (3a)	15
æ,ɑ→ə	1	1	0	0	0	0	0	0	0	0	0	0	madras (2a)	2
ɑ,v→ə	3	1	0	0	0	0	0	0	0	0	0	0	Chiffon (2a)	4
ɔ,ɑ→ə	0	0	0	0	1	0	0	0	0	0	0	0	pejorative (4a)	1
ɑ,u→ə	0	1	0	0	0	0	0	0	0	0	0	0	pantofle (3a)	1
o,ɔ→ə	0	2	0	0	0	0	0	0	0	0	0	0	Angora (3a)	2
u,o→ə	1	0	0	0	0	0	0	0	0	0	0	0	Mahon (2a)	1
ju,Iu→ə	0	0	0	0	0	0	0	0	0	1	0	0	hyposulphurous (5d)	1

ɔ, a, v → ə	0	1	0	0	0	0	0	0	0	0	0	0	plethoric (3a)	1
ju, lu, u → ə	0	0	0	1	0	0	0	0	0	0	0	0	importune (3c)	1
Total	25	71	3	1	23	17	1	1	4	3	1	1		151

Table 12 /X/→/I/

	2a	3a	3b	3c	4a	4b	4d	4f	5a	5d	6b	6c	Examples	Total
i→I	8	20	0	1	1	0	11	2	0	2	0	1	trachea (3a)	46
e→I	1	3	1	0	0	0	0	0	0	0	0	0	complaisance (3a)	5
ɛ→I	7	1	2	0	0	0	2	0	1	0	0	0	princesse (3a)	13
ɑ→I	0	0	2	0	0	0	0	0	0	0	0	0	arbitrage (3b)	2
aI→I	1	5	0	0	2	1	4	0	0	1	1	0	Sophia (3a)	15
ɛ, i→I	0	1	0	0	0	0	0	0	0	0	0	0	omega (3a)	1
i, aI→I	0	0	0	0	0	0	1	0	0	0	0	0	Salonika (4d)	1
Total	17	30	5	1	3	1	18	2	1	3	1	1		83

Table 13 /X/→/ɖ/

	2a	3a	3b	3c	4a	4b	5b	Examples	Total
e→ɖ	0	0	1	0	0	0	0	Fourier (3b)	1
ɜ→ɖ	0	7	0	1	1	0	1	conversance (3a)	10
Ir→ɖ	1	0	0	1	0	0	0	fakir (2a)	2
ɑr→ɖ	0	1	0	0	0	0	0	tripartite (3a)	1
ɔr→ɖ	1	1	0	2	0	0	0	appointor (3c)	4
Ur→ɖ	1	0	0	0	0	2	0	photogravure (4b)	3
Total	3	9	1	4	1	2	1		21

Table 14 /X/→the syllabic consonants

	2a	3a	3b	3c	4a	4d	5a	5b	7a	Examples	Total
ɪl→l̥	0	0	0	0	0	0	1	0	0	Macgillicuddy (5a)	1
ɛ l→l̥	9	2	0	0	0	0	0	0	0	cartel (2a)	11
æ l→l̥	0	2	0	0	1	0	0	0	1	canalize (3a)	4
ɑ l→l̥	0	0	0	0	0	0	0	1	0	indissoluble (5b)	1
ʌ l→l̥	0	0	0	0	1	0	0	0	0	medullary (4a)	1
æ l, ɑ l→l̥	1	0	0	0	0	0	0	0	0	banal (2a)	1
in→n̥	0	0	0	0	0	1	0	0	0	arytenoid	1
æ n→n̥	1	1	1	0	0	0	0	0	0	bezant (2a)	3
ɑ n→n̥	0	0	0	1	0	0	0	0	0	Renaissance (3c)	1
ɑ n, ɔ→n̥	1	0	0	0	0	0	0	0	0	baton (2a)	1
jun, Iun, un→n̥	1	0	0	0	0	0	0	0	0	Bethune (2a)	1
Total	13	5	1	1	2	1	1	1	1		26

Table 15 /X/→the others

	2a	3a	3b	4a	4c	4e	5b	Examples	Total
e→æ	1	0	0	0	0	0	0	Als <u>a</u> ce (2a)	1
ɑ→æ	2	0	1	0	1	1	0	Bagd <u>a</u> d (2a)	5
u→U	1	2	0	0	0	0	0	dec <u>u</u> ple (3a)	3
Λ→U	0	1	0	0	0	0	0	Cuch <u>u</u> lainn (3a)	1
u, Iu→U	0	1	0	0	0	0	0	quad <u>u</u> ple (3a)	1
ju, Iu, u→U	0	1	0	0	0	0	0	bit <u>u</u> men (3a)	1
ju, Iu→jU	0	4	0	3	0	0	2	comm <u>u</u> nal (3a)	9
I→ε	1	0	0	0	0	0	0	Amp <u>e</u> re (2a)	1
ɑ→ε	1	0	0	0	0	0	0	Prov <u>e</u> nce (2a)	1
ɑI→aI ⁽³⁾	1	0	0	0	0	0	0	og <u>i</u> ve (2a)	1
ɜ→əɹ	0	0	0	2	0	0	0	infer <u>a</u> ble (4a)	2
i→ə, I	0	1	0	0	0	0	0	ecz <u>e</u> ma (3a)	1
æ→ə, Λ	1	0	0	0	0	0	0	Sur <u>a</u> t (2a)	1
u→ju, Iu	1	0	0	0	0	0	0	Cor <u>u</u> (2a)	1
o→ə, ɑ, ɒ	1	0	0	0	0	0	0	Tyr <u>o</u> l (2a)	1
ɜ→Ur, IUr, ɝ	0	0	1	0	0	0	0	am <u>a</u> teur (3b)	1
Ir→jɝ, Iɝ	1	0	0	0	0	0	0	viz <u>i</u> er (2a)	1
ju, Iu, u→jU, U	0	6	0	1	0	0	0	oct <u>u</u> ple (3a)	7
ju, Iu, u→jU, IU, U	0	1	0	0	0	0	0	int <u>u</u> it (3a)	1
u, Iu, ju, Λ→ə, U	0	1	0	0	0	0	0	quint <u>u</u> plets (3a)	1
Total	11	18	2	6	1	1	2		41

The number of instances for each pattern of vowel change is as follows:

Table 16

1		X→X	377
2		X→X, Y (X, Y→X)	28
3	X→Y		
	a	X→ə	151
	b	X→I	83
	c	X→ɝ	21
	d	X→the syllabic consonants	26
	e	X→the others	41
Total			727

Chapter 3 Shift in Secondary Accent

The shift in primary accent sometimes has influence on the secondary accent but sometimes does not. The purpose of this chapter, therefore, is to show how secondary accent shifts in accordance with the shift in the primary accent and how the vowels change due to the shift in secondary accent. The same examples that were examined in the preceding chapters will be used in this chapter.

The following list shows the shift in secondary accent due to the progressive shift in primary accent. The symbol \emptyset is used here for “nothing.” For example, the shift in secondary accent 2nd \emptyset means that the secondary accent on the second syllable shifts to nothing, or disappears.

Table 17

Patterns of Progressive Shift in Primary Accent	Shift in Secondary Accent	Examples	Total
2-1 st →2 nd	Φ→1 st	decrease (n)	1
	2 nd →Φ	downhill, sometimes	19
	no sec. ac.		269
3-1 st →2 nd	2 nd →Φ	highwayman, upheaval	14
	2 nd →1 st	backgammon, manhandle	3
	3 rd →Φ	amido, envelope (n)	50
	no. sec. ac.		114
3-1 st →3 rd	Φ→1 st	Ballantrae, taboret	10
	3 rd →1 st	oversew, registrar	86
3-2 nd →3 rd	Φ→1 st	biconcave, misconstrue	21
	Φ→2 nd	devisor, naive	4
	1 st →1 st	Mound Desert	1
	no sec. ac.		1
4-1 st →2 nd	2 nd →Φ	dissyllable	1
	3 rd →Φ	compensative, vindictive	23
	3 rd →3 rd	illustrative, illustrator	2
	4 th →Φ	orthoepy	1
	4 th →4 th	Alkalify, stomatoscope	7
	no sec. ac.		9
4-1 st →3 rd	Φ→1 st	adjectival	1
	3 rd →1 st	antidotal, benefactress	10
	4 th →1 st	orientate, Sarajevo	2
4-1 st →4 th	4 th →1 st	Haidarabad	1
	Φ→1 st	advertisement, empyreal	30
	4 th →1 st	arytenoids, elegiac	7
4-2 nd →4 th	4 th →1 st	Afghanistan, misericord (-e)	2
	4 th →2 nd	Beluchistan, evacuee	5
4-3 rd →4 th	1 st →1 st	antepenult, ferroconcrete	6
	1 st →2 nd	charivari	1
5-1 st →2 nd	3 rd →Φ	executable, explicatory	2
	4 th →4 th	Macgillicuddy, obligatory	3
5-2 nd →3 rd	Φ→1 st	indisputable, irrefutable	4
	4 th →1 st	bicentenary, unexpurgated	4
5-2 nd →4 th	4 th →1 st	interpellator	1
	4 th →2 nd	Elizabethan	1
5-3 rd →4 th	1 st →1 st	cafeteria, Pithecanthropus	5
	1 st →2 nd	apotheosis	1
6-1 st →2 nd	4 th →5 th	justificatory	1
6-3 rd →4 th	1 st →1 st	counterespionage	1
	1 st & 5 th →2 nd	Popocatepetle	1
6-4 th →5 th	1 st →1 st	Mephistophelean	1
7-4 th →5 th	2 nd & 6 th →2 nd	electrometallurgy	1
Total			727

In the above list, many patterns of the shift in secondary accent were found, but some of them do not seem suited for the purpose of this study. The following are the shift patterns used in secondary accent used in **Tables 18-25**.

- 3a=3-1st , 3b=3-3rd
 4a=4-1st 2nd , 4b=4-1st 4th , 4c=4-2nd 1st , 4d=4-4th 1st , 4e=4-1st , 4f=4-3rd ,
 4g=4-4th
 5a=5-1st 2nd , 5b=5-1st 4th , 5c=5-2nd 1st , 5d=5-4th 1st , 5e=5-1st , 5f=5-3rd
 6a=6-4th 5th , 6b=6-5th 4th

3.1 Progressive Shift in Secondary Accent and Vowel Change

Table 18 /X/→/X/

	4b	5b	Examples	Total
I→I	1	1	misericord (2a)	2
æ→æ	1	0	Afghanistan (4b)	1
o→o		1	prothonotary	1
ɜ→ɜ		1	tercentenary	1
Λ→Λ		1	unexpurgated	1
aI→aI	1	1	typothetae	2
Total	3	5		8

Table 19 /X/→/Y/

	4a	4b	5a	6a	Examples	Total
e→ə				1	justificatory	1
æ→ə		1	1		apothecosis	2
ɑ→ə	1				charivari	1
i→I		1			equilibrate	1
ɛ→I, ɑ		1			elegiac	1
Total	1	3	1	1		6

3.2 Recessive Shift in Secondary Accent and Vowel Change

Table 20 /X/→/X/

	4c	4d	5d	Examples	Total
i→i		1		typothetae	1
I→I	1			chariva	1
e→e		3	1	orientate	4
o→o		2		Sarajevo	2
aI→aI		1		acetamide	1
ɔI→ɔI		1		arytenoid	1
Total	1	8	1		10

Table 21 /X/→/X, Y/

	4d	Examples	Total
æ→æ, ə	1	elegiac	1
Total	1		1

Table 22 /X/→/Y/

	4b	5c	5d	6b	Examples	Total
ε →ə			3		terpcenten <u>ary</u>	3
ɑ →ə		1			apoth <u>ei</u> sis	1
o →ə				1	justificat <u>o</u> ry	1
Total	0	1	3	1		5

3.3 Zero Shift in Secondary Accent and Vowel Change**Table 23 /X/→/X/**

	3a	3b	4e	4f	4g	5e	Examples	Total
i →i	3	1					pre <u>con</u> tract	4
I →I	5	2	6	1	1	4	indecor <u>o</u> us	19
e →e		20					dislocat <u>e</u>	20
ε → ε			2				excath <u>e</u> dra	2
æ →æ			1				asthen <u>i</u> a	1
ɔ →ɔ			1				cordill <u>e</u> ra	1
o →o		4	3				rode <u>o</u>	7
ʃ →ʃ			1				herc <u>u</u> lean	1
Λ →Λ			1				multiv <u>al</u> ence	1
aI →aI		1	1				canal <u>i</u> ze	2
Total	8	28	16	1	1	4		58

Table 24 /X/→/X, Y/

	3b	Examples	Total
ɔ →ɔ, ʊ	1	Roman <u>o</u> v	1
aI →aI, I, ə	1	Naom <u>i</u>	1
Total	2		2

Table 25 /X/→/Y/

	3a	3b	4e	4f	5f	Examples	Total
i →ə				3		contumel <u>y</u>	3
e →ə				9	1	vindicat <u>e</u>	10
ε →ə		1		3		medull <u>ar</u> y	4
æ →ə	2		6			pharyng <u>e</u> al	8
ɑ →ə		3	2			Tsushim <u>a</u>	5
o →ə		1		4		spectrosco <u>py</u>	5
æ, ɑ →ə			1			Salonik <u>a</u>	1
ɑ, ʊ →ə		1				carill <u>o</u> n	1
o, ɔ →ə				1		perempt <u>o</u> ry	1
i →I		1				Augustin <u>e</u>	1
e →I		3				acclimat <u>e</u>	3
ε →I	1					Renaissanc <u>e</u>	1
aI, i →I		3				Byzantin <u>e</u>	3
ʃ →ʃ				1		metallurg <u>y</u>	1
u →U			2			univalent	2
æ n →n		1				complaisanc <u>e</u>	1
on →n				1		chalc <u>e</u> dony	1
ju, lu →jU					1	execut <u>a</u> ble	1
Total	3	14	11	22	2		52

In summary, the tables in this chapter illustrate the following points.

a. Out of the 727 instances of primary accent shift found in the *PDAE*, approximately half had no secondary accent, one-fifth showed shifting in the secondary accent, one-twentieth retained its place, and the remaining one-fourth lost accent.

b. While the shift in primary accent has been divided into two types, the progressive and the recessive shift, the shift in secondary accent has been divided into four types: the progressive, the recessive, the zero shift, and finally, no shift change. Out of these four types, however, the first three are concerned with the present study. The rate of instances between the three was about 10 to 10 to 80.

c. As shown in the tables above the instances of the zero shift of secondary accent did not frequently occur. In the few instances that it did occur, the reduction to /ə/ showed the greatest in number.

Conclusion

This paper has presented examples of progressive and recessive accent shifts and the number of instances of the vowel changes due to these shifts. In conclusion, the main points of this study will be summarized as follows.

a. The figures show that some vowels change easily while others do not. The eleven vowels, /ɪ/, /e/, /æ/, /ɔ/, /o/, /ɪ /, /aʊ/, /ɔɪ/, /ʊ/, /jʊ/, /ɪʊ/ are in the latter case, and the five vowels /i/, /ɑ/, /ɜ/, /ju/, /ɪʊ/, and the vowels plus tautosyllabic /r/, the semivowel plus the vowel, and the vowel plus /l/ or /n/ are in the former. The four vowels /ɪ /, /ɔ/, /u/, /aɪ/ show almost the same figures for unchanged and changed. As for the other vowels in the figures, the number of instances is not sufficient to make any important statements.

b. Of the above eleven vowels, which are not easily changed by accent shift, the six, /ɪ/, /æ/, /ɪ /, /ʊ/, /jʊ/, /ɪʊ/ are noticeable in the progressive shift, the three, /e/, /ɔ/, /ɔɪ/ in the recessive, and the other two, /o/, /aʊ/ are noticeable in both. Of the above five vowels, /i/, /ɑ/, /ɜ/, /ju/, /ɪʊ/, and the vowel plus /r/, the semivowel plus the vowel, and the vowel plus /l/ or /n/, which are changed to another by accent shift, /ɑ/ is noticeably seen in the progressive shift, /ju/, /ɪʊ/, the vowel plus /r/, the vowel plus /l/ or /n/ in the recessive shift, and the other two, /i/, /ɜ/ are found both in the progressive shift and in the recessive almost equally. Of the above four vowels, which show almost the same figures for the progressive and recessive shift, /ɪ / is particularly noted in the progressive shift, while /ɔ/, /aɪ/, and /u/ in the recessive.

c. As indicated above, many accented vowels, when they lose their accent, change to either /ə/ or /ɪ/. The change to /ə/ is exceedingly superior in number to that of /ɪ/ except for the three vowels /i/, /aɪ/, /aʊ/, which are the opposite case.

d. Out of all the changes to /ɜ/, nearly 65 percent are from /ɜ/, and the other 35 percent from /ɪr/, /ɑr/, /ɔr/, and /ʊr/.

e. /ɪ /, /l/ accounts for 55 percent and /æn/ /n/ has the largest number of all the instances in the changes to /n/.

Notes

- (1) " Most adverbs of this type show this tendency in American English, and in some cases this accentuation has become generalized; " Kenyon and Knott (1953).
- (2) See Kenyon (1950).
- (3) " The initial position of this glide varies between /a/ and /ɑ/ , both /aI/ and /ɑI/ being part of the standard, educated pattern. " Bronstein (1960).

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