9 1 (2007)

*

<Abstract>

Phonology and Phonetics of Primary Stress in Portuguese

In Portuguese, vowel length is not contrastive and thereby all vowels have one mora. But all vowels don't have equal durations, being stressed vowels longer than unstressed vowels. Furthermore, primary stress assignment in Portuguese is assumed by some researchers to be quantity-insensitive, while others maintain Portuguese stress assignment is quantity-sensitive.

In order to account for two above-mentioned issues in Portuguese primary stress assignment, this study conducts a phonetic experiment, on the basis of Phonology-Phonetics Convergence Theory which correlates moraic structure not only to phonological syllable weight but to phonetic duration. The experiment consisted of comparing durations of stressed vowels in open syllables with those of unstressed vowels in open syllables and of examining comparatively durations of stressed vowels in closed syllables and those of unstressed vowels in open syllables.

The findings of this experiment are: first, all stressed vowels are at least twice as long as unstressed vowels, second, stressed vowels in open syllables show no differences in any of three positions within the 3 Syllable Window and, third, stressed vowels in closed syllables demonstrate no differences regardless of those positions. The results of these findings are: first, stressed vowels in Portuguese are considered to

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* 2006 .

be subject to phonological lengthening and to have consequently 2 moras, second, coda consonants contribute to syllable weight by having a mora of their own.

In conclusion, this study proves that the primary stress assignment in Portuguese is quantity-sensitive and the lengthening of primary stressed vowels is phonological.

[Key Words: Phonological Lengthening/ Phonology-Phonetics Convergence/ Primary Stress/ Quantity-Sensitivity/ Syllable Weight]

[: / - / / /]

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(cross-linguistic correspondence)
, (mora)[1]

,
(convergence) .

(biunique) (divergence)
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1) ‘ ’
. Kager(1999,155)
(unit of quantity) .

, . ,

(quantity-sensitive) .

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1. : ,

Chomsky(1968)
. Prince(1983)
Hyman(1985), Hayes(1989), McCarthy & Prince(1993)
,
. Hyman(1985)
Hayes(1989)
.
Broselow, Chen & Huffman(1997) Hyman(1985) Hayes(1989)

. (heavy syllable)
2)
, (nucleus)
(coda) (Hindi)
(Malayalam)
.
(1)(b)
(1)(d) ,

(2)(b) (2)(d) .3)

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2) (prominence)
.
( ) ‘ (Weight-to-Stress Principle: WSP)’(Kager1999,155)
(Roca & Johnson 1999,610-612)
.
3) Broselow, Chen & Huffman(1997) (short vowel)
(long vowel)
(Levantine Arab)
.

(1)(b) (2)(b) (1)(d) (2)(d)
(1)(b) (2)(b)
(light syllable) (1)(d) (superheavy syllable) (2)(d)
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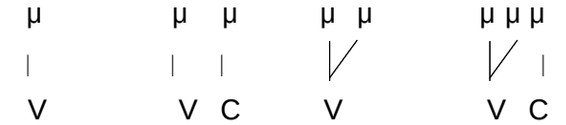
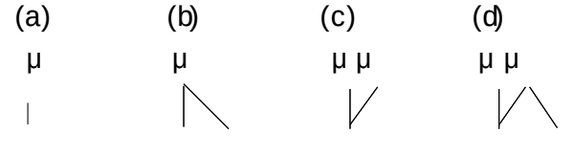
(1) (Broselow, Chen & Huffman(1997,49))

(a) (b) (c) (d)



(2) (Broselow, Chen & Huffman(1997,50))

(a) (b) (c) (d)



Maddieson & Ladefoged(1993) Hubbard(1995)

. Broselow, Chen & Huffman(1997)
Maddieson & Ladefoged(1993) Hubbard(1995)

.

. (1)(b) (1)(d)

, (2)(b) (2)(d)

.

.

(3) (Broselow, Chen & Huffman(1997, 53))

(a)

μ μ μ μ μ μ
V V = V V C > V = VC

(b)

μ μ
V V C = V C

(4) (Broselow, Chen & Huffman (1997,55))

(a)

μ μ μ+ μ μ μ
V V > V V C > V > VC

(b)

μ μ
V V C = VC

,

(1)(¢) (2)(¢)

(1)(a) (2)(a)

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Broselow, Chen & Huffman(1997)

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2. : ‘ ’ ‘ ’

Trubetzkoy(1939)
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4) Myers(1987) Kager(1999) .
Trubetzkoy(1939)
Imperio &
Rosenthall(1999) .
Imperio & Rosenthall(1999) ,

.
5) 3 (3 Syllable
Window) .

3 , ,

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4) ‘ ’
.
( ) ‘ (Stress-to-Weight)’(Kager 1999,268)
, .
5)
(quality) . (Jacobs1994,57-58)

(penultimate syllable)

(antepenultimate syllable)

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‘ ’ ‘ ’

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‘ ’

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Prince(1990) ,

‘ ’

(extrametricality) (5)(b)

2 . ‘

’ Prince(1990)

.[6] ,

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6) Prince(1990) (trochaic)

1 Hayes(1985)

,

(dynamism) . ,

, (L) (HL)

.

Prince(1990) (L) ,

(destressing) (stress shift)

(L)X (LL) (L)

(H) . (L) (H)

(lax mid vowel) (diphthongization) .

( ) > (Prince1990,19)

(a) : mé.di.co‘physician’, sé.co.lo ‘century’, pó.po.lo ‘people’, stó.ma.co

‘ ’

(5)(a)

2 .

(5) 3 (Imperio & Rosenthall 1999,13-15)

(a) : (σ'μ σμ) <σ>: /credito/ [(cré.di.)to]7)

(b) : σ (σ'μμ) <σ>: /lavoro/ [la.(vó:).ro]

Imperio & Rosenthall(1999)

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(6)

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‘stomach’

(b) : pié.de < pé.de(m) ‘foot,’ mié.le < mé.le(m) ‘honey,’ uó.mo <hó.mo ‘man’, cuóre ‘heart’(< .) Prince(1990) , ,

. , (L') (H') (L')<L># (H')<L>#

.

(5)(b) . (5)(a)

(extrapedal) . , (L'L)<L>#

.

7) e .

(6)

(Imperio & Rosenthal(1999,4))[8]

	(a)	(b)	(c)	(b)-(a)	(c)-(a)	(c)-(b)
MD	0.136	0.146	0.193	0.010	0.057	0.047
LA	0.167	0.161	0.203	-0.006	0.036	0.042
RM	0.141	0.154	0.166	0.013	0.025	0.012
LD	0.140	0.180	0.209	0.040	0.069	0.029
LC	0.128	0.127	0.121	-0.001	-0.007	-0.006
LU	0.133	0.137	0.179	0.004	0.046	0.042
SC	0.123	0.129	0.155	0.006	0.032	0.026
	0.139	0.149	0.177	0.010	0.037	0.028

((c)-(b))

((c)-(a)) ,

((b)-(a)) .[9]

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8) Imperio & Rosenthal(1999) . (6) (a), (b), (c) , , .

9) Imperio & Rosenthal(1999, 4) . , 0.177 0.149 0.028 0.149 0.139 0.010 . ‘ , ‘ , 0.018 . , . 7 LA, RM, LD, LC 4 . , Imperio & Rosenthal(1999, 10; 2) 3

Imperio & Rosenthall(1999 2) ‘
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.10)

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2

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. 84.18%

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Imperio & Rosenthall(1999)
‘ ’ ‘ ’ 2
(5) .

(clitic)

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2 fate‘do’ 1 3
fatele‘do them’ 2 4
fatevele‘do them yourselves’ .

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10) 2 1

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‘ ’ , ‘ ’

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. , Broselow, Chen & Huffman(1997)

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. Mateus(1990)

Andrade & Viana(1988)

. Mateus(1990:212)

11) Teyssier(1982:8-9).

,

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Imperio & Rosenthall(1999) Mateus(1990)
, [12] .

.

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(7) .

(7)

já[ʒá] 'already'
pé[pɛ́] 'foot'
só[sɔ́] 'only'
vi[vi] '(I) saw'
tu[tú] 'you'

(culminative property)[13]

(prosody)

. Kager(1999, 28)

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12) .

.

13) Kager(1995:367),Kager(1999:143-146) .
( ) (contentword)
, .
( ) (demarcative) .
( ) .
( ) .
( ) .
( )
.

(prosodic category)[14] (head)
. Kager(1999, 166) , ‘
’ ‘ (word minimum)’
1 2
‘ (subminimal lengthening)’ .
(7) 2
,
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.
.

(8)
bem [bẽj̃] ‘well’
também [tẽbẽj̃] ‘also’

14) Selkirk(1980, 576) (σ), (stress foot: Σ), (prosodic word ω), (phonological phrase: φ), (intonational phrase: I) (utterance: U) . McCarthy & Prince(1993a, 1) (μ), (σ), (Ft), (PrWd) . Kager(1999, 146) McCarthy & Prince(1993) ( ) (prosodic hierarchy) . ( ) (Kager(1999, 146))

PrWd

Ft

σ

μ

Hyman(1985)Hayes(1989),Broselow, Chen & Huffman (1997)

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Maddeson & Ladefoged(1993), Hubbard(1995), Broselow, Chen & Huffman(1997)

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(1)(a) (2)(a) (1)(c) (2)(c)

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(1)(c) (2)(c)

(1)(a) (2)(a)

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15) 3

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Trubetzkoy(1939)

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2.

Mateus & Andrade(2000, 118; 110)

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(9)(a) ,

(9)(b)

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. (9)(a) (9)(b) .

(9)(a) 3 : 16)

câmara [ké.mɐ.ɾɐ] ‘chamber’	canada [kɐ.ná.dɐ] ‘canada’	Canadá [kɐ.nɐ.dá] ‘Canada’
árvore [áɾ.vu.ɾi] ‘tree’	acordo [ɐ.kóɾ.du] ‘accord’	

16) . .

(9)(b) 3 :

-	açúcar [ɐ.sú.kaɾ] 'sugar'	capital [kɐ.pi.tál] 'capital'
-	acórdão [ɐ.kóɾ.dɐ̃w̃] 'sentence'	

Mateus & Andrade (2000)

.

(2006)

.

(2006, 64-70)

. 1 '

1 : - 1 : .' ('PF' .)[17] 3

(non-verb) 985 3

(10) . 2 '

' ('DLPC' .)[18] 3

51,807 3 3

(11)

. (10) (11)

(12) .

(10)(a) 3

825 (83.76%)	82 (09.94%)	741 (89.82%)	2 (00.24%)

17) Instituto Nacional de Investigação Científica & Centro de Linguística da Universidade de Lisboa (1984), Português Fundamental Vol. 1: Vocabulário e Gramática - Tomo 1: Vocabulário, Lisboa: Garcia & Carvalho.

.

18) Academia das Ciências de Lisboa (2001), Dicionário da Língua Portuguesa Contemporânea, Lisboa: Verbo. .

216 9 1

(10)(b) 3

160 (16.24%)			
	-	36 (22.50%)	124 (77.50%)

(11)(a) 3

40,800 (78.75%)			
	5,393 (13.22%)	34,915 (85.58%)	492 (1.21%)

(11)(b) 3

11,007 (21.25%)			
	-	1,712 (15.55%)	9,295 (84.45%)

(12)(a) : 'PF'

985	865 (87.82%)	120 (12.18%)

(12)(b) : 'DLPC'

51,807	44,210 (85.34%)	7,597 (14.66%)

(2006,70) (10)-(12)

19) .

19) (2006,31) ,

. .

(13) .

(13)

(a)

.

(b)

.

.

(c)

'PF' 'DLPC' 87.82% 85.34%

. 86.58% ,

86.58% .

(e) 86.58%

.

(2006,73-78) (13)

Prince(1990) [20]

(14) .[21]

.

20) Prince(1990) (parsing)

. (Harmonic Parsing)

(Rhythmic Harmony Scale) . Prince

(1990) .

Prince (Prince(1990:8))

( ) (Iambic Rhythmic Harmony Scale)

LH > {LL, H} > L

( ) (Trochaic Rhythmic Harmony Scale)

{LL, H} > HL > L

21) (2006) (14)

.

(14)

L L' L	σμ (σ́μ σμ)	L L H'	σμ σμ (σ́μμ)
H L' L	σμμ (σ́μ σμ)	H L H'	σμμ σμ (σ́μμ)
L H' L	σμ (σ́μμ) σμ	L H H'	σμ σμμ (σ́μμ)
H H' L	σμμ (σ́μμ) σμ	H H H'	σμμ σμμ (σ́μμ)

3

(15)

(14) .

(14)

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(15)

L' L L	(σ́μ σμ) <σμ>	L L' H	σμ (σ́μ σμ)<μ>
H' L L	(σ́μμ) σμ <σμ>	H L' H	σμμ (σ́μ σμ)<μ>
L H' L	σμ (σ́μμ) <σμ>	L H' H	σμ (σ́μμ) σμ<μ>
H H' L	σμμ (σ́μμ) <σμ>	H H' H	σμμ (σ́μμ) σμ<μ>

(15) (14)

(L' L) (H')

‘ ’ (16) .

(16)

,

, /s/

.

(a) (footing) .

(b) ,

.

.

(c) .

'PF' 11.98% 'DLPC' 13.71% ,
12.84% .
(2006, 78-79) (17)
.

(17)

(a) 99.42%

99.42% .

(b)

.

99.42%

.

(c)

.

(2006) ,

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. (1) (1)(a)
(1)(b) (1)(c) (1)(d) .

‘1. :
,
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,

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. , (1)(b) (1)(d)
(1)(a) (1)(c)
, (2)(b) (2)(d)
(2)(a) (2)(c)
.

.

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(18)(a) - (e) (18)(f)-(g)
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(18)

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(a) ,
(b) ,
(c)
,
(d) ,
(e)
,

(f)

,

(g)

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. ,

1.

3 3

.

(19)(a)

CV	pá.pa.pa	pa.pa.pa	pa.pa.pá

(19)(b)

CVC	pál.papa pár.pa.pa pás.papa	pa.pal.pa pa.par.pa pa.pas.pa	pa.pa.pal pa.pa.par pa.pa.pás

(onset) /p/

/a/ /p/ /a/

3 3

(19)(a) .

/p/ /a/ /l,

222 9 1

r, s/ (19)(b)
.[22)]

.

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22) /l, r, s/
. /l, r, s/
07.62% 72.38%
.

, /l, r, s/
. (i) 'DLPC'
51,807
.

( )

/s/	11,354	37.07	37.0707%
/r/	10,316	33.68	70.7523%
/l/	5,716	18.66	89.4149%
/k/	1,190	3.885	93.3002%
/p/	530	1.730	95.0307%
/g/	324	1.058	96.0885%
/z/	315	1.028	97.1170%
/b/	298	0.973	98.0900%
/t/	181	0.591	98.6809%
/n/	173	0.565	99.2458%
/d/	159	0.519	99.7649%
/f/	63	0.206	99.9706%
/v/	9	0.029	100.0000%
	30,628	100.000	

. /l, r, s/
89% .

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(20)

Diga____ mais uma vez.
'Say ____ one more time.'

2.

4 1 .

.

(21)

Aldino Rogrigues Dias (AD)		1956.01.30 (48)	,	,	,
Alice Maria de Almeida Cortesão Terra Esteves (AE)		1948.02.26 (56)	,	,	,
Carla Maria Passos Tavares Belo (CB)		1964.10.15 (40)		,	,
Carlos Filipe Guimarães Figueiredo (CF)		1957.01.01 (47)			,
Maria Filomena Raimundo de Sousa Pedro (MP)		1961.06.09 (43)		,	,

AD, AE, CF, MP CB

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12 12

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7 .

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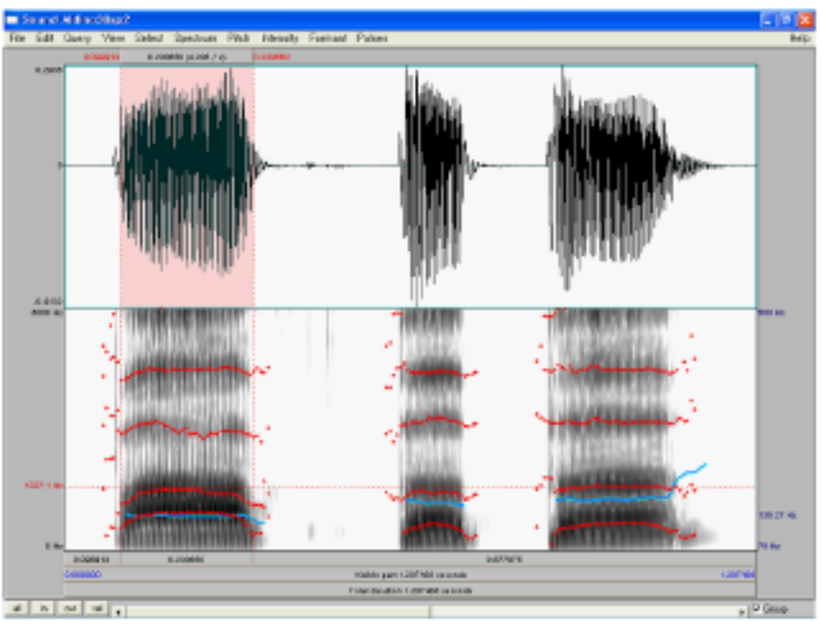
, Audiotechnica
ATM75 microphone Sony TCD-D100 DAT recorder .
Egosystem Waveterminal U24 Sony Sound
Forge version 7.0 22,050 Hz sampling rate 16 bit
quantization .

Adobe Systems Incorporated Adobe
Auditionversion 1.0 (Universityof
Amsterdam) (Instituteof PhoneticSciences) Boersma,
Paul & David Weenink Praat version 4.2.05
.

(22) AD pá.pa.pa



(22) ,
1 2
.
Excel SPSS . ,
7
2 .

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1.

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. .[23]

(19)(a) ,
, pápapa[pá.pɐ.pɐ]
á[á] a[ɐ]
.
, papapa[pɐ.pá.pɐ]
a[á] a[ɐ]
.
, papapá[pɐ.pɐ.pá] .
á[á]
a[ɐ]
a[ɐ]

23) ,
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(19)(b) ,

, pálpapa[pál.pɛ.pɛ], párpapa[pár.pɛ.pɛ]

páspapa[páʃ.pɛ.pɛ] á[á]

a[ɐ] .

, papalpa[pɛ.pál.pɛ], paparpa[pɛ.pár.pɛ]

papaspa[pɛ.páʃ.pɛ] a[á]

a[ɐ] .

, papapál[pɛ.pɛ.pá], papapár[pɛ.pɛ.pár]

papapás[pɛ.pɛ.páʃ] .

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24),

강세 모음 지속 시간
log 무강세 모음 지속시간 .25)

, /l, r, s/

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24) '[log]/ '

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25) '[log]/ ' [ ]

강세 모음 지속 시간
log 무강세 모음 지속시간

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$$\log \frac{\text{강세 모음 지속 시간}}{\text{무강세 모음 지속 시간}}$$

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(23)(a)AD

(:)

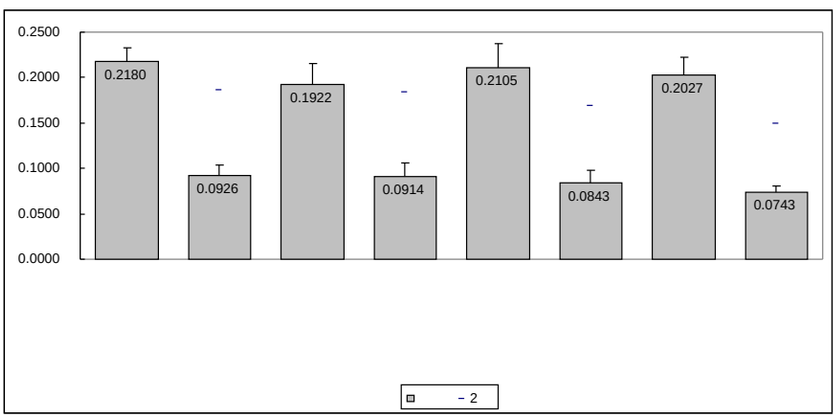
( )	0.2180 (0.0149)	0.0926 (0.0113)	0.1922 (0.0234)	0.0914 (0.0144)
[log]/	[1.2352]	0.1852	[1.0723]	0.1828

(23)(b)AD

(:)

( )	0.2165 (0.0268)	0.0843 (0.0134)	0.2027 (0.0200)	0.0748 (0.0200)
[log]/	[1.3199]	0.1687	[1.4483]	0.1485

(23)(c) AD (:)



(24)(a) AE

(:)

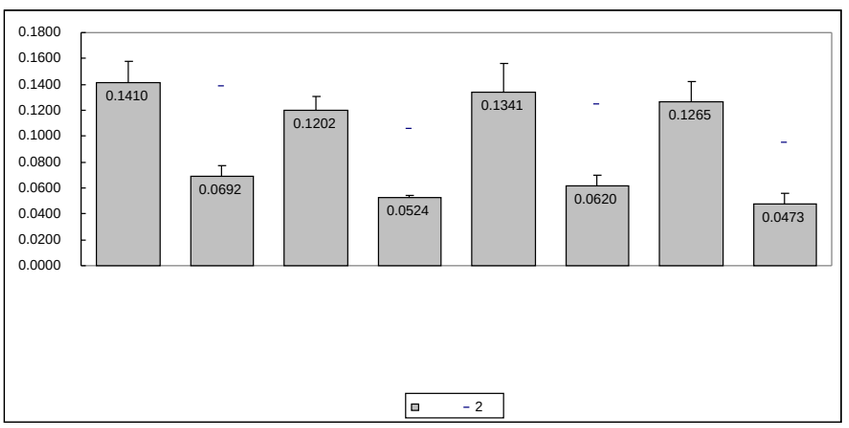
( )	0.1410 (0.0165)	0.0692 (0.0082)	0.1202 (0.0105)	0.0524 (0.0018)
[log]/	[1.0269]	0.1384	[1.1978]	0.1048

(24)(b) AE

(:)

( )	0.1341 (0.0218)	0.0620 (0.0076)	0.1265 (0.0155)	0.0473 (0.0082)
[log]/	[1.1133]	0.1240	[1.4186]	0.0947

(24)(¢ AE (:)



(25)(a) CB

(:)

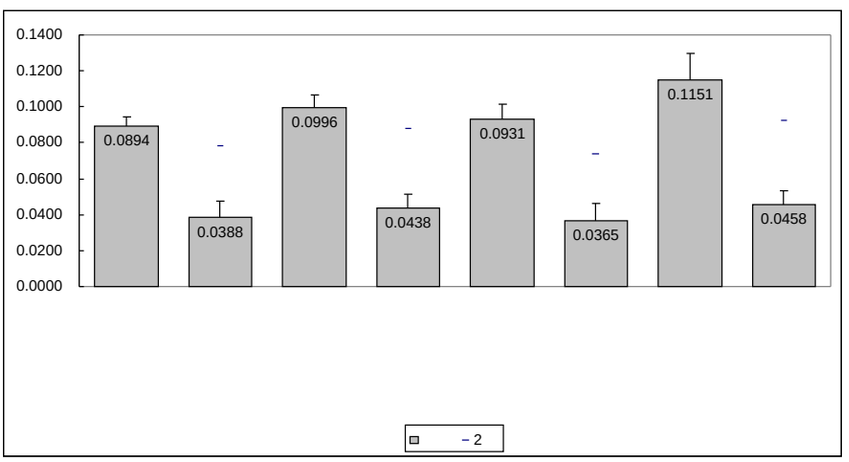
( )	0.0894 (0.0051)	0.0388 (0.0085)	0.0996 (0.0071)	0.0438 (0.0074)
[log]/	[1.2042]	0.0776	[1.1852]	0.0876

(25)(b) CB

(:)

( )	0.0931 (0.0084)	0.0365 (0.0096)	0.1151 (0.0144)	0.0458 (0.0075)
[log]/	[1.3527]	0.0729	[1.3291]	0.0916

(25)( ) CB (:)



(26)(a) CF

(:)

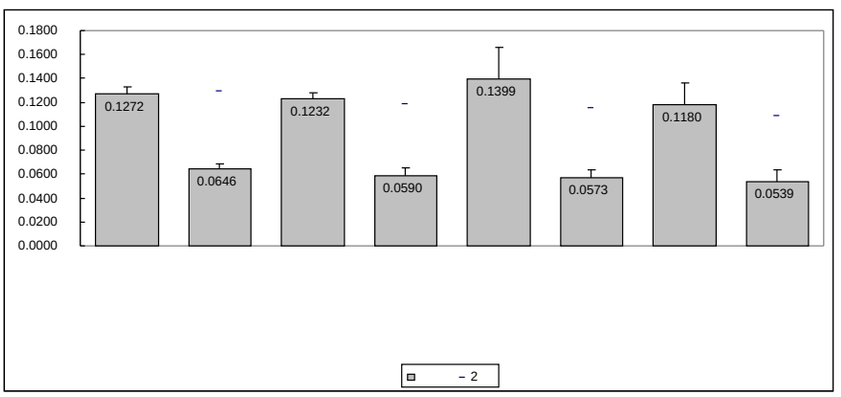
( )	0.1272 (0.0060)	0.0646 (0.0038)	0.1232 (0.0044)	0.0590 (0.0060)
[log]/	[0.9775]	0.1292	[1.0622]	0.1180

(26)(b) CF

(:)

( )	0.1399 0.0260	0.0573 0.0066	0.1180 0.0184	0.0539 0.0096
[log]/	[1.2890]	0.1145	[1.1295]	0.1079

(26)(c) CF (:)



(27)(a) MP

(:)

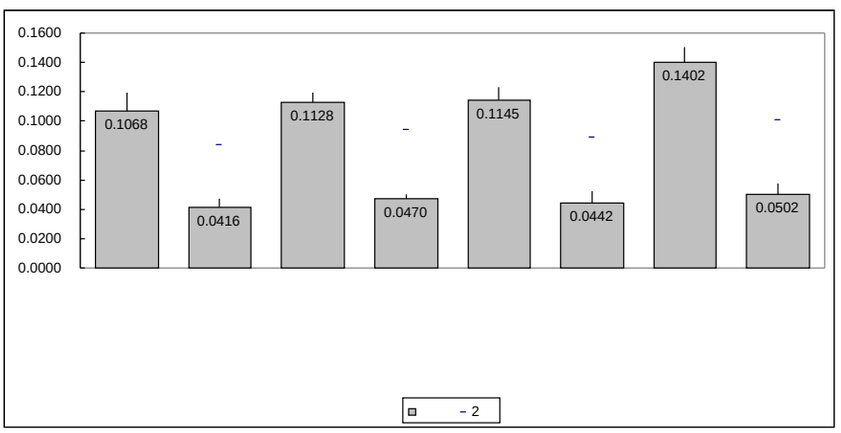
( )	0.1068 (0.0130)	0.0416 (0.0055)	0.1128 (0.0665)	0.0470 (0.0034)
[log]/	[1.3603]	0.0882	[1.2630]	0.0940

(27)(b) MP

(:)

( )	0.1145 (0.0083)	0.0442 (0.0082)	0.1402 (0.0104)	0.0502 (0.0074)
[log]/	[1.3736]	0.0884	[1.4817]	0.1004

(27)(¢ MP (:)



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강세 모음 지속 시간
log 무강세 모음 지속시간 [1.2042]

[1.4817] . 2.0376
2.7928 .

, CF

강세 모음 지속 시간
log 무강세 모음 지속시간

[0.9775], 1.9690 . CF
(21)

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강세 모음 지속 시간
log 무강세 모음 지속시간 [1.0622], 2.0881

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$$\log \frac{\text{강세 모음 지속 시간}}{\text{무강세 모음 지속시간}} \quad [1.2069]$$

[1.3603] , 2.3076 2.567

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$$\log \frac{\text{강세 모음 지속 시간}}{\text{무강세 모음 지속시간}} \quad [1.1133]$$

[1.4817] , 2.1629 2.7928

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(28)

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(a)

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(b)

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(c)

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(28)(a) (18)(a) (28)(b)

(28)(c) (18)(b) .

2.

‘1. :
’ ,
(28)(a)
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2.0376
2.7928 .

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(28)(b)

. Imperio & Rosenthal (1999)
‘ ’ ‘ ’
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Trubetzkoy (1939)
.[26]

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. (28)(b)
(18)(c)–(d) .

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26) Trubetzkoy (1939)
Wetzels (2000) .

(28)(c) ,

.[27]

(2006) . (28)(c)
(18)(e) .
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(29)
(a) .
(b)
.
(c) .

(1)(a) (1)(b)
(1)(c) (1)(d) .
(29) (14)
(15)
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(30)(a) [28]

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27) Wetzels(2000) Mateus & Andrade(2000, 117-118)
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28) H' SH' H'
SH' (14) (15) .

L H' L	σμ (σμμ) σμ	L L SH'	σμ σμ (σμμμ)
H H' L	σμμ (σμμ) σμ	H L SH'	σμμ σμ (σμμμ)
L SH' L	σμ (σμμμ) σμ	L H SH'	σμ σμμ (σμμμ)
H SH' L	σμμ (σμμμ) σμ	H H SH'	σμμ σμμ (σμμμ)

(30)(b)

H' L L	(σμμ) σμ <σμ>	L H´ H	σμ (σμμ) σμ<μ>
SH' L L	(σμμμ) σμ <σμ>	H H' H	σμμ (σμμ) σμ<μ>
L SH' L	σμ (σμμμ) <σμ>	L SH' H	σμ (σμμμ) σμ<μ>
H SH' L	σμμ (σμμμ) <σμ>	H SH' H	σμμ (σμμμ) σμ<μ>

(30)(a) (30)(b) (14) (15) ,

, L H

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SH ,

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2

3 . , CVμ

C ,

CV'μμC.

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CV'μμCμ.

. Vμ VμC

Vμ, VμCμ, VμVμ, VμVμCμ .

(30)(a) (30)(b)

(14) (15)

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3 (trimoraicity)

. 3 Broselow, Chen & Huffman(1997, 48)

. Kager(1999156)

FTBIN [29] 2

McCarthy & Prince(1993,43)

Roca & Johnson(1999, 605) (degenerate foot)

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29) FTBIN (Foot Binarity)(Kager 1999,156)

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, , Imperio & Rosenthall(199)

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Trubetzkoy(1939) .

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(2006), - ,
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Academia das Ciências de Lisboa (2001), Dicionário da Língua Portuguesa Contemporânea, Lisboa: Verbo.

Andrade, E. d' & M. C. Viana (1988), Ainda sobre o Ritmo e o Acento em Português, in Actas do Encontro da Associação Portuguesa de Linguística, Lisboa: Associação Portuguesa de Linguística, 3 - 16.

Broselow, E., S. Chen & M. Huffman (1997), Syllable Weight: Convergence of Phonology and Phonetics, Phonology 14, 47 - 82.

Chomsky, N. A. & Halle, M. (1968), The Sound Pattern of English. New York: Harper and Row.

Hayes, B. (1989), Compensatory Lengthening in Moraic Theory, Linguistic Inquiry 20, 253 - 306.

Hubbard, K. (1995), 'Prenasalised Consonants' and Syllable Timing: Evidence from Runyambo and Luganda, Phonology 12, 235 - 256.

Hyman, L. (1985), A Theory of Phonological Weight, Dordrecht: Foris.

Imperio, M. D' & S. Rosenthal (1999), Phonetics and Phonology of Main Stress in Italian, Phonology 16, 1 - 28.

Instituto Nacional de Investigação Científica & Centro de Linguística da Universidade de Lisboa (1984), Português Fundamental Vol. 1: Vocabulário e Gramática - Tomo 1: Vocabulário, Lisboa: Garcia & Carvalho.

Jacobs, H. (1994), Catalexis and Stress in Romance, in Mazzola (ed.) Issues and Theory in Romance Linguistics: Selected Papers from the 23rd Linguistics Symposium on Romance Languages, Washington, D.C.: Georgetown University Press. 49 - 65.

Kager, R. (1995), The Metrical Theory of Word Stress, in J. A. Goldsmith (ed.) The Handbook of Phonological Theory, Cambridge: Blackwell,

367 - 402.

_____(1999), Optimality Theory, Cambridge: Cambridge University Press.

Maddieson, I. & P. Ladefoged (1993), Phonetics of Patially Nasal Consonants, in M. Huffman & R. Krakow (eds.), Nasals, Nasalization, and the Velum, Orlando: Academic Press, 251 - 301.

Mateus, M. H. M. (1990), Fonética, Fonologia e Morfologia do Português Liaboa: Universidade Aberta.

Mateus, M. H. M. & E. d' Andrade (2000), The Phonology of Portuguese, New York: Oxford University Press Inc.

McCarthy, J. J. and A. Prince (1993), Prosodic Morphology I: Constraint Interaction and Satisfation, Ms, University of Massachusetts, Amherst, and Rutgers University New Brunswick, N.J. ROA Version (2001).

Myers, S. (1987), Vowel Shortening in English, Natural Languages and Linguistic Theory 5, 485-518.

Prince, A. (1983), Relating to the Grid, Linguistic Inquiry 14, 19 - 100.

_____(1990), Quantitative Consequences of Rhythmic Organization, in M. Ziolkowski, M. Noske, & K. Deaton (eds.), Papers from the 26th Regional Meeting of the Chicago Linguistic Society Vol. 2. Papers from the Parasession on the Syllable in Phonetics and Phonology, 355 - 398, Chicago: Chicago Linguistic Society Retrieved from the World Wide Web: http://equinox.rutgers.edu/gamma/qcro.pdf

Roca, I. & W. Johnson (1999), A Course in Phonology, Oxford: Blackwell.

Selkirk, E. (1980), The Role of Prosodic Categories in English Word Stress, Linguistic Inquiry 11, 563 - 605.

Teyssier, P. (1982), História da Língua Portuguesa, (Tradução de Celso Cunha), Lisboa: Sá da Costa.

Trubetzkoy, N. S. (1969), Principles of phonology, (Translated by C. A. M. Baltraxe) Berkeley & Los Angeles: University of California Press, 1939.

Wetzels, W. L. (2000), On the Relation between Quantity-Sensitive Stress and Distinctive Vowel Length: the History of a Principle and its Relevance for Romance, in C. R. Wiltshire & J. Camps (eds.), Romance Phonology and Variation, Philadelphia: John Benjamins, 219-234.

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