

! "# '\$ % & ' () * + , - . / : ;
* ' + " , # /

:#- ;67<=>96?< ;#

I; 3012 projec3, we 1; ve23lga3e Oow Spa; l20 2peaBer2 fro : Madrld a33e : p3 3o pro; o4; ce vowel2 of Parl2la; Fre; c0. Speciflcaally, we 1; ve23lga3e w0e30er 30e2e 2peaBer2 34r; 30e vowel2 1; 3o B; ow; vowel2, w0lc0 we refer 3o a2 Wc423er1; gX, or prod4ce a vowel o432lde of 30eir vowel 2pace by over-ar3lc4ca3l; g o; e a2pec3 of 30e vowel 1; a; a33e : p3 3o co : pe; 2a3e dlffere; ce2 30ey Oear 1; a dlffere; 3 a2pec3, w0lc0 we refer 3o a2 Wover20oo3l; gX. W0lce Cear; 1; g a ; ew Ca; g4age ca; be a; excl3l; g c0

F2, regardle22 of 30e ;4 : ber of vowel2 pre2e;3 1; 30e 2y23e : . I; addl3lo; , 30e way 1;3er; a0 vowel2
1; crea2e a2 ca; g4age 1; ve; 3orle2 are b4l03 12 very dl23l; c3 fro : 30e way perl0era0 vowel2 are added.
T012 wa2 ca3er rel3era3ed fro : 30e ldea 30a3 30e req4lre : e;3 of percep34a0 co;3ra23 predlc32 vowel
1; ve; 3orle2 JL1; db0o : 1986^.

T042, we a; alyze 0ow 2peaBer2 fro : a ca; g4age wl30o43 ; o; -perl0

cc423er1;g. If a vowel 0a2 bee; placed far fro : w0ere 13 20o4cd 0ave bee; placed 1; 30e Fre;c0
vowel 2pace, we call 3012 over20oo31;g. We Oope 3o a;2wer 30e follow1;g q4e23lo;2:]1^ Do Spa;l20

Effects of

Fl; all, for 30e a4dl3ory a; aly2l2, 3wo : odel2 were 42ed: 30e Zlca; y e3 al. J201g^ : odel for 30e AN, a; d 30e SFIE : odel for 30e IC, flr23 1; 3rod4ced by Ne2o; & Car; ey J200g^ . T0e AN : odel co : p43e2 ; e4racl re2po; 2e2 1; 30e AN for dlffere; 3 C0arac3erl23lc Freq4e; cle2 JCF2^ . T0e IC : odel acco4; 32 for dlffere; ce2 1; 30e 3e : poral e; velope, : ea24rl; g 30e2e c0a; ge2, 3o predlc3 0ow IC ; e4ro; 2 re2po; d 3o a : pl34de- : od4ca3ed 23l : 4cl. T0e2e ; e4ro; 2 po22e22 a; average flrl; g ra3e 34; ed 3o : od4ca3lo; freq4e; cy. T0e SFIE : odel 3042 co; 2lder2 30e p0y2l0c0gical : ec0a; l2 : 2 of

Figure 2 shows the variability across all 2000 speakers, and the vowel are more consistently placed. The French vowel also appears to be placed in a similar area for all 2000 speakers.

Figure 5 shows the average IC rate for the /y/ and /ɔ/ vowels in the two dialects. The /y/ vowel shows a higher average IC rate in the /y/ dialect compared to the /ɔ/ dialect. The /ɔ/ vowel shows a higher average IC rate in the /ɔ/ dialect compared to the /y/ dialect. The average IC rate for the /y/ vowel in the /y/ dialect is approximately 100 Hz, while in the /ɔ/ dialect it is approximately 80 Hz. The average IC rate for the /ɔ/ vowel in the /y/ dialect is approximately 60 Hz, while in the /ɔ/ dialect it is approximately 40 Hz. The average IC rate for the /y/ vowel in the /y/ dialect is approximately 100 Hz, while in the /ɔ/ dialect it is approximately 80 Hz. The average IC rate for the /ɔ/ vowel in the /y/ dialect is approximately 60 Hz, while in the /ɔ/ dialect it is approximately 40 Hz.



Figure 6: SFIE plots showing average IC rate (BMF=100 Hz) for the /y/ and /ɔ/ vowels in the two dialects. The plots show the average IC rate for the /y/ vowel in the /y/ dialect (top plot) and the /y/ vowel in the /ɔ/ dialect (bottom plot). The /y/ vowel in the /y/ dialect shows a higher average IC rate compared to the /y/ vowel in the /ɔ/ dialect.

The average IC rate for the /y/ vowel in the /y/ dialect is approximately 100 Hz, while in the /ɔ/ dialect it is approximately 80 Hz. The average IC rate for the /ɔ/ vowel in the /y/ dialect is approximately 60 Hz, while in the /ɔ/ dialect it is approximately 40 Hz. The average IC rate for the /y/ vowel in the /y/ dialect is approximately 100 Hz, while in the /ɔ/ dialect it is approximately 80 Hz. The average IC rate for the /ɔ/ vowel in the /y/ dialect is approximately 60 Hz, while in the /ɔ/ dialect it is approximately 40 Hz.

Q#0?59>55?<;

QF:#* <HBE#& I89B#

Results from the SFIE plots for the /y/ and /ɔ/ vowels in the two dialects. The /y/ vowel shows a higher average IC rate in the /y/ dialect compared to the /ɔ/ dialect. The /ɔ/ vowel shows a higher average IC rate in the /ɔ/ dialect compared to the /y/ dialect. The average IC rate for the /y/ vowel in the /y/ dialect is approximately 100 Hz, while in the /ɔ/ dialect it is approximately 80 Hz. The average IC rate for the /ɔ/ vowel in the /y/ dialect is approximately 60 Hz, while in the /ɔ/ dialect it is approximately 40 Hz. The average IC rate for the /y/ vowel in the /y/ dialect is approximately 100 Hz, while in the /ɔ/ dialect it is approximately 80 Hz. The average IC rate for the /ɔ/ vowel in the /y/ dialect is approximately 60 Hz, while in the /ɔ/ dialect it is approximately 40 Hz.

acq41213lo;. Specificallcy, 30e 234dle2 co40d abe3 g41de2 0a;d01;g barrler2 of pro;4;cla3lo;, w0lc0 co40d dra231ca0cy c0a;ge 30e acc4racy a;d efflcle;cy 1; 0a;g4age2 w130 0arge vowel 1;ve;3orle2 a;d ac43e ;4a;ce2 24c0 a2 Fre;c0.

R#%<;9E>5?<;#

T012 234dy wa2 do;e w130 30e 2e0ec3ed Fre;c0 vowel2 /y/, / /, /0/, /0e/ a;d / /. Re24032 24gge23 30a3

Effec

Effects of French Inventory on Vowel