CLASS, GENDER, AND SUBSTRATE ERASURE IN SOCIOLINGUISTIC CHANGE: A SOCIOPHONETIC STUDY OF SCHWA IN DERACIALIZING SOUTH AFRICAN ENGLISH:

ONLINE SUPPLEMENTARY MATERIALS 3e: MEDIAL 'U-SCHWA'

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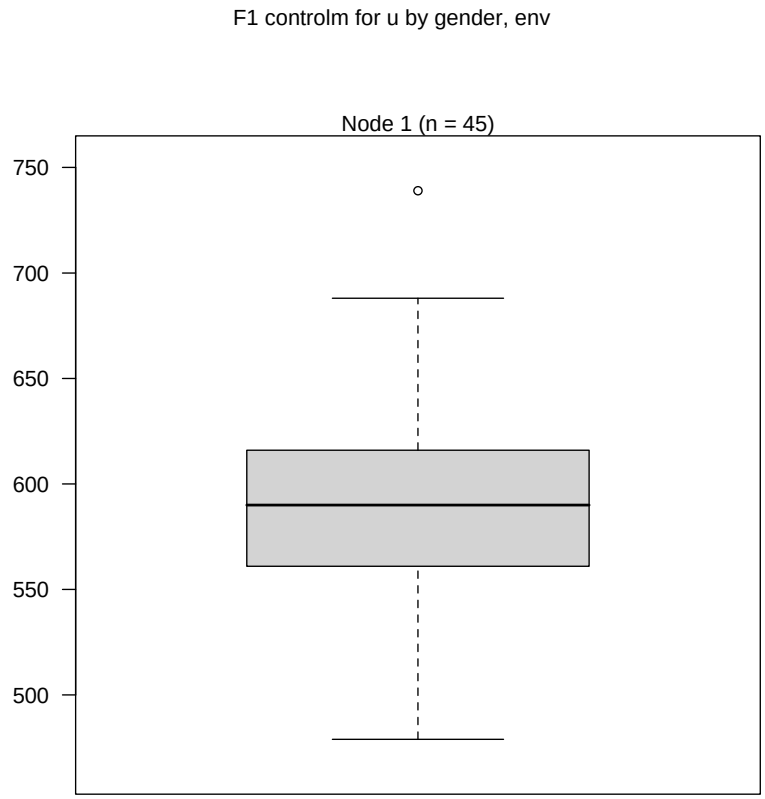
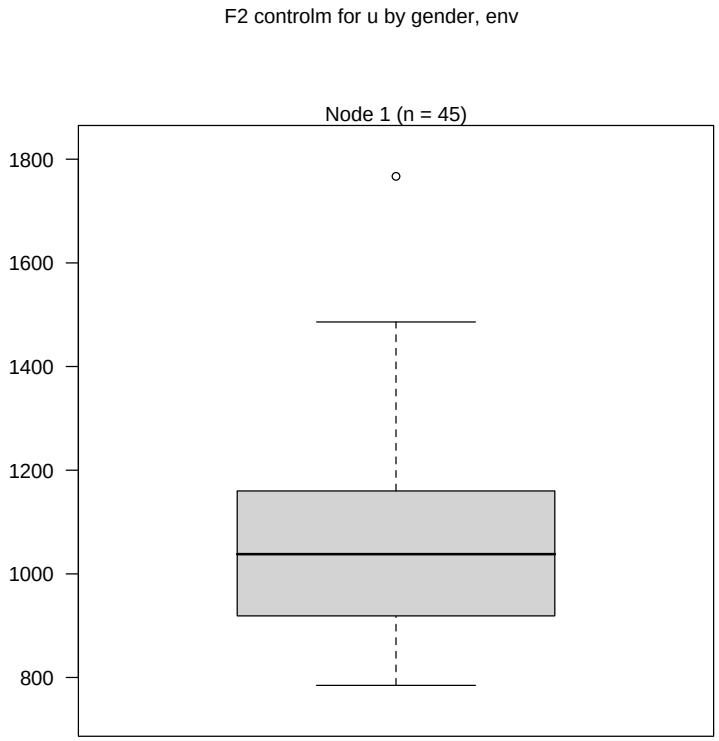
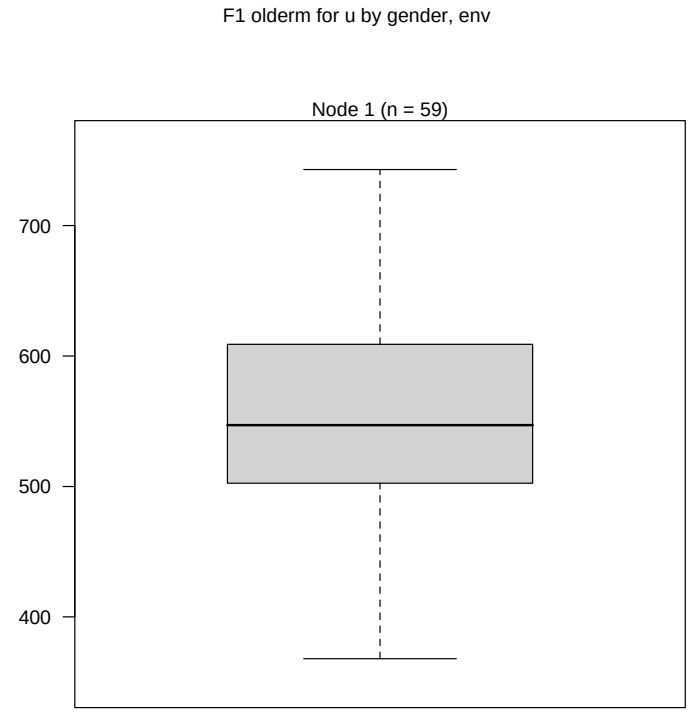
m ENVIRONMENT = medial schwa; fifth subtype: medial 'u-schwa'

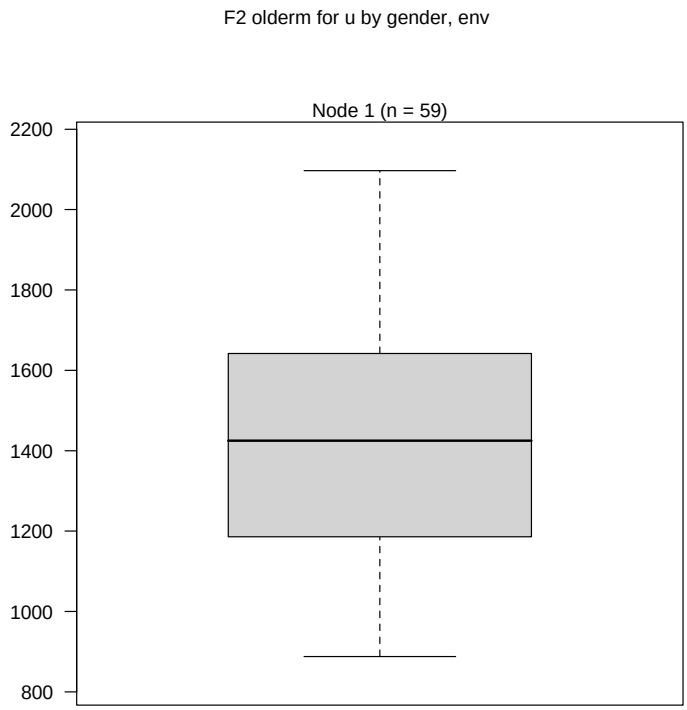
CONTROL GROUP (WHITES): AMPLIFICATION OF DETAILS IN §4.4 OF THE MAIN TEXT. Medial environment, for 'u'. The medial environment has 162 'a', 163 'e', seventy-three 'i', thirty 'o', **forty-five 'u'**. No C-forest diagrams were generated, and there was not enough data to run a linear mixed-effects regression model; conditional inference trees are given below.




F2 controlm for u by gender, env
Node 1 (n = 45)
1800
1600
1400
1200
1000
800

OLDER CONTROL GROUP (BLACK SPEAKERS; §4.4). Medial environment, for ‘u’. The medial environment has 152 ‘a’, 137 ‘e’, fifty-seven ‘i’, twenty-five ‘o’, **fifty-nine ‘u’**. No C-forest diagrams were generated; conditional inference trees and results of linear mixed-effects regression model given below.





```
> olderm$env <- relevel(olderm$env, ref="mG")
> lmer=lmer(f1 ~ gender + env + (1|speaker) + (1|word), data= ol
> summary(lmer)
Linear mixed model fit by REML ['merModLmerTest']
Formula: f1 ~ gender + env + (1 | speaker) + (1 | word)
   Data: olderm[olderm$vowel == "u", ]

REML criterion at convergence: 663.7

Scaled residuals:
     Min       1Q   Median       3Q      Max
-2.20673 -0.58624 -0.05053  0.63355  2.21280

Random effects:
 Groups   Name        Variance Std.Dev.
 word     (Intercept)    0      0.00
 speaker  (Intercept)    0      0.00
 Residual             7200     84.85
Number of obs: 59, groups:  word, 10; speaker, 9

Fixed effects:
            Estimate Std. Error      df t value Pr(>|t|)
(Intercept)  562.288     16.485  56.000  34.108   <2e-16 ***
genderM       -7.045     22.176  56.000  -0.318    0.752
envmN        -42.765     61.050  56.000  -0.700    0.487
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

```
> olderm$env <- relevel(olderm$env, ref="mG")
> lmer=lmer(f2 ~ gender + env + (1|speaker) + (1|word), data=
> summary(lmer)
Linear mixed model fit by REML ['merModLmerTest']
Formula: f2 ~ gender + env + (1 | speaker) + (1 | word)
   Data: olderm[olderm$vowel == "u", ]

REML criterion at convergence: 803.2

Scaled residuals:
     Min       1Q   Median       3Q      Max
-1.84340 -0.61013 -0.00193  0.64017  2.41760

Random effects:
 Groups   Name        Variance Std.Dev.
 word     (Intercept)     0      0.00
 speaker  (Intercept)  7607     87.22
 Residual             82748    287.66
Number of obs: 59, groups:  word, 10; speaker, 9

Fixed effects:
            Estimate Std. Error      df t value Pr(>|t|)
(Intercept)  1415.40      73.54    6.26  19.247 8.31e-07 ***
genderM       -14.87     100.14    5.65  -0.148    0.887
envmN         231.18     214.96   54.90   1.075    0.287
```

CORE GROUP (YOUNGER BLACK SPEAKERS; §4.5). Medial environment, for 'u'. The medial environment has 682 'a', 820 'e', 376 'i', ninety-six 'o', **183 'u'**. C-forest diagrams given below, followed by conditional inference trees and results of linear mixed-effects regression model.

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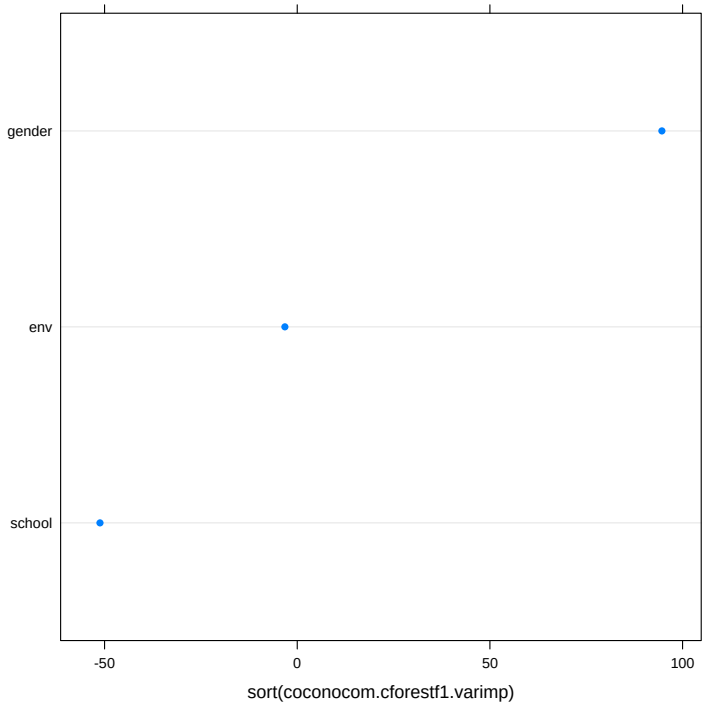
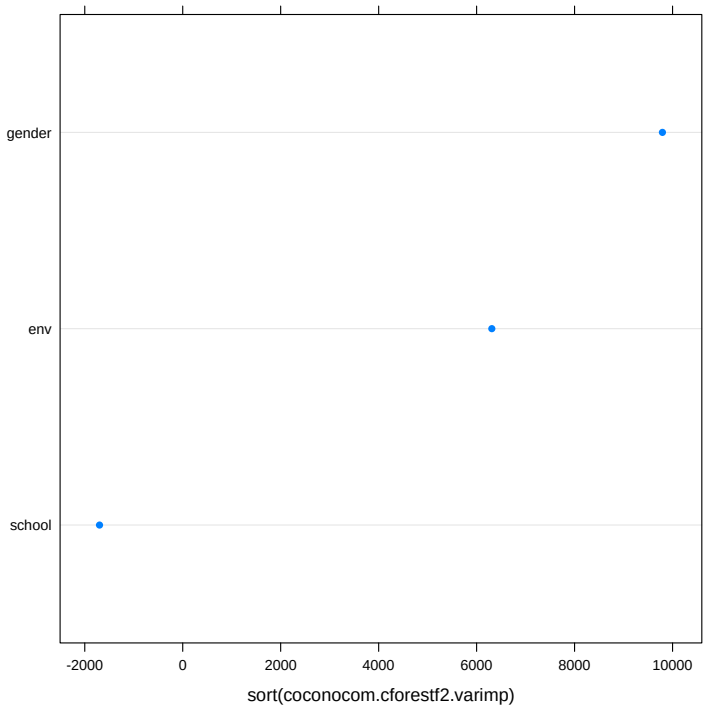
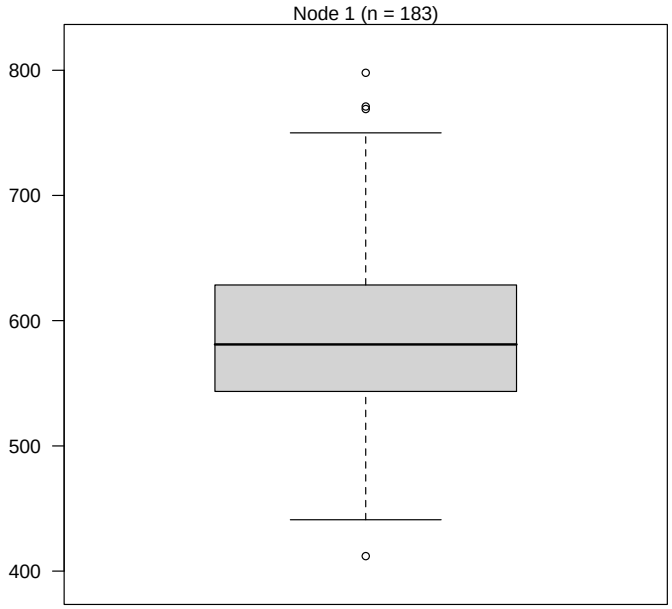
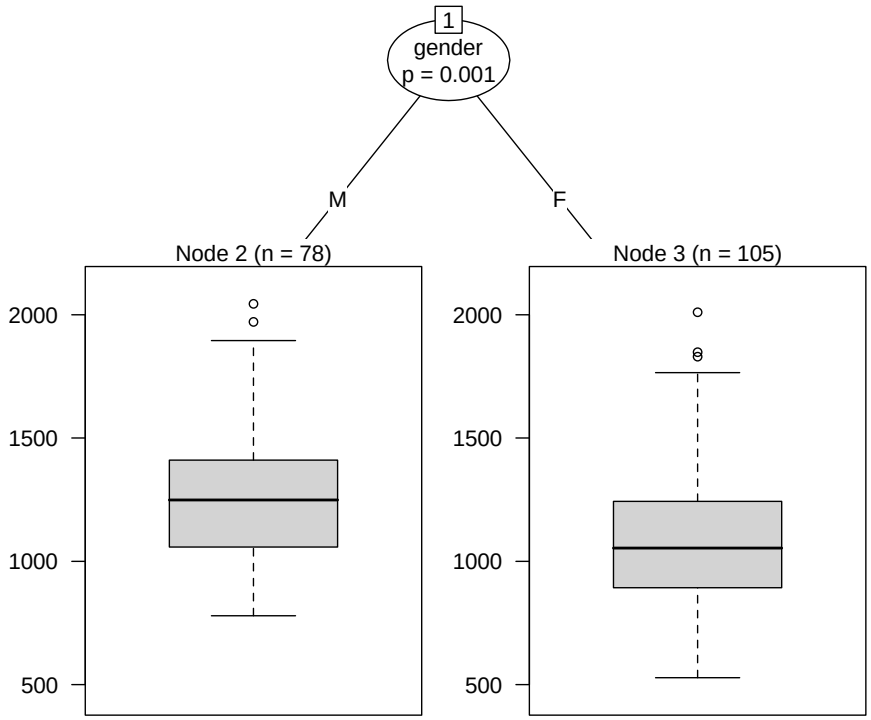




F1 COCONOCO m env 'u'



F2 COCONOCO m env 'u'



```
> lmer<-lmer(f1 ~ school + gender + env + (1|speaker) + (1|w
> anova(lmer)
Analysis of Variance Table of type 3  with  Satterthwaite
approximation for degrees of freedom
       Sum Sq Mean Sq NumDF  DenDF F.value  Pr(>F)
school   56.2    56.2     1 41.574  0.0164 0.89868
gender 3957.5  3957.5     1 35.246  1.7548 0.19380
env    9247.2  9247.2     1 89.486  3.4420 0.06685 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' '
> summary(lmer)
Linear mixed model fit by REML ['merModLmerTest']
Formula: f1 ~ school + gender + env + (1 | speaker) + (1 | w
   Data: coconocom[coconocom$vowel == "u", ]

REML criterion at convergence: 1992.3

Scaled residuals:
    Min      1Q  Median      3Q     Max
-3.3102 -0.5467  0.0206  0.5378  2.7623

Random effects:
 Groups   Name        Variance Std.Dev.
 speaker  (Intercept) 2084.3   45.65
 word     (Intercept)  142.6   11.94
 Residual             2686.6   51.83
Number of obs: 183, groups:  speaker, 44; word, 35

Fixed effects:
            Estimate Std. Error     df t value Pr(>|t|)
(Intercept)   604.37      13.10  27.64  46.149   <2e-16 ***
schoolN         2.09      16.31  41.57   0.128   0.8987
genderM       -22.36      16.88  35.25  -1.325   0.1938
envmN         -79.27      42.73  89.49  -1.855   0.0669 .
```

```
>
> lmer<-lmer(f2 ~ school + gender + env + (1|speaker) + (1|word
> anova(lmer)
Analysis of Variance Table of type 3  with  Satterthwaite
approximation for degrees of freedom
       Sum Sq Mean Sq NumDF   DenDF F.value  Pr(>F)
school 122596  122596     1  36.400  0.5872 0.44843
gender 340056  340056     1  33.468  6.0920 0.01885 *
env    444646  444646     1 151.771  6.7480 0.01031 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
> summary(lmer)
Linear mixed model fit by REML ['merModLmerTest']
Formula: f2 ~ school + gender + env + (1 | speaker) + (1 | word
   Data: coconocom[coconocom$vowel == "u", ]

REML criterion at convergence: 2534.8

Scaled residuals:
    Min      1Q  Median      3Q     Max
-1.6162 -0.6494 -0.1288  0.4744  3.2983

Random effects:
 Groups   Name        Variance Std.Dev.
 speaker  (Intercept) 15015    122.5
 word     (Intercept)  1832     42.8
 Residual             65893    256.7
Number of obs: 183, groups:  speaker, 44; word, 35

Fixed effects:
            Estimate Std. Error      df t value Pr(>|t|)
(Intercept)  1111.68      45.20   20.79  24.595   <2e-16 ***
schoolN        43.60      56.90   36.40   0.766   0.4484
genderM       142.31      57.66   33.47   2.468   0.0189 *
envmN         516.18     198.71  151.77   2.598   0.0103 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

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