

/l/ /r/

/l/ /r/

2002 6 22

()

()

()

< >

.....

1.

1.1		1
1.2		1
1.3		2

2.

2.1		3
2.2	/l/, /r/	4
2.3	/l/, /r/	5
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4.2	2		29
4.3	3		31

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5.			
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5.2			38
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< >

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<

>

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**A Phonetic Study of Pronunciation Errors of English /l/
and /r/ Sounds among Korean University Students**

Sang-mi Noh

*Graduate School of Education
Pukyong National University*

Abstract

Koreans who learn English as a foreign language have difficulties in pronouncing English liquids, /l/ and /r/ sounds. The purpose of this study is to arrive at an accurate understanding of this phenomenon through analyzing /l/ and /r/ production data by Korean university students by a phonetic study.

This study was designed to investigate four things; (1) The pronunciation experiment was done to English and non-English majors to analyze Korean flap substitution rate and error patterns and to compare with native speakers' pronunciation based on acoustic experiment data. (2) Training of the Korean university students in production of /l/ and /r/ sounds was conducted to prove their improvement of English /l/ and /r/ pronunciation through the visual instruction using the spectrograms. (3) The perception test of English

/l/ and /r/, and Korean ‘ㄹ’ sounds was done by ten native speakers to investigate Korean students' pronunciation error rate and to see whether native speakers perceive Korean ‘ㄹ’ as /l/, /r/, or flap [ɾ]. (4) The pronunciation test was conducted to the two groups, one who had overseas language training and the other who had no overseas language training to get the statistics of pronunciation errors of /l/ and /r/ in different positions - i.e., initial, intervocalic, cluster and final.

As a result, Korean flap substitution rate was 12% and flaps occurred more often for /l/ than for /r/. Noticeably, the rate of /l/ substitution for /r/ was 52%. It was revealed that Korean students had most difficulties in pronouncing English liquids in the initial position. As the result of training the Korean university students in production of /l/ and /r/ sounds, it was found that their pronunciation improved through the visual instruction of the CSL spectrograms and that such a visual instruction was proved to be an effective way in improving pronunciation of the students. This study implies that teachers should be more careful about pronunciation of /l/ and /r/ sounds and that they should provide students with correct pronunciation of the target sounds.

1.

1.1

1.2

가 .

1. $/l/, /r/$
‘ ㄹ ’
2. $/l/, /r/$
.
3. $/l/, /r/$ ‘ ㄹ ’

/l/, /r/ ‘르’ .

4. 73 /l/, /r/ .

1.3

.

P 16 (1) 73 (

4)

가 .

3 , 10 ,

가 .

2

2

가 .

가 .

3 , /l/, /r/

/l/, /r/

. /l/, /r/

, Jerry/jelly , /l/, /r/

.

4 ,

2

1 . 가

.

2.

/l/, /r/

.

2.1

.

가

(, 2001).

가

.

(motor theory)(Borden

& Harris, 1984, p. 213) ,

. Hinoftis & Bailey (1980) Celce-Murcia (1996,

p. 7) ,

가

(threshold level)

.

, ,

.

가

,

(, 1999, p. 93).

가

.

.

(Brown, 2000, p. 60).

가

.

.

2.2 /l/, /r/

/l/ 가

가 ,

(lateral) . /l/ /r/ (liquid) ,

(, 1998, p. 120).

dark [ɫ]

.

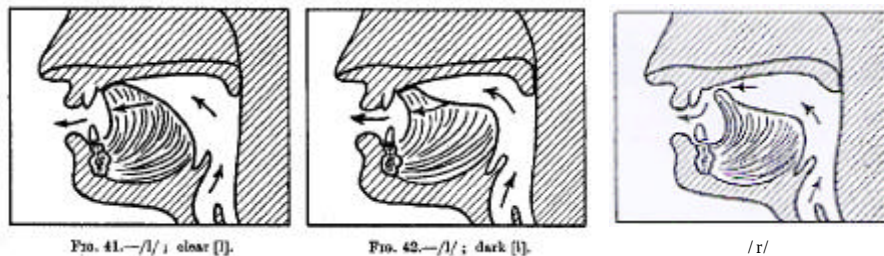
가 (velarized)

. /l/ , [ɫ] (Ladefoged,

1993, p. 231).

2.1 clear [l] dark [ɫ] 가

(Gimson, 1972, p. 202).



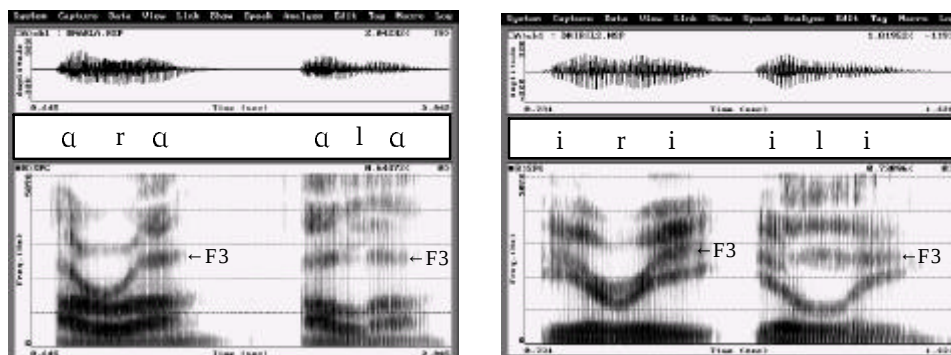
2.1 clear [l], dark [ɫ], /r/ (Gimson, 1972, p. 202, 206)

/r/ 2.1
(retroflex) 가 . /r/
(Approximant) , 가
(Giegerich, 1992, p. 22).

2.3 /l/, /r/

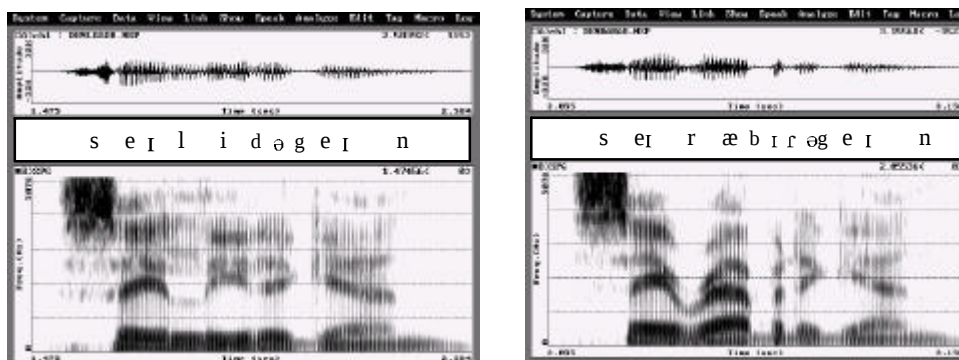
/l/, /r/ (sound segment)
(formant) . (Gleason, 1961, p. 369)
(overtone) (frequency)
(acoustic property)- , 1
() -
Hertz Hz.
가 1 220

2.3 (DN) /r/, /l/



2.3 (DN) /r/, /l/
(ara, ala, iri, ili (nonsense English words))

2.4 'Say *lead* again' 'Say *rabbit* again'
/l/ /r/ F3



'Say *lead* again'

'Say *rabbit* again'

2.4 (DN) /l/, /r/

2.4 /l/, /r/ ‘ㄹ’

/l/, /r/ ‘ㄹ’ .
 , (Cantonese) /l/, /r/ (phoneme)
 (Kang, 1999). Borden(1983) /r/
 /l/ 가 가 (p. 501).
 /l/ /l/ /l/
 /l/ , .
 /r/ /l/ , /l/
 /r/ , /l/
 /r/ ‘ㄹ’ .
 가 , 가 .
 ‘ㄹ’ (1)-a, (1)-b [l] ,
 (light apical lateral approximant) , (1)-c (apical flap) [ɾ]
 (, 1999).
 가 (allophone) . ‘ㄹ’ [l]
 , ‘ㄹ’ [l] , [ɾ] (1)-c
 (complementary distribution)
 . (1)-b (1)-c ,
 (1)-b , [l]
 (1)-c .
 (1) a. , , [l]
 b. , [l]
 c. , , , , 가 [ɾ]

‘ㄹ’ , [r]
 [l] (, 1995, p. 89). [r]
 , ,
 . < 2.1> [r]

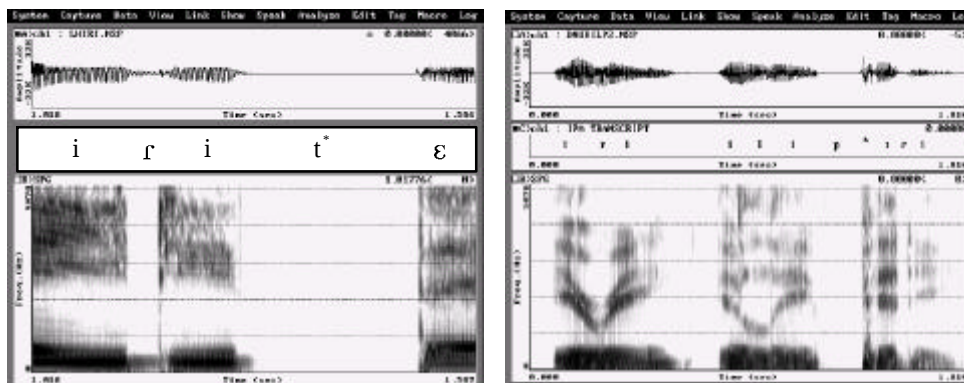
< 2.1> [r] (, 1995, p. 89)

	[naɾa], [uɾi]
	[noɾjʌkʷ], [u:ɾwɐ]
	[radio], [ramjʌn]

‘ㄹ’ 2.5
 /l/, /r/ . ‘ㄹ’
 (
 , 2001, p. 104). 2.5 ‘ [iɾitʰɛ]¹⁾
 ‘ㄹ’ /r/, /l/, flap [r] [r]
 가 . , [r] F1
 F2, F3, F4 .

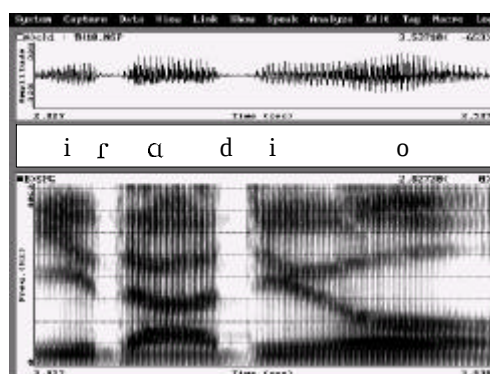
1) [tʰɛ]^{*}
World's Languages(p. 56)

Ladefoged(1996)가 *The Sounds of the*
 .



2.5 ‘[irit*ε], ‘iri’ ‘ili’(nonsense English Words),
‘pity’

2.6 ‘[r]’ (Ahn, 2002).



2.6 ‘[r]’

2.5 /l/, /r/ ‘ㄹ’

Ahn(2001)

(Electropalatographic)

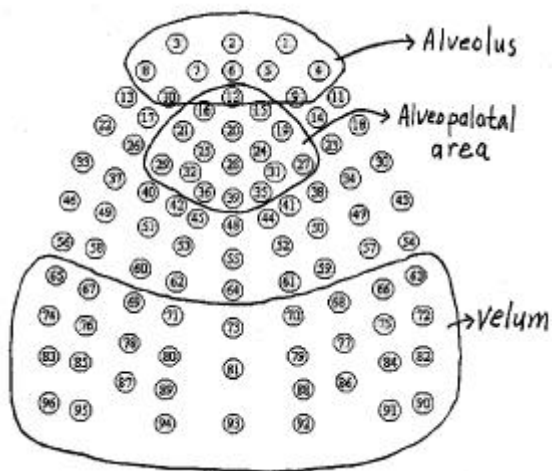
2.7

96

가 (pseudopalate)

. 가

/l/, /r/ ‘ㄹ’



2.7 96

2.5.1 /l/, /r/

Ahn(2001)

2.8

2.11

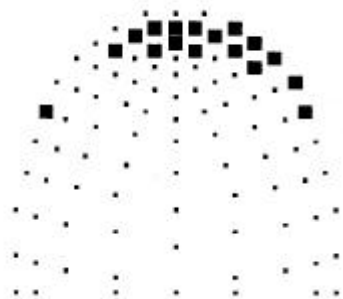
/l/, /r/

(BH

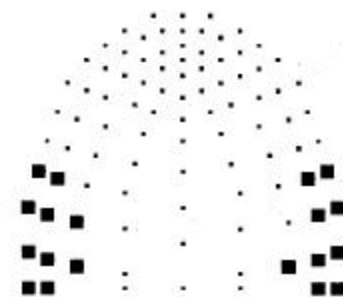
). , /l/

, /r/ 2.7

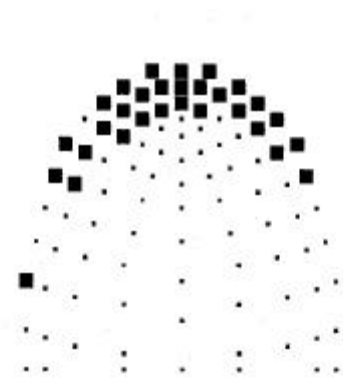
.



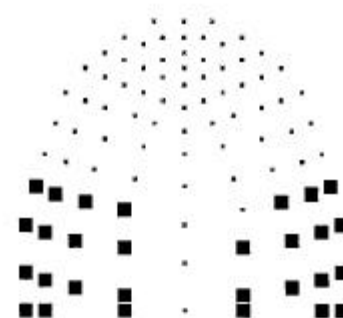
2.8 'black' /l/ (BH)



2.9 'bread' /r/ (BH)



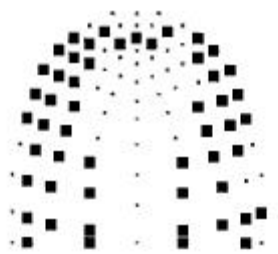
2.10 'lied' /l/ (BH)



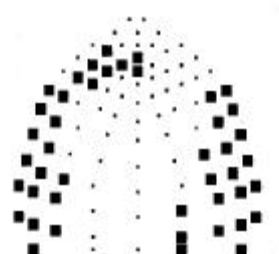
2.11 'ride' /r/ (BH)

2.5.2 ‘ㄹ’

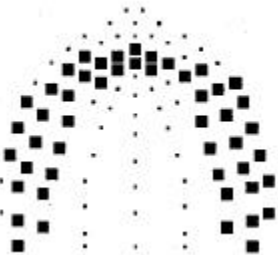
‘ㄹ’ Ahn(2001)
2.12 2.15 ‘ㄹ’
/l/, /r/ (AH , TH
) . ‘ㄹ’ /l/, /r/ 가 ,
/t/, /d/ [ɾ] . ‘ㄹ’
가 .



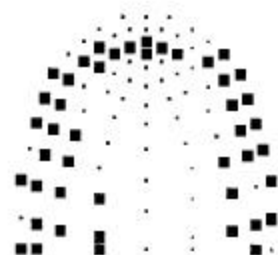
2.12 “ ” ‘ㄹ’ (AH)



2.13 “ ” ‘ㄹ’ (TH)



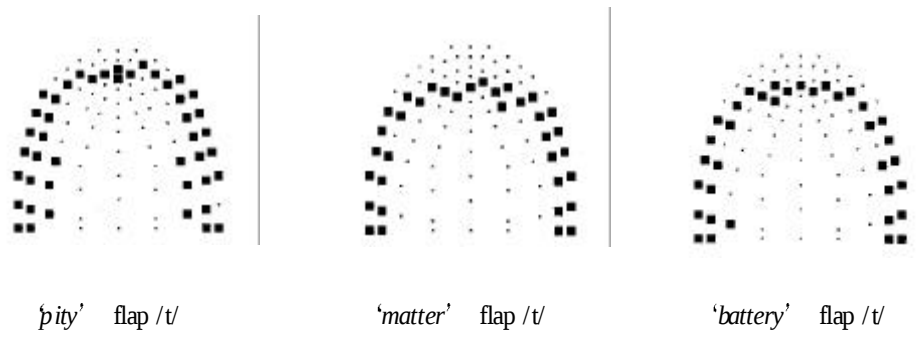
2.14 “ ” ‘ㄹ’ (TH)



2.15 “ ” ‘ㄹ’ (AH)

2.16 , ‘pity’, ‘battery’, ‘matter’ flap /t/

‘근’



2.16 ‘pity’, ‘matter’, ‘battery’ flap /t/ (BH)

2.6 /l/, /r/

2.6.1 Park (1999)

Park (1999) /l/, /r/

가 가 .

, , ,

.

, flap

[r] /r/ flap

[r]

,

/r/ /l/ /r/

‘ㄹ’ .

가 , 가 . /r/

/r/ flap [ɾ] .

L2 가 /r/

flap [ɾ]

·

(C)+ (liquid) , 가

·

가 . ,

·

가 /l/, /r/

· CV(C)

[ɪ]

· 20 , 5

5 (KE), 5 (JE) ,

1 5 (KI), 5 (JI)

· KE, JE , KI, JI

· ,

· , /l/, /r/

5 (KE)가 98%, 1

(KI) 95%, 5 (JE)가 93%,

1 (JI) 84%가 .

/r/ (94%) /l/ (85%) ,

/l/ (95%) /r/ (87.5%) . /l/ /r/

. . , /l/ ,
 /r/
 .
 L2 , (, , ,), (/l/ /r/), (/l/ , /r/)
 /r/ .
 가 .
 가 1 ,
 .
 가 , 가 .

2.6.2 Riney, Takada, Ota(2000)

/l/ , /r/ [r]
 .
 11 가 .
 ,
 (spontaneous task) . (#_V)
 ([C]C_V) .
 [r] 0.4% 77.8% .

($r = -0.805$)

. /r/ /l/ ,
 ,
 ,
가 .
Park(1999) Riney, Takada, Ota(2000) 가
 ,
 , ‘르’ .
 /l/ , /r/ ,
 , , .

3.

3.1

103 , 1 4
16 , 3 10 ,
4 73 .
1: /l/, /r/
‘ㄹ’
1 20 , 3 (:2, :1)
1 () 4 16 .
P 가 , 16
8 (:1, :7) 8 (:6, :2)
4 . ,
7 , 2
1 (6 1) .
2: , /l/, /r/
.
1 2 (:2)
.
7
, 8
.

3: /l/, /r/ ‘ㄹ’
 /l/, /r/ ‘ㄹ’ .
 1 10
 /l/, /r/, ‘ㄹ’ .
 1 4 1
 3 . 3
 6 (:3, :3), 2 (:2), 1 (), 1
 () , P 가
 . 4 .

4: 73 /l/, /r/
 .
 P
 73 (:28, :45) , 63 ,
 (6 1) 10 . ,
 7 .

3.2

1: /l/, /r/ ‘ㄹ’ .
 /l/, /r/
 CSL(Computerized Speech Lab)
 . P 8
 8 CSL /l/, /r/

- 2: , /l/, /r/
- 1 2 /l/, /r/
- 가 . CSL
- 5 1 , CSL
- . 5 CSL

3: /l/, /r/ ‘ㄹ’
 /l/, /r/ ‘ㄹ’ .
 /l/, /r/

(VCV) .
 /l/, /r/

‘ㄹ’ .

4: 73 /l/, /r/ .

P 73 (63 , 10) /l/, /r/ . 2

1 . /l/

/r/ , , , ,

24 /l/ /r/

().

/l/ /r/ 24 (, , ,)

/l/				/r/		
lead	palace	play	hill	read	Paris	pray
load	jelly	fly	pull	road	Jerry	fry
lied	alive	glue	film	ride	arrive	grew
long	pilots			recommend		

4.

4.1 1

1 /l/, /r/

‘已’

/l/, /r/

< 4.1A>, < 4.1B> O, X

/l/, /r/

< 4.1> /l/, /r/

< 4.1A> (8)

	recommend	read	lead	load	road	ride	lied	Jerry	jelly	palace	Paris
1. YW	× (/l/)	× (/l/)	○	○	○	× (/l/)	○				
2. KI	○	○	○	○	× (/l/)	○	○	○	○		
3. HY	× (/l/)	× ([r])	× ([r])	× ([r])	× (/l/)	× ([r])	× ([r])	× (/l/)	○		
4. CB	× (/l/)	× ([r])	○	○	○	× (/l/)	○	× (/l/)	○		
5. YK	× (/l/)	× (/l/)	○	○	○	× (/l/)	× ([r])	× (/l/)	○		
6. DY	× (/l/)	○	○	○	○	○	○	○	○		
7. JS	× (/l/)	× (/l/)	○	× ([r])	× (/l/)	× ([r])	○	× (/l/)	○		
8. SJS	× (/l/)	× (/l/)	○	○	× (/l/)	× (/l/)	○	× (/l/)	○	○	× (/l/)
	1/8	2/8	7/8	6/8	4/8	2/8	6/8	2/7	7/7	1/1	0/1

< 4.1B> (8)

	recommend	read	lead	load	road	ride	lied	Jerry	jelly	palace	Paris
1. KJ	○	× (/l/)	○	○	× (/l/)	× (/l/)	○	× (/l/)	○		
2. SJ	× (/l/)	○	○	○	× (/l/)	○	○	○	○		
3. KS	○	○	○			○	○	× (/l/)	○		
4. WJ	○	○	○	○	○	○	○	○	○		
5. GY	○	○	○	○	○	○	○	○	○	○	○
6. EJ	○	○	○	○	○	○	○	× (/l/)	○	○	× (/l/)
7. HJ	○	○	○	○	× (/l/)	○	○	× (/l/)	○	○	× (/l/)
8. MJ	× (/l/)	× (/l/)	○	○	× (/l/)	× (/l/)	○	× (/l/)	○	○	× (/l/)
	6/8	6/8	8/8	7/7	3/7	6/8	8/8	3/8	8/8	4/4	1/4

/l/, /r/

< 4.2> .

< 4.2> /l/, /r/

	/r/	/l/
(8)	11/40 (26%)	26/32 (81%)
(8)	25/43 (58%)	35/35 (100%)
16	36/83 (43%)	61/67 (91%)

< 4.2>

/l/, /r/

.

가 /l/ (91%) /r/ (43%)

. < 4.3>

/l/,

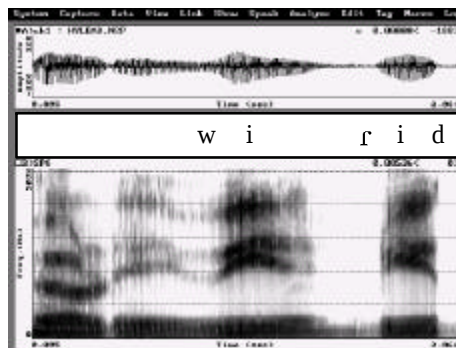
/r/

.

< 4.3> 16 /l/, /r/

	/r/	/l/
/l/	43/83 (52%)	
/r/		0/67 (0%)
‘ㄹ’	4/83 (5%)	5/67 (7%)

< 4.3> /r/ /l/ (52%) 가
 . ‘ㄹ’ , /r/ (5%) /l/
 (7%) ‘ㄹ’ 가 .
 ‘ㄹ’ 12%
 . 4.1 ‘ㄹ’



4.1. ‘we lead’ /l/ ‘ㄹ’ (HY)

4.1 (‘Actually we lead a tourist.’)

‘we lead’ /l/ ‘ㄹ’

4.2 4.3 /l/, /r/



(‘He *lied* about the ski *ride*.’
 /l/ /r/)
 4.2 (DN)

(‘He *lied* about the ski *ride*.’
 ‘ride’ /r/ /l/)
 4.3 (KJ)

4.2 4.3

‘He *lied* about the ski *ride*.’

4.3 ‘ride’ /r/ /l/

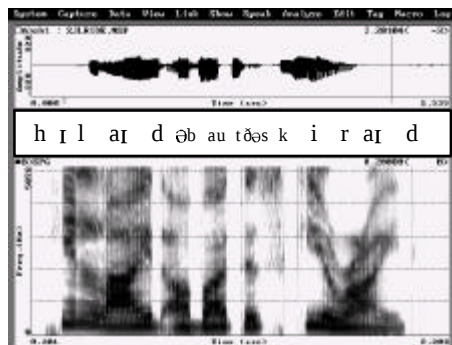
‘ride’ F3 4.3

‘ride’ /r/ /l/

4.4 4.5

‘ride’

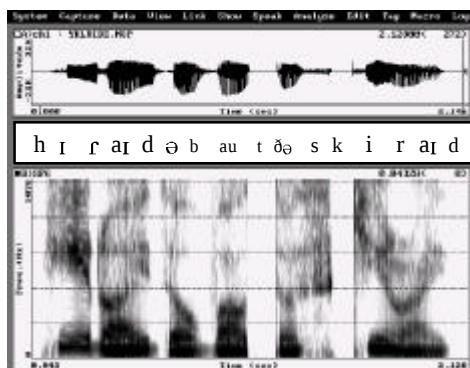
, ‘ride’ /r/ /l/



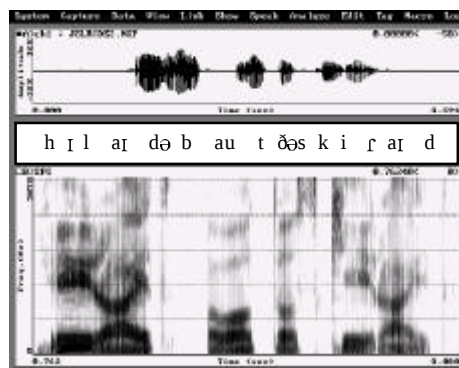
(/l/ /r/)
4.4 (SJ)



(‘ride’ /r/ /l/)
4.5 (CB)



(‘He lied’ /l/ [r])
4.6 (YK)



(‘ride’ /r/ [r])
4.7 (JS)

4.6

‘lied’ /l/ ‘𐄂’

4.7

‘ride’ /r/ ‘𐄂’

4.8

‘ride’ /r/ /l/

,

4.9

‘lied’ ‘ride’

‘𐄂’



(‘ride’ /r/ /l/)
4.8 (KJ)



(‘lied’ /l/ ‘ride’ /r/ [r])
4.9 (HY)



(‘we recommend’ /r/)
4.10 (DN)



(‘we recommend’ /r/ /l/)
4.11 (YW)

4.10 ‘we recommend’ /r/ F3

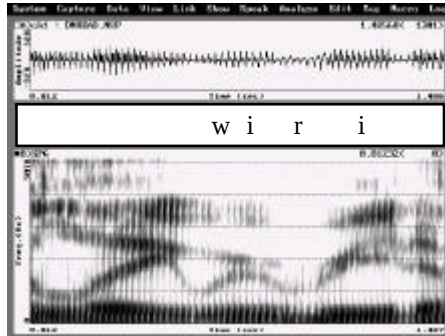
4.11

‘recommend’ /r/ /l/

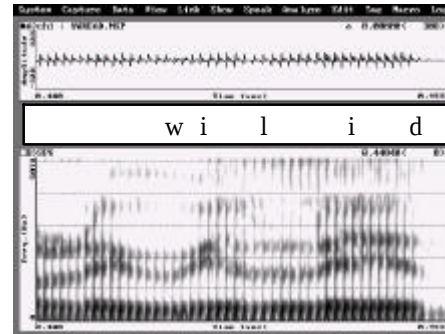
4.12 4.13

‘we read’

‘read’ /r/ /l/



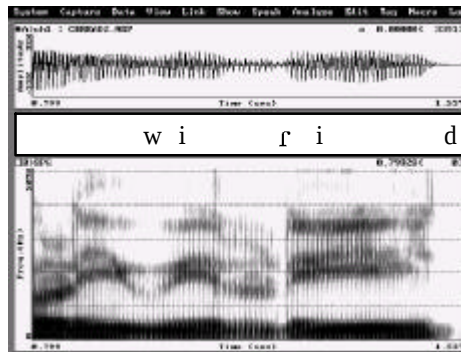
(‘we read’ /r/)
4.12 (DN)



(‘we read’ /r/ /l/)
4.13 (YW)

4.14

‘we read’ /r/ ‘ɛ’

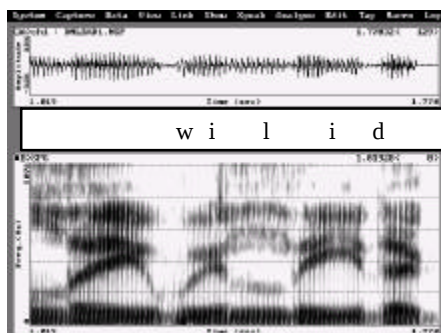


4.14

(CB) ‘we read’ /r/ ‘ɛ’

4.15 4.16

‘we lead’ /l/ ‘ɛ’



(‘we lead’ /l/ (DN) 4.15)

(‘we lead’ /l/ [r] (HY) 4.16)

4.2 2

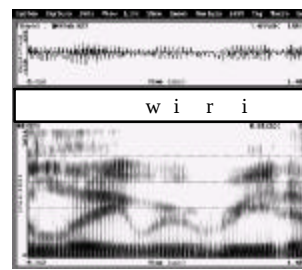
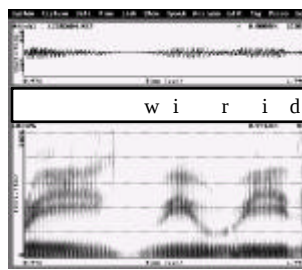
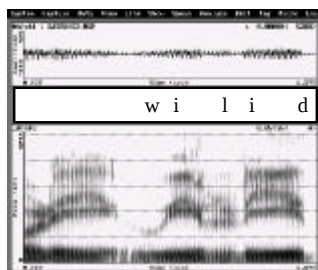
2

, /l/, /r/

1) A

A , /r/ 4.17, 4.18, 4.19

(‘Actually we read a magazine.’).



4.17 (SJS)

4.18 (SJS)

4.19 (DN)

A 4.17 ‘we read’ /r/ /l/

. CSL

가

. CSL 20

, 4.18

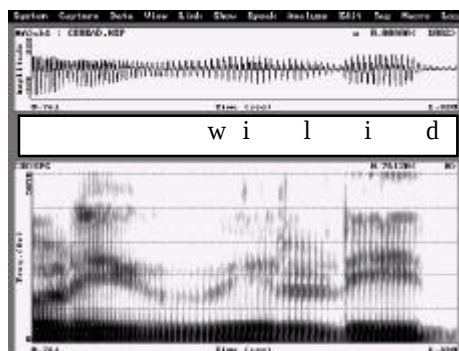
. 4.19 , /r/ F3

.

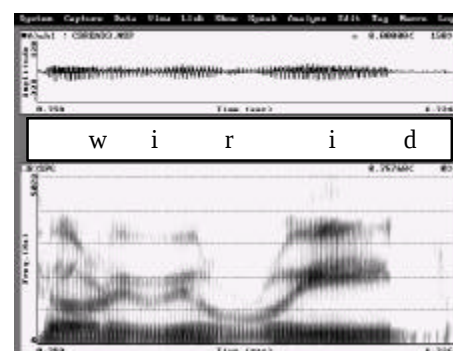
2) B

B /r/ 4.20 4.21

(‘Actually we read a magazine.’).



4.20 (CB)



4.21 (CB)

B 7 , 8

/l/ , /r/

, 4.20 , ‘we read’ /r/

/l/

.

가

. CSL

20

4.21

/r/ F3

4.3 3

3

/l/, /r/

‘ㄹ’

/l/, /r/

‘ㄹ’

10

< 4.4>

가

71%(/r/), 73%(/l/)

51%(/l/), 39%(/r/)

/r/

가

29%, 61%

/r/

85%(/r/), 84%(/l/)

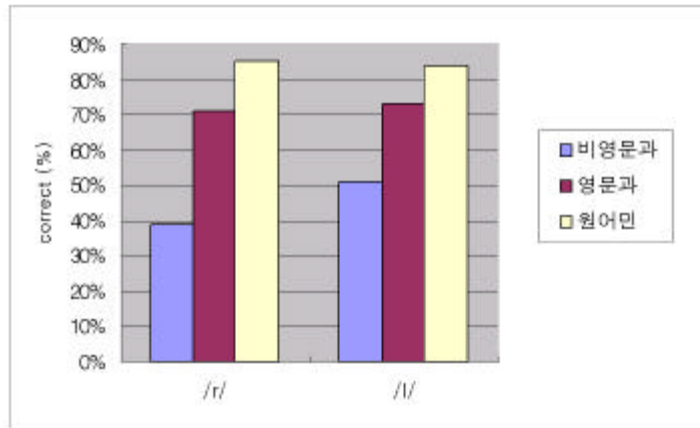
4.22 < 4.4>

< 4.4>

10

/l/, /r/

	8 ()	8 ()	4 ()
/r/	157/ 400 (39%)	307/ 430 (71%)	169/ 200 (85%)
/l/	164/ 320 (51%)	257/ 350 (73%)	134/ 160 (84%)



4.22 10 /r/ , /l/

< 4.5> ‘ㄹ’ 10

	/r/	/l/	
	30/ 160 (19%)	74/ 160 (46%)	56/ 160 (35%)
가	69/ 160 (43%)	29/ 160 (18%)	62/ 160 (39%)
ㄹ	99/ 320 (31%)	103/ 320 (32%)	118/ 320 (37%)

: /r/ /l/

‘ㄹ’

/r/ (31%) /l/ (32%) (37%)

‘ㄹ’

< 4.5>

/r/ (31%), /l/ (32%), (37%)

‘ㄹ’ 3 ()

. ‘ㄹ’ /l/ , /r/ , 가

‘ㄹ’

, /l/ , /r/

‘ㄹ’ 3 [r]

.

4.4 4

4 73 /l/, /r/ . 73 , (6 1) 10 63 /l/, /r/ , , . < 4.6> < 4.7> .

< 4.6> /l/ /r/ (10)

/l/ (N=40 or 30)	85%	90%	87%	87%	122/ 140 (87%)	212/ 240 (88%) : <u>12%</u>
/r/ (N=40 or 30)	90%	93%	87%		90/ 100 (90%)	

/l/ (85%) < /l/, /r/, /l/ (87%) < /l/, /r/ (90%)
< /r/ (93%)

10 /l/ 가
< 4.6> .
/r/ 가 , /l/ ‘큰’
, /l/
가 . /l/
87%, /l/ 87%, /r/ 87% .
,
가 /l/, /r/ . /l/
dark [ʔ] ‘hill’, ‘pull’, ‘film’ 가

. /l/ (, ‘film’) /l/

. /l/ (, ‘jelly’)

(, ‘ ’)

< 4.7> /l/ /r/ (63)

/l/ (N=252 or 189)	76%	88%	90%	78%	731/882 (83%)	1208/ 1512 (80%)
/r/ (N=252 or 189)	81%	78%	67%		477/630 (76%)	: <u>20%</u>

/r/ (66.6%) < /l/ (75.7%) < /r/, /l/ (77.7%)

< /r/ (80.9%) < /l/ (88.4%) < /l/ (89.9%)

< 4.7> /r/

67% 가

. /l/ (76%) ,

/r/ /l/ (78%) .

< 4.6> < 4.7> /l/, /r/

, 12% ,

20% . ,

, 10

2 .

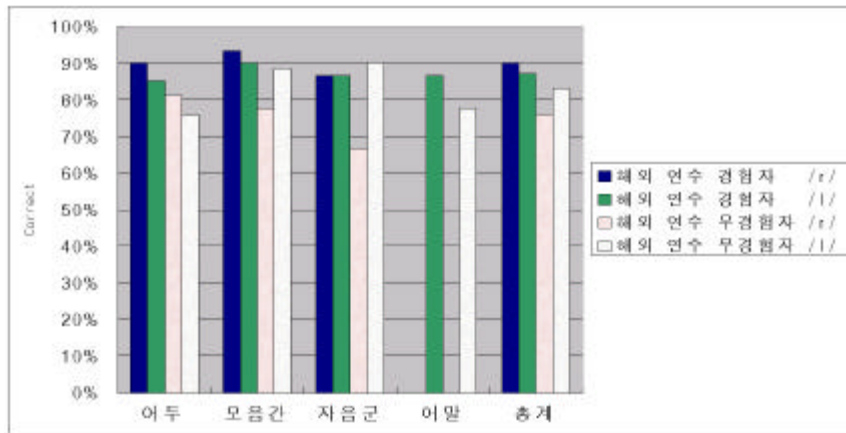
< 4.8> 4.23 /l/, /r/

.

< 4.8>

/l/, /r/

/r/	90%	93%	87%		90%
/l/	85%	90%	87%	87%	87%
/r/	81%	78%	67%		76%
/l/	76%	88%	90%	78%	83%



4.23

/l/, /r/

4.23

가 /r/, /l/

90%(/r/), 87%(/l/)

,

76%(/r/), 83%(/l/)

.

/r/ (10%)

/l/ (13%)

,

/l/ (17%)

/r/ (24%)

.

/l/

가

(15%)가

.

,

/r/

(33%)가 가

.

5.

5.1

/l/, /r/ 가
 /l/, /r/

,

.

1 16 (8 , 8) /l/, /r/

,

‘ㄹ’

.

16 /r/ 57% , /l/

9% , /r/

‘ㄹ’

12%(/l/ ‘ㄹ’(7%), /r/

‘ㄹ’(5%)) , /r/ /l/ 52%

가

.

2 , /l/, /r/

.

가 , /l/, /r/

가

3 /l/, /r/ ‘ㄹ’

/l/, /r/ ‘ㄹ’

. , , /r/ 가
 . /r/ .
 /r/ 71%가, /r/ 39%가
 . /l/, /r/
 85%, 84% ‘르’
 (37%), /l/ (32%), /r/ (31%) . , ‘르’
 /l/ , /r/
 ‘르’ 3 [r]
 .
 4 73 /l/, /r/
 . ,
 12% , 20% .
 가 90% (/r/), 87% (/l/)
 , 76% (/r/), 83% (/l/)
 . /l/ (13%) ,
 /r/ (24%)
 . /l/ 가
 (15%)가 .
 /r/ (33%)가 가 .
 , 7
 /l/ /r/ .
 ,
 가
 , .

< >

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&

1. We *recommend* Korean air flight.
2. The children *played* in the backyard.
3. Carry that *load* down the *road*.
4. Actually we *lead* tourists.
5. The potatoes *fried* quickly.
6. He *lied* about the ski *ride*.
7. We saw a *palace* in *Paris*.
8. Actually we *read* a magazine.
9. *Jerry* likes *jelly* and bread.
10. He's on a *hill*.
11. The *pilots* *fly* to Canada.
12. Jack *glued* the broken pieces.
13. The children *prayed* at the church.
14. She's *arrived* at the final decision.
15. Jack *grew* two inches this year.
16. I bought this *film* today.
17. It was a *long* hard *pull*.
18. She's *alive* with joy.