

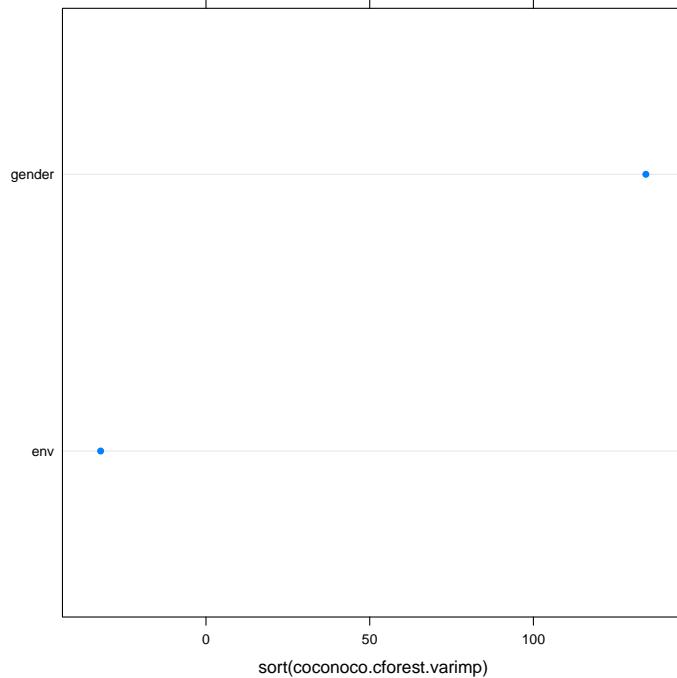
CLASS, GENDER, AND SUBSTRATE ERASURE IN SOCIOLINGUISTIC CHANGE: A  
SOCIOPHONETIC STUDY OF SCHWA IN DERACIALIZING SOUTH AFRICAN ENGLISH:

ONLINE SUPPLEMENTARY MATERIALS 1: FINAL SCHWA

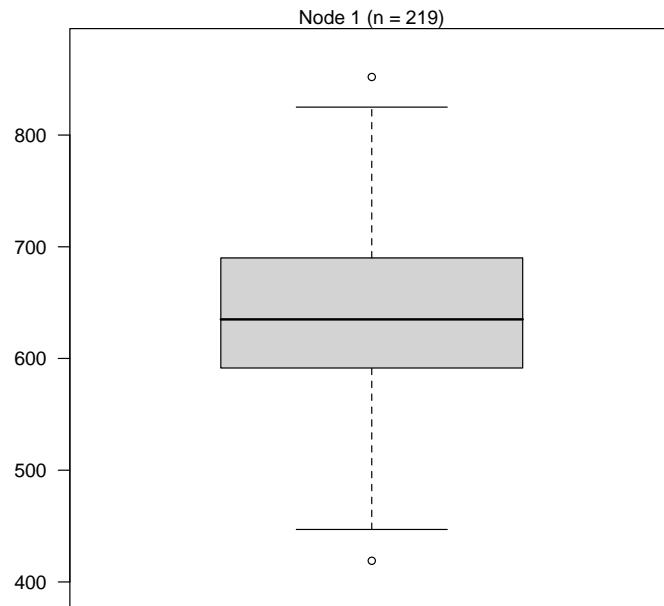
RAJEND MESTHRIE  
*University of Cape Town*

**f ENVIRONMENT = final schwa**

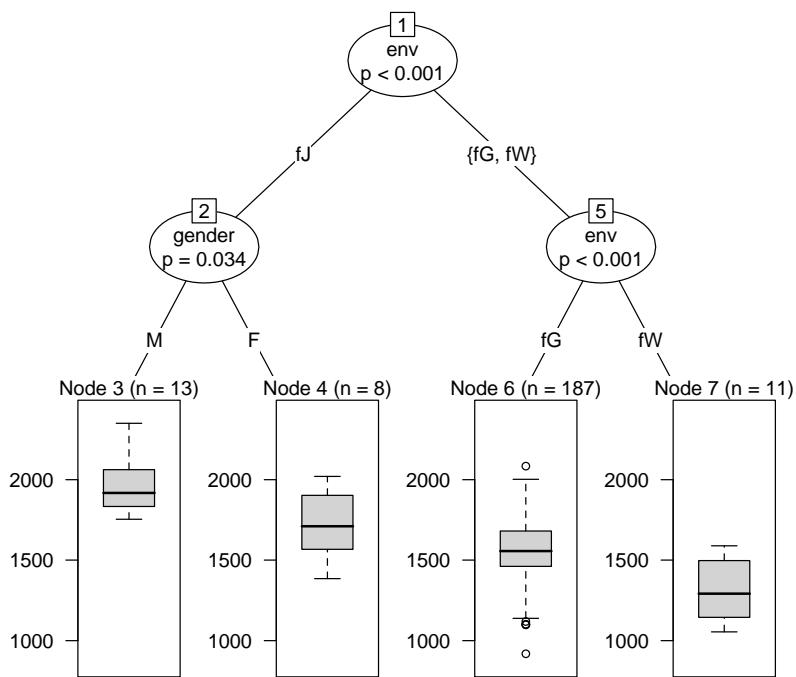
CONTROL GROUP (WHITES): AMPLIFICATION OF DETAILS IN §4.4 OF THE MAIN TEXT. Final environment, for 'schwa'. The environment does not differentiate subtypes for schwa, having just 'a' ( $n = 219$ ). C-forest diagram given below, followed by conditional inference trees and results of linear mixed-effects regression model.



F1 controlf for 'a' vowel by gender, env



F2 controlf for 'a' vowel by gender, env



```
> lmer=f1 ~ gender + env + (1|speaker) + (1|word), data=controlf
> summary(lmer)
Linear mixed model fit by REML ['merModLmerTest']
Formula: f1 ~ gender + env + (1 | speaker) + (1 | word)
Data: controlf

REML criterion at convergence: 2489

Scaled residuals:
    Min      1Q  Median      3Q     Max 
-2.69700 -0.58202 -0.05392  0.67198  2.63356 

Random effects:
Groups   Name        Variance Std.Dev.
word     (Intercept) 571.1   23.90
speaker  (Intercept) 195.8   13.99
Residual            5262.0  72.54
Number of obs: 219, groups: word, 78; speaker, 12

Fixed effects:
            Estimate Std. Error    df t value Pr(>|t|)    
(Intercept) 628.694    10.117   9.350 62.142 1.5e-13 ***
genderM     22.285    13.553   8.430  1.644   0.137    
envfJ       7.387    19.565  68.640  0.378   0.707    
envfW      18.722    28.924  29.350  0.647   0.522    
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Correlation of Fixed Effects:
          (Intr) gendrM envfJ
genderM -0.636
envfJ   -0.184 -0.053
envfW   -0.181  0.054  0.069
```

```
> lmer=lmer(f2 ~ gender + env + (1|speaker) + (1|word), data=controlf)
> summary(lmer)
Linear mixed model fit by REML ['merModLmerTest']
Formula: f2 ~ gender + env + (1 | speaker) + (1 | word)
Data: controlf

REML criterion at convergence: 2859

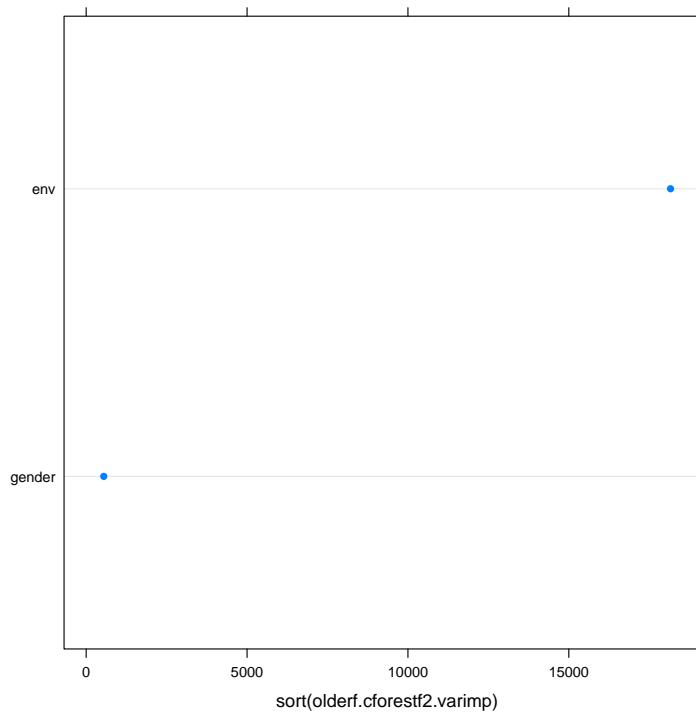
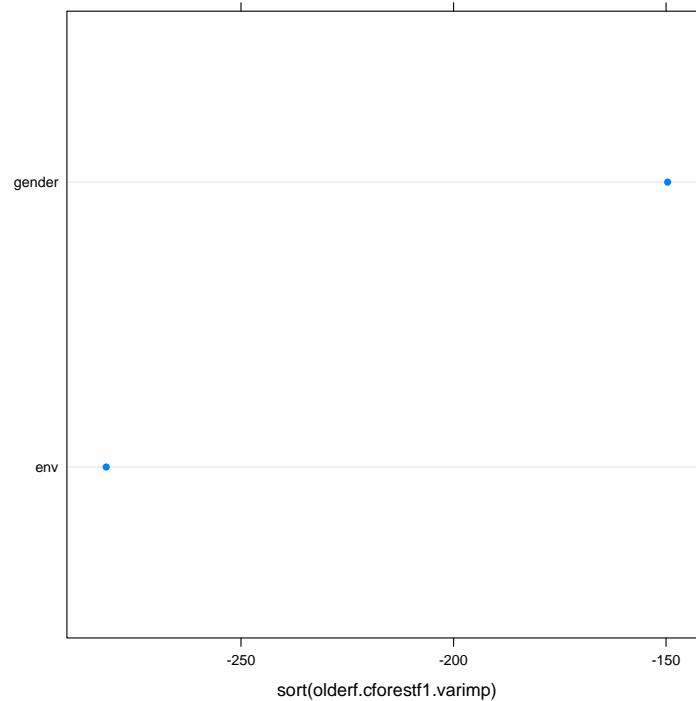
Scaled residuals:
    Min      1Q  Median      3Q     Max 
-3.3983 -0.4944  0.0258  0.6002  2.2386 

Random effects:
Groups   Name        Variance Std.Dev. 
word     (Intercept) 8337     91.31  
speaker  (Intercept) 2448     49.47  
Residual            25994    161.23  
Number of obs: 219, groups: word, 78; speaker, 12

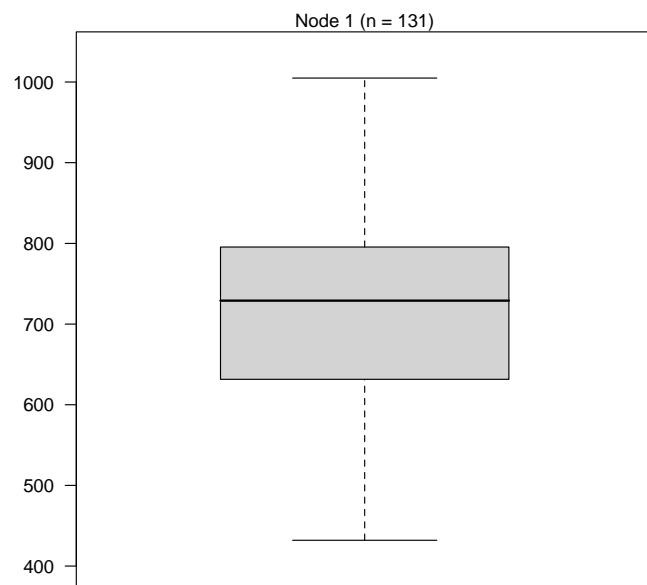
Fixed effects:
            Estimate Std. Error    df t value Pr(>|t|)    
(Intercept) 1535.42     29.85  10.76 51.441 3.15e-14 ***
genderM      54.06     38.73   8.57  1.396  0.1980    
envfJ        252.15     51.59  71.07  4.887 6.12e-06 ***
envfW       -238.65     81.72  38.75 -2.920  0.0058 **  
---
Signif. codes:  0 '****' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:
          (Intr) gendrM envfJ
genderM -0.626                
envfJ   -0.192 -0.029        
envfW   -0.159  0.040  0.074
```

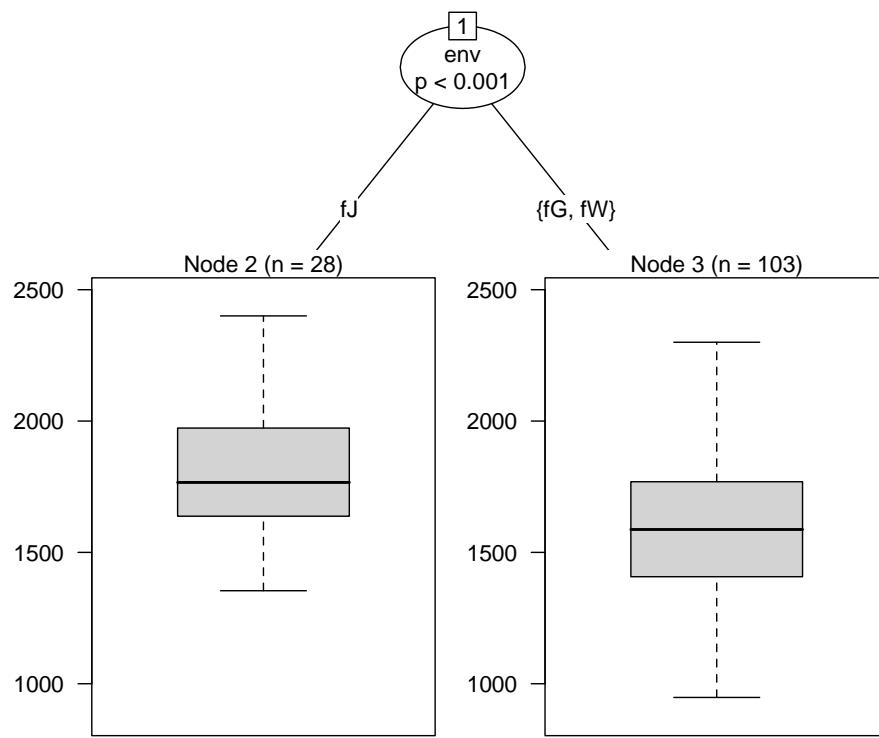
OLDER CONTROL GROUP = OLDER BLACK SOUTH AFRICAN ENGLISH (§4.4). Final environment, for ‘a’. The final environment has **131 ‘a’**, ten ‘e’. C-forest diagrams given below, followed by conditional inference trees and results of linear mixed-effects regression model.



F1 olderf for 'a' vowel by gender, env



F2 olderf for 'a' vowel by gender, env



```

> lmer=lmer(f1 ~ gender + env + (1|speaker) + (1|word), data=olderf[olderf$vowel=="a",])
> summary(lmer)
Linear mixed model fit by REML ['merModLmerTest']
Formula: f1 ~ gender + env + (1 | speaker) + (1 | word)
Data: olderf[olderf$vowel == "a", ]

REML criterion at convergence: 1592.5

Scaled residuals:
    Min      1Q  Median      3Q     Max 
-2.3240 -0.6876  0.1379  0.6526  2.4920 

Random effects:
Groups   Name        Variance Std.Dev.
word     (Intercept) 0         0.0
speaker  (Intercept) 0         0.0
Residual           14750    121.4
Number of obs: 131, groups: word, 55; speaker, 12

Fixed effects:
            Estimate Std. Error       df t value Pr(>|t|)    
(Intercept) 714.247    14.172 127.000  50.397 <2e-16 ***
genderM      9.534    22.587 127.000   0.422   0.674  
envfJ     -11.905    26.194 127.000  -0.454   0.650  
envfW      48.741    51.095 127.000   0.954   0.342  
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Correlation of Fixed Effects:
(Intr) gendrM envfJ
genderM -0.493
envfJ   -0.359 -0.103
envfW   -0.205 -0.011  0.115

> lmer=lmer(f2 ~ gender + env + (1|speaker) + (1|word), data=olderf[olderf$vowel=="a",])
> summary(lmer)
Linear mixed model fit by REML ['merModLmerTest']
Formula: f2 ~ gender + env + (1 | speaker) + (1 | word)
Data: olderf[olderf$vowel == "a", ]

REML criterion at convergence: 1774.9

Scaled residuals:
    Min      1Q  Median      3Q     Max 
-1.8629 -0.6542  0.0171  0.5496  2.9767 

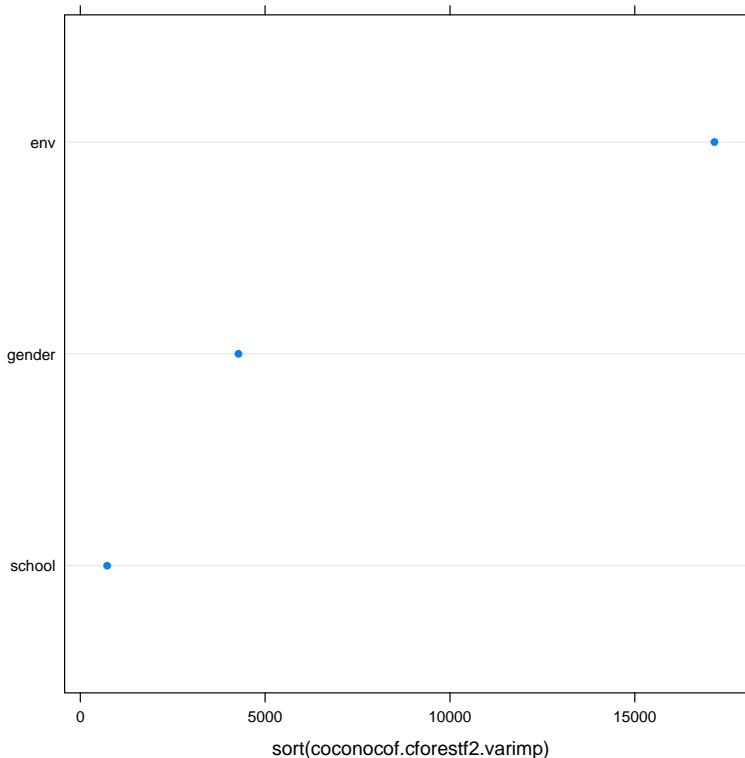
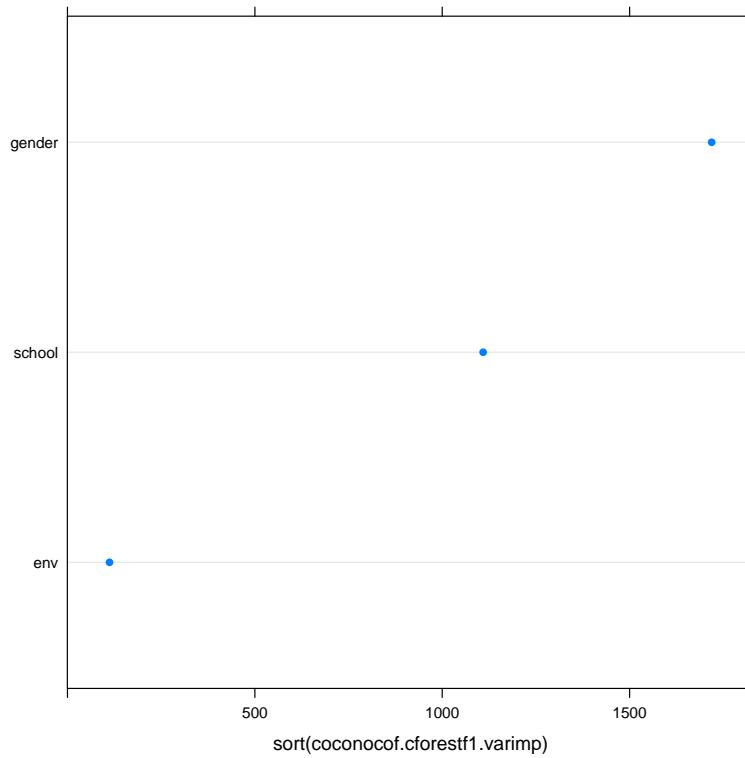
Random effects:
Groups   Name        Variance Std.Dev.
word     (Intercept) 6786     82.37
speaker  (Intercept) 0         0.00
Residual           56743    238.21
Number of obs: 131, groups: word, 55; speaker, 12

Fixed effects:
            Estimate Std. Error       df t value Pr(>|t|)    
(Intercept) 1617.97     32.63  30.37 49.586 <2e-16 ***
genderM     -58.53     47.17 122.88 -1.241 0.217023  
envfJ      239.02     64.78  15.80  3.690 0.002021 **  
envfW     -439.07    116.15  28.53 -3.780 0.000738 *** 
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

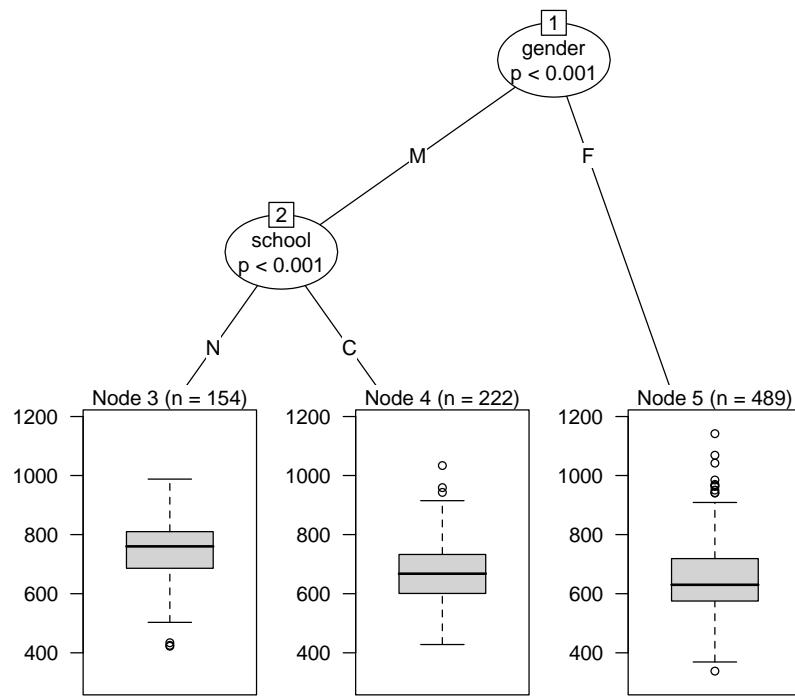
Correlation of Fixed Effects:
(Intr) gendrM envfJ
genderM -0.440
envfJ   -0.346 -0.137
envfW   -0.227  0.001  0.114

```

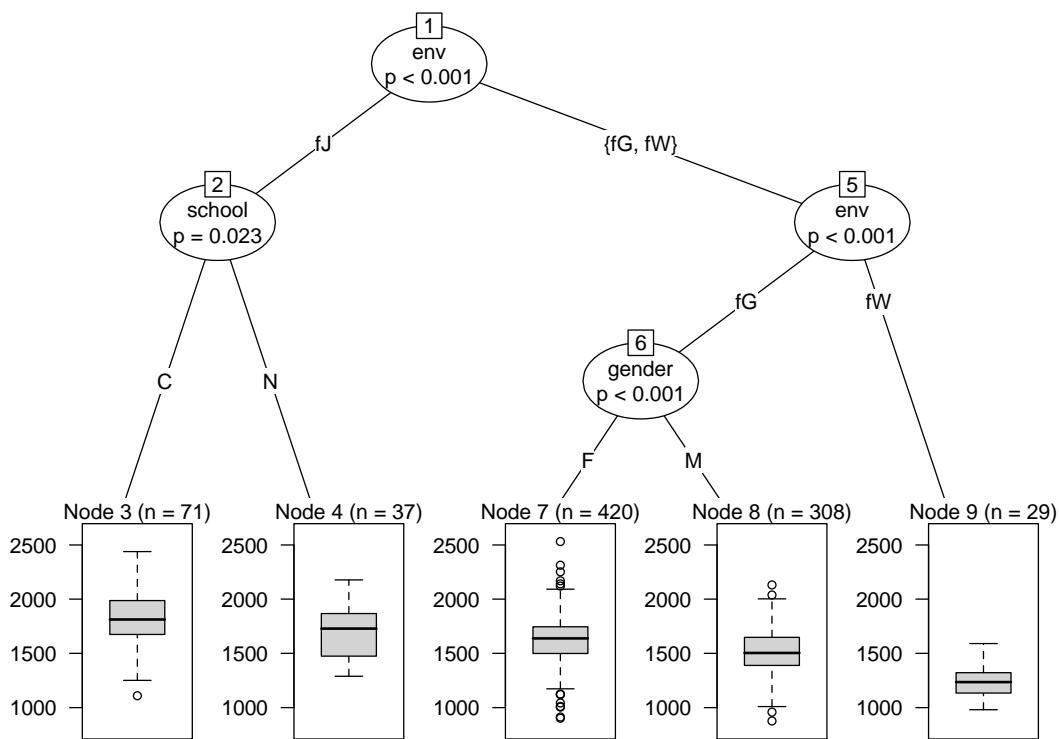
CORE GROUP OF YOUNG BLACK SPEAKERS (§4.5). Final environment, for ‘a’. The final environment has **865** ‘a’, two ‘e’, two ‘i’, and one ‘u’. C-forest diagrams given below, followed by conditional inference trees and results of linear mixed-effects regression model.



F1 coconocof for 'a' vowel by gender, env, school



F2 coconocof for 'a' vowel by gender, env, school



```
> lmer=f1 ~ gender + env + school + (1|speaker) + (1|word), data=coconocof
> summary(lmer)
Linear mixed model fit by REML ['merModLmerTest']
Formula: f1 ~ gender + env + school + (1 | speaker) + (1 | word)
Data: coconocof[coconocof$vowel == "a", ]

REML criterion at convergence: 10487.5

Scaled residuals:
    Min      1Q  Median      3Q     Max 
-3.0673 -0.6195 -0.0705  0.5686  4.7181 

Random effects:
 Groups   Name        Variance Std.Dev. 
 word     (Intercept) 610.2   24.70  
 speaker  (Intercept) 1026.2   32.03  
 Residual           10281.6  101.40  
Number of obs: 865, groups: word, 153; speaker, 53

Fixed effects:
            Estimate Std. Error    df t value Pr(>|t|)    
(Intercept) 642.777    9.562 60.830 67.221 < 2e-16 ***
genderM     45.345   11.777 44.490  3.850 0.000374 ***
envfJ      -15.593   14.898 100.770 -1.047 0.297765  
envfW       29.823   26.206  76.990  1.138 0.258635  
schoolN     44.019   11.819  51.180  3.725 0.000489 *** 
---
Signif. codes:  0 '****' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:
            (Intr) gendrM envfJ envfW 
genderM   -0.511                
envfJ     -0.202  0.010            
envfW     -0.093 -0.027  0.087  
schoolN   -0.411 -0.073 -0.012 -0.027
>
```

```

> lmer=f2 ~ gender + env + school + (1|speaker) + (1|word), data= coc
> summary(lmer)
Linear mixed model fit by REML ['merModLmerTest']
Formula: f2 ~ gender + env + school + (1 | speaker) + (1 | word)
Data: coconocof[coconocof$vowel == "a", ]

REML criterion at convergence: 11653.7

Scaled residuals:
    Min      1Q  Median      3Q     Max 
-3.4359 -0.5568  0.0128  0.5749  3.8858 

Random effects:
Groups   Name        Variance Std.Dev.
word     (Intercept) 5105     71.45
speaker  (Intercept) 2860     53.47
Residual            39138    197.83
Number of obs: 865, groups: word, 153; speaker, 53

Fixed effects:
            Estimate Std. Error    df t value Pr(>|t|)    
(Intercept) 1622.60     18.59    74.59 87.282 < 2e-16 ***
genderM     -87.89     21.26    49.35 -4.133 0.000138 ***
envfJ       258.17     33.35    93.22  7.740 1.16e-11 ***
envfW      -329.87     60.40    60.89 -5.461 9.23e-07 ***
schoolN    -35.98     21.44    55.52 -1.678 0.098950 .  
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Correlation of Fixed Effects:
          (Intr) gendrM envfJ  envfW
genderM -0.483
envfJ   -0.246  0.016
envfW   -0.115 -0.018  0.081
schoolN -0.381 -0.071  0.000 -0.030

```

[rajend.mesthrie@uct.ac.za]