# Regressors for Le Petit Prince.

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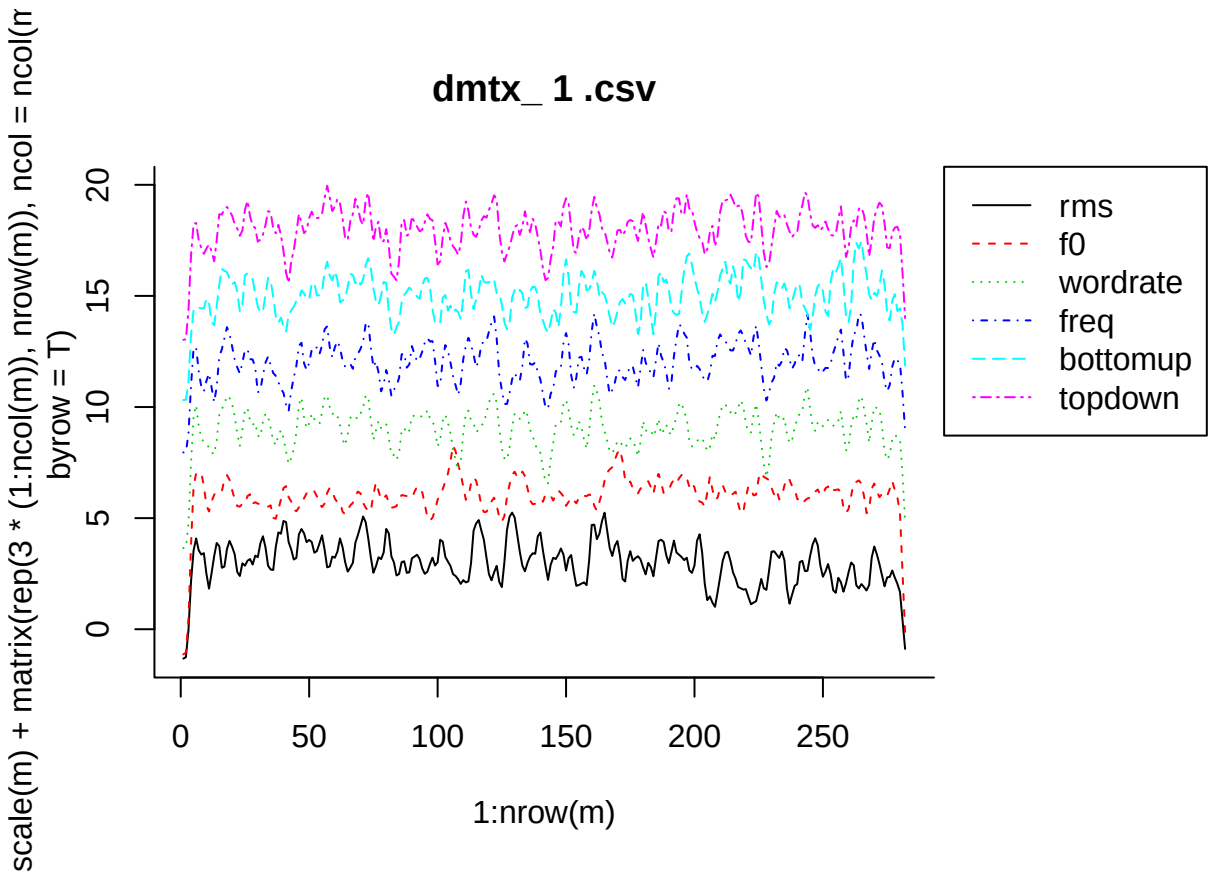
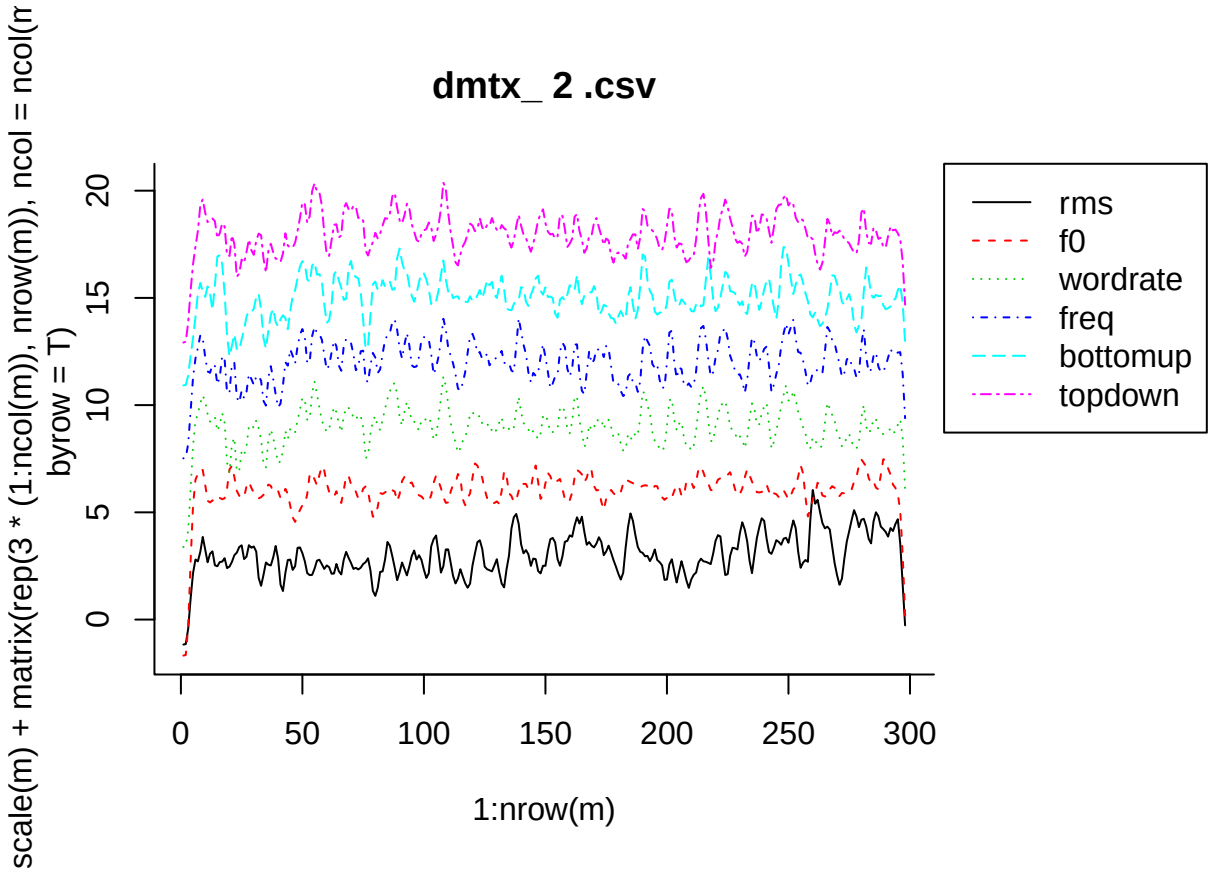
For each session, we load the design matrix, plot the regressors (Note: All the variables are scaled, and shifted relative to one another for the plotting), and print the pairwise correlations and the variance inflation factors.

```
par(mar=c(5.1, 4.1, 4.1, 8.1), xpd=TRUE)
for (i in 1:9)
{
  m = a[[i]]
  matplot(1:nrow(m), scale(m) + matrix(rep(3*(1:ncol(m)), nrow(m)), ncol=ncol(m), byrow=T), type='l', b
  legend('topright', inset=c(-0.35, 0), legend=names(m), lty=1:ncol(m), col=1:ncol(m))
  print('pair-wise correlations: ')
  print(signif(cor(m), 2))
  y = rnorm(nrow(m))
  lmm = lm(y ~ wordrate + rms + f0 + freq + bottomup + topdown, data=m)
  print('Variance Inflation Factors:')
  print(vif(lmm))
}
```

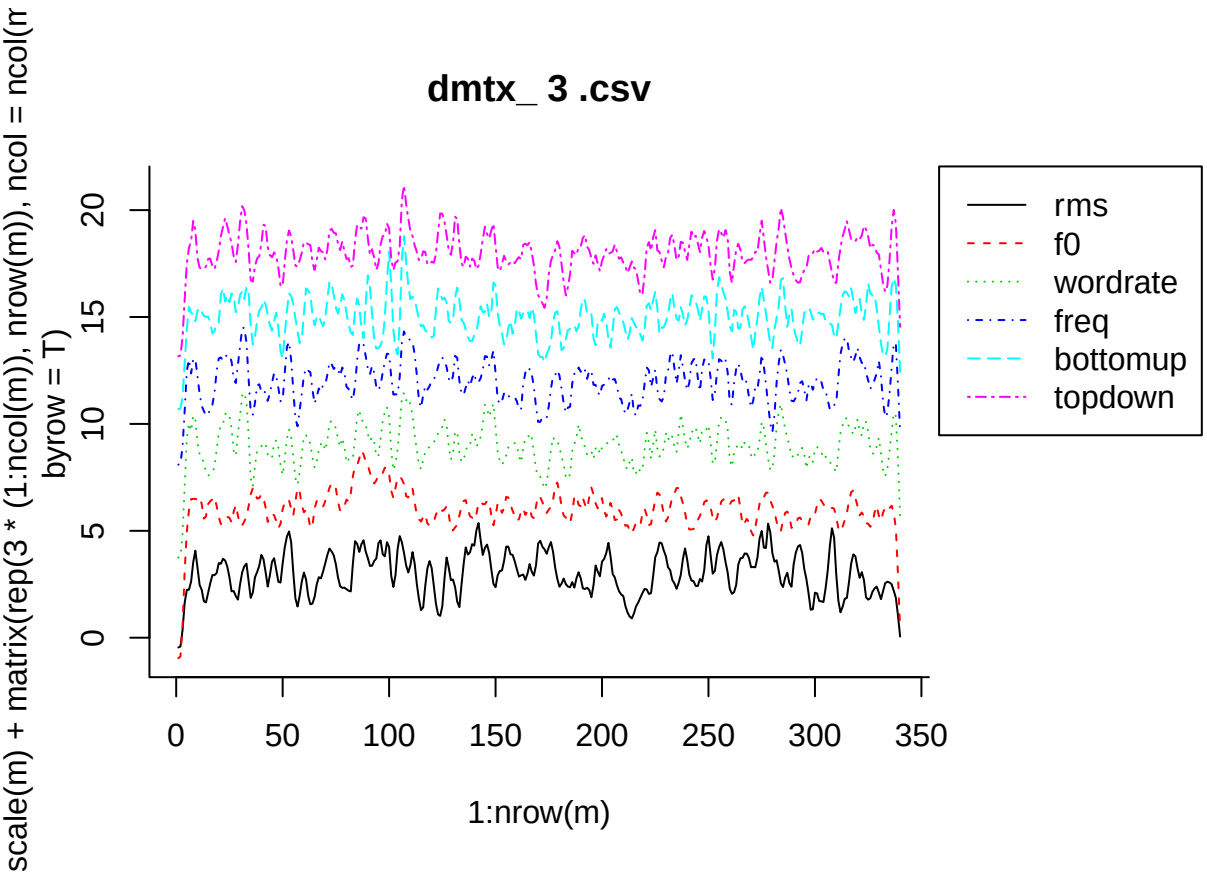



```
## [1] "pair-wise correlations: "
##           rms   f0 wordrate freq bottomup topdown
## rms      1.00 0.42     0.40 0.17     0.13    0.32
```

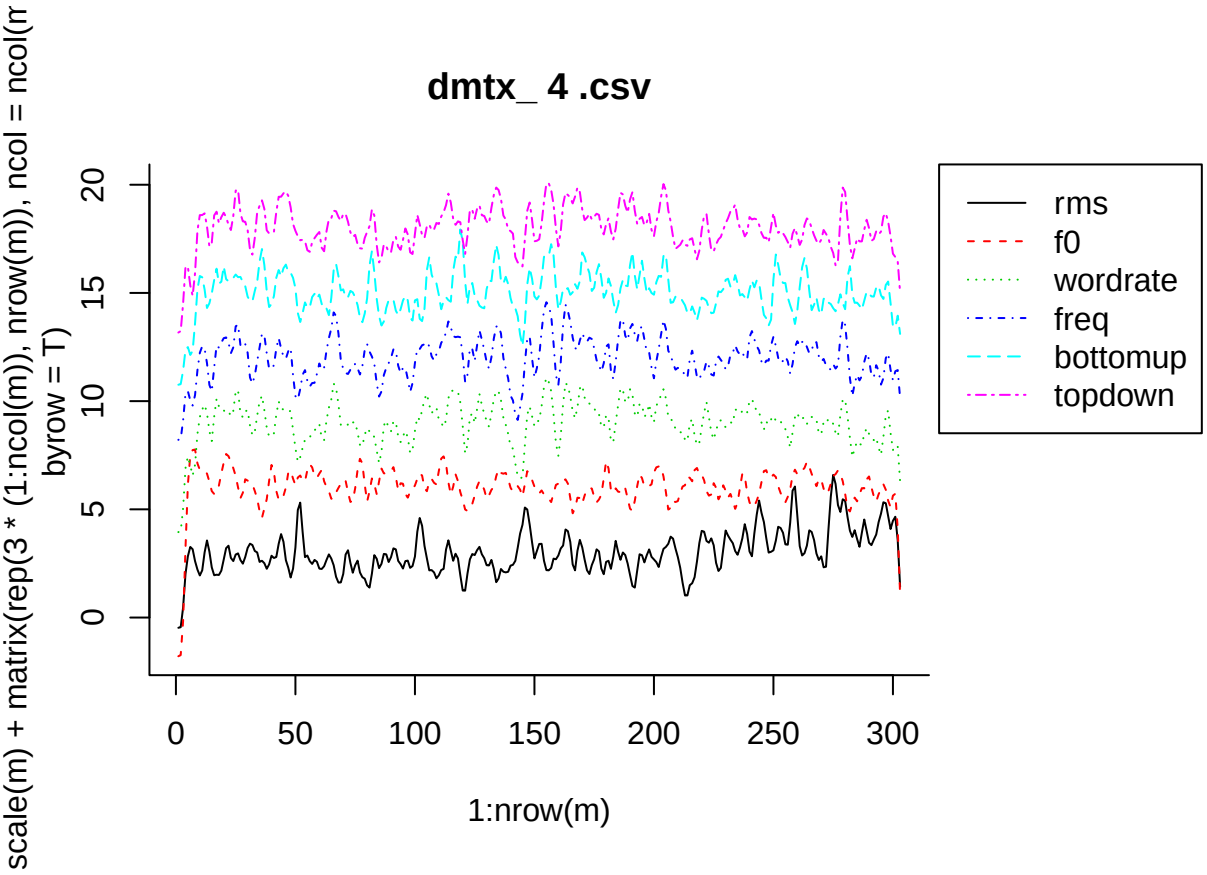
```
## f0       0.42 1.00     0.44 0.33     0.39    0.43
## wordrate 0.40 0.44     1.00 0.88     0.72    0.88
## freq     0.17 0.33     0.88 1.00     0.74    0.86
## bottomup 0.13 0.39     0.72 0.74     1.00    0.76
## topdown  0.32 0.43     0.88 0.86     0.76    1.00
## [1] "Variance Inflation Factors:"
## wordrate      rms       f0     freq bottomup  topdown
## 8.160593 1.664039 1.450770 6.599080 2.720177 5.792069
```



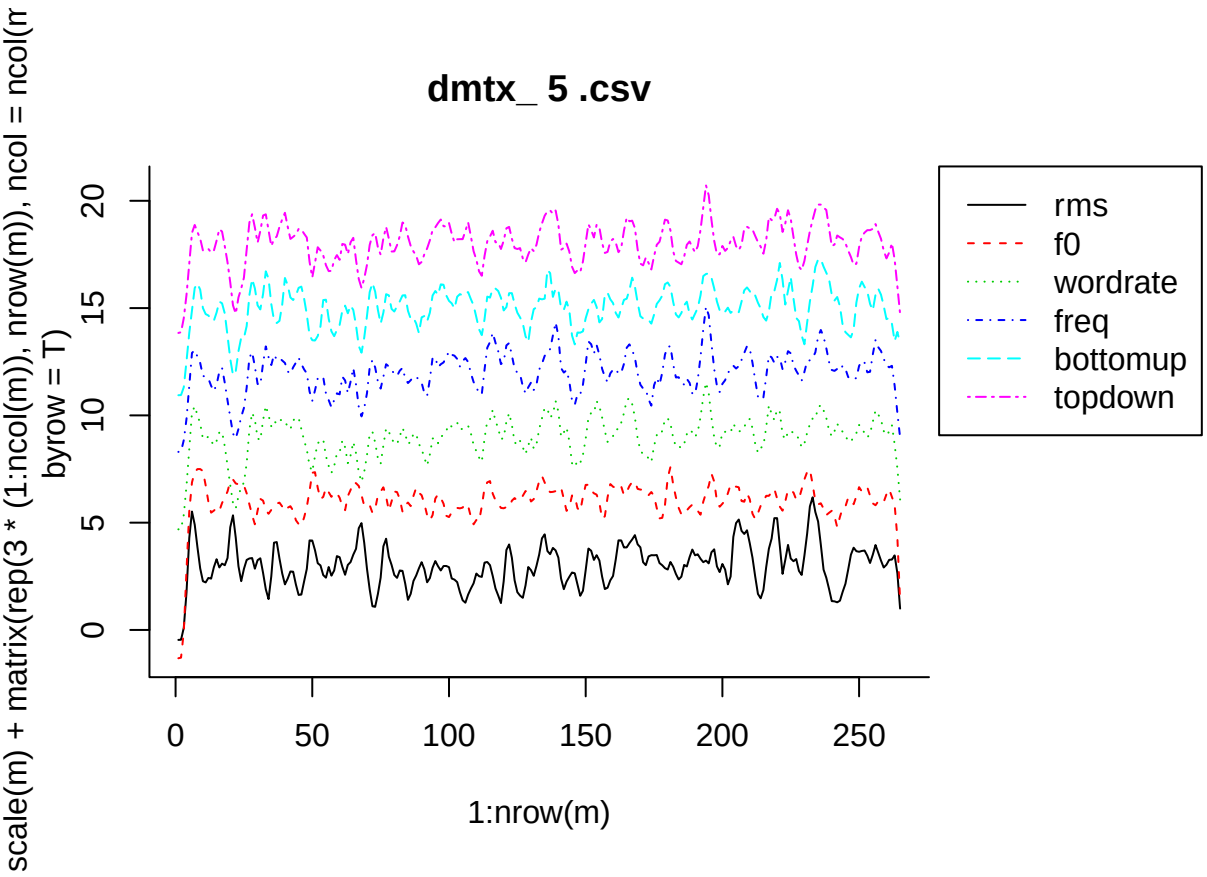

```
## [1] "pair-wise correlations: "
##           rms   f0 wordrate freq bottomup topdown
## rms      1.00 0.49     0.30 0.26     0.09    0.25
## f0       0.49 1.00     0.52 0.43     0.34    0.51
## wordrate 0.30 0.52     1.00 0.91     0.75    0.90
## freq     0.26 0.43     0.91 1.00     0.67    0.85
## bottomup 0.09 0.34     0.75 0.67     1.00    0.73
## topdown  0.25 0.51     0.90 0.85     0.73    1.00
## [1] "Variance Inflation Factors:"
##  wordrate       rms        f0      freq  bottomup   topdown
## 10.611528  1.390736  1.729942  6.188135  2.506974  5.978600
```



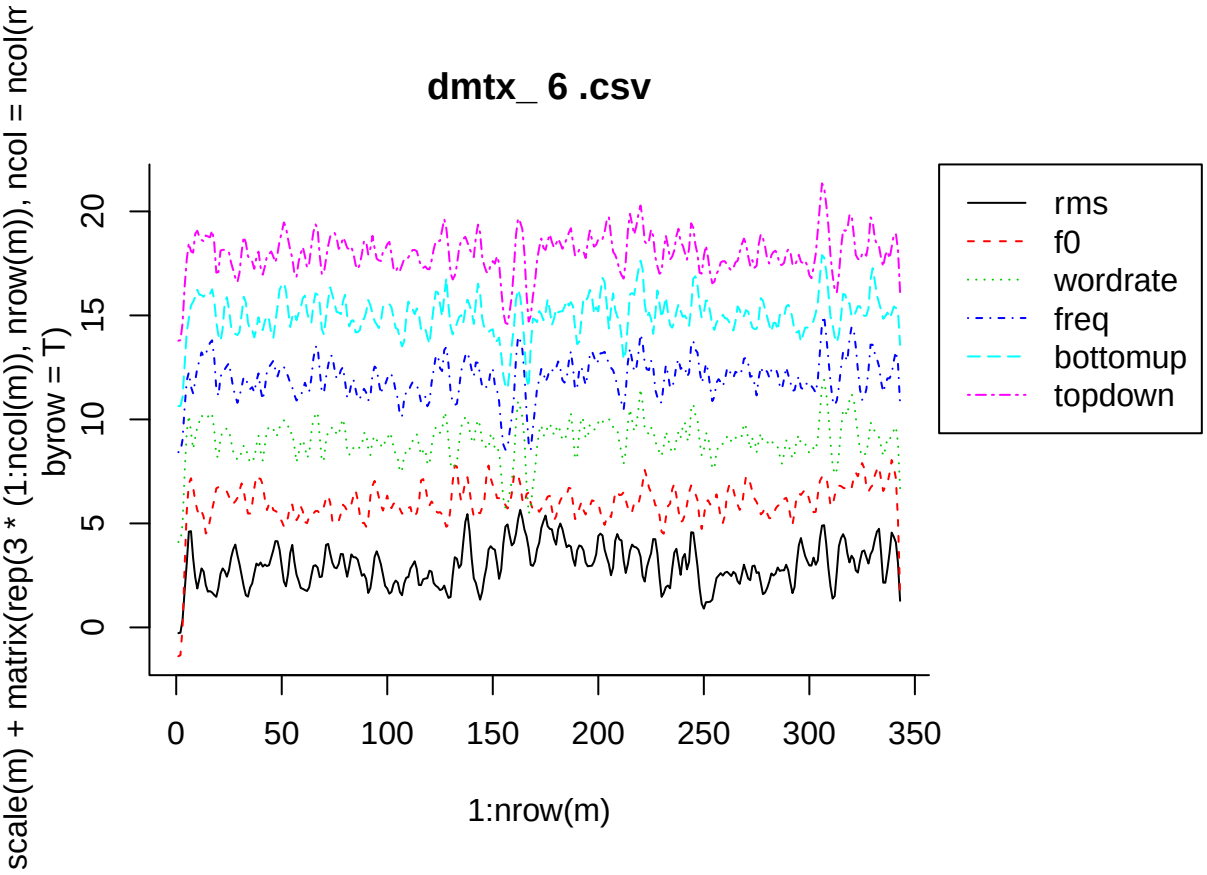

```
## [1] "pair-wise correlations: "
##             rms   f0 wordrate freq bottomup topdown
## rms       1.000 0.52     0.37 0.24    0.075    0.22
## f0        0.520 1.00     0.45 0.36    0.330    0.45
## wordrate 0.370 0.45     1.00 0.91    0.750    0.90
## freq      0.240 0.36     0.91 1.00    0.730    0.86
## bottomup 0.075 0.33     0.75 0.73    1.000    0.82
## topdown  0.220 0.45     0.90 0.86    0.820    1.00
## [1] "Variance Inflation Factors:"
##  wordrate       rms        f0      freq  bottomup   topdown
## 10.542461  1.776630  1.670296  6.637246  3.220293  7.724515
```



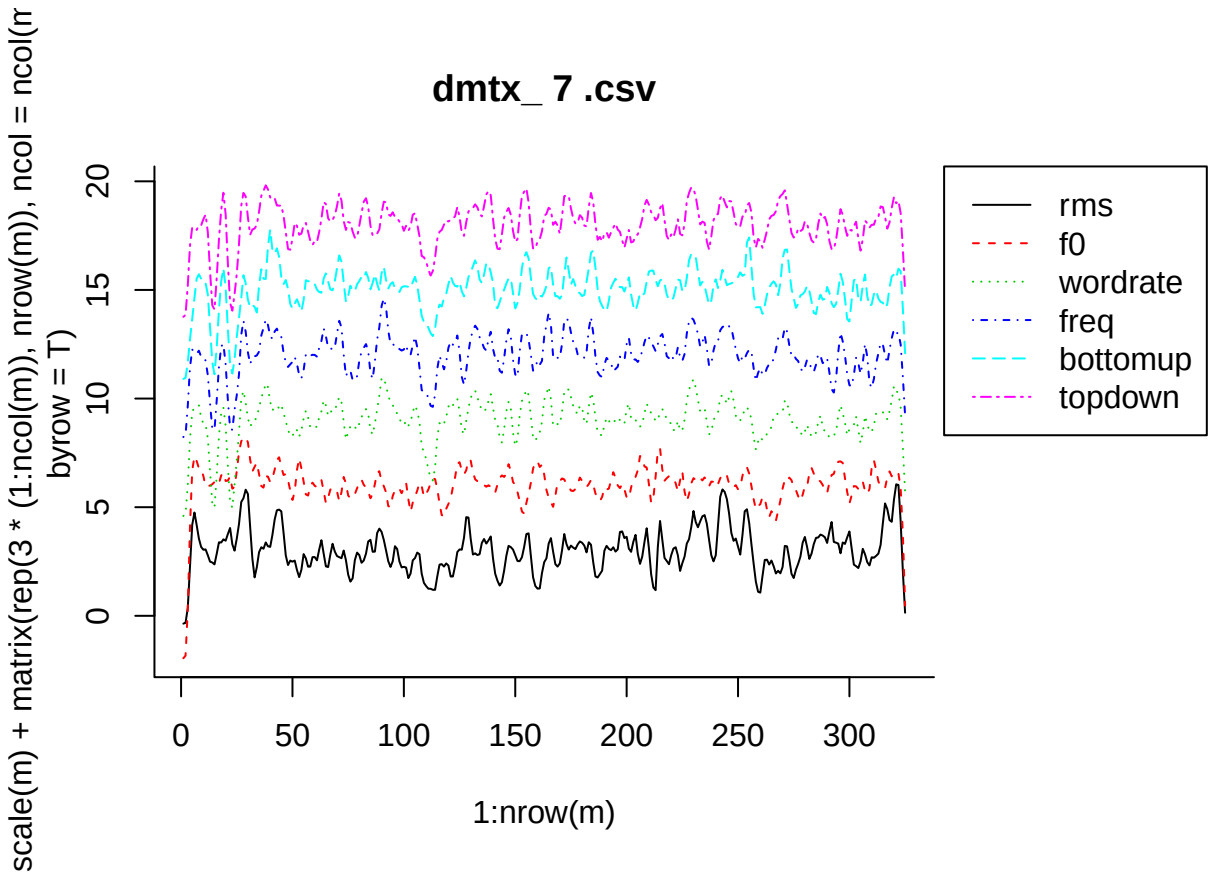

```
## [1] "pair-wise correlations: "
##              rms   f0 wordrate  freq bottomup topdown
## rms        1.000 0.27    0.094 0.063   -0.086   0.087
## f0         0.270 1.00    0.340 0.260    0.220   0.290
## wordrate   0.094 0.34    1.000 0.910    0.720   0.860
## freq       0.063 0.26    0.910 1.000    0.640   0.820
## bottomup -0.086 0.22    0.720 0.640    1.000   0.740
## topdown    0.087 0.29    0.860 0.820    0.740   1.000
## [1] "Variance Inflation Factors:"
## wordrate      rms       f0     freq bottomup  topdown
## 8.373950 1.148110 1.232956 6.052154 2.514087 4.526752
```



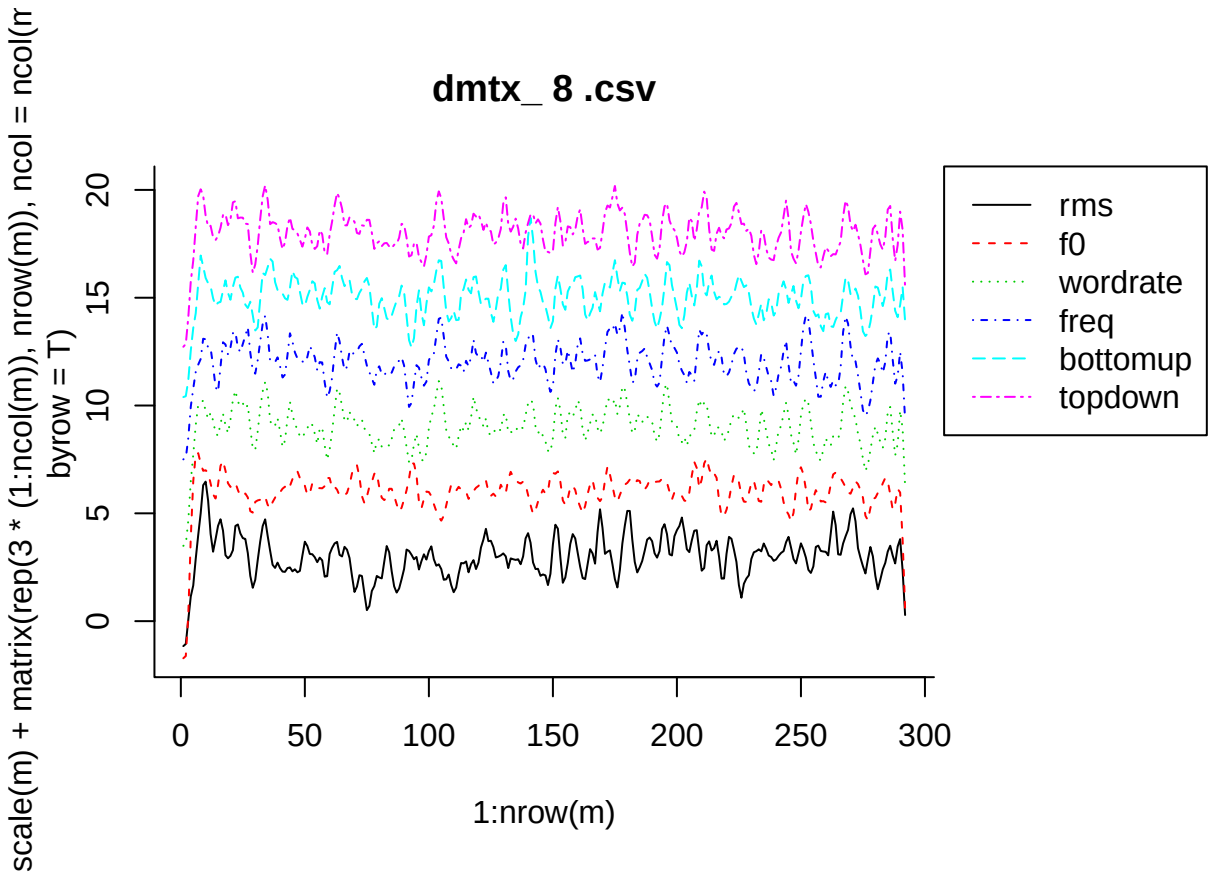

```
## [1] "pair-wise correlations: "
##           rms   f0 wordrate freq bottomup topdown
## rms      1.00 0.56     0.30 0.27     0.16    0.27
## f0       0.56 1.00     0.39 0.38     0.30    0.36
## wordrate 0.30 0.39     1.00 0.93     0.81    0.90
## freq     0.27 0.38     0.93 1.00     0.81    0.89
## bottomup 0.16 0.30     0.81 0.81     1.00    0.87
## topdown  0.27 0.36     0.90 0.89     0.87    1.00
## [1] "Variance Inflation Factors:"
## wordrate      rms       f0     freq bottomup  topdown
## 9.397991 1.546915 1.603784 8.940289 4.456509 8.080112
```



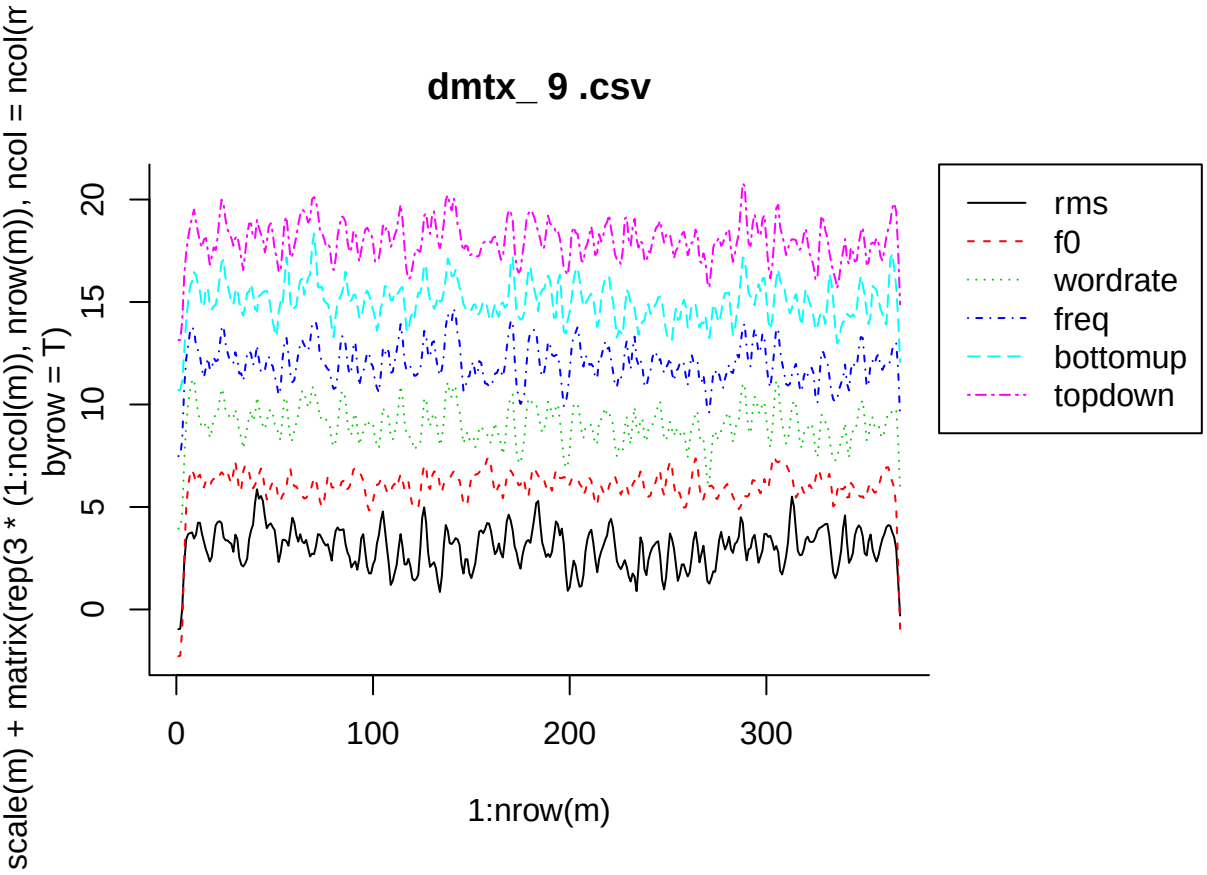

```
## [1] "pair-wise correlations: "
##           rms   f0 wordrate freq bottomup topdown
## rms      1.00 0.48     0.34 0.26     0.12    0.25
## f0       0.48 1.00     0.35 0.28     0.26    0.28
## wordrate 0.34 0.35     1.00 0.93     0.80    0.91
## freq     0.26 0.28     0.93 1.00     0.77    0.87
## bottomup 0.12 0.26     0.80 0.77     1.00    0.82
## topdown  0.25 0.28     0.91 0.87     0.82    1.00
## [1] "Variance Inflation Factors:"
##  wordrate       rms        f0      freq  bottomup   topdown
## 12.530224  1.500054  1.403414  7.897978  3.472420  7.167724
```




```
## [1] "pair-wise correlations: "
##           rms   f0 wordrate freq bottomup topdown
## rms      1.00 0.52     0.50 0.44     0.37    0.46
## f0       0.52 1.00     0.38 0.32     0.34    0.35
## wordrate 0.50 0.38     1.00 0.95     0.85    0.92
## freq     0.44 0.32     0.95 1.00     0.82    0.89
## bottomup 0.37 0.34     0.85 0.82     1.00    0.87
## topdown  0.46 0.35     0.92 0.89     0.87    1.00
## [1] "Variance Inflation Factors:"
##  wordrate       rms        f0      freq  bottomup   topdown
## 14.874625  1.633549  1.436445  9.800558  4.431547  8.069197
```




```
## [1] "pair-wise correlations: "
##           rms   f0 wordrate freq bottomup topdown
## rms      1.00 0.49     0.48 0.30     0.26    0.37
## f0       0.49 1.00     0.47 0.37     0.30    0.46
## wordrate 0.48 0.47     1.00 0.91     0.78    0.90
## freq     0.30 0.37     0.91 1.00     0.76    0.84
## bottomup 0.26 0.30     0.78 0.76     1.00    0.79
## topdown  0.37 0.46     0.90 0.84     0.79    1.00
## [1] "Variance Inflation Factors:"
##  wordrate       rms        f0      freq  bottomup   topdown
## 12.864392  1.721258  1.508952  7.094023  2.980766  6.369885
```




```
## [1] "pair-wise correlations: "
##           rms   f0 wordrate freq bottomup topdown
## rms      1.00 0.48     0.56 0.38     0.34    0.47
## f0       0.48 1.00     0.49 0.43     0.40    0.45
## wordrate 0.56 0.49     1.00 0.91     0.78    0.90
## freq     0.38 0.43     0.91 1.00     0.77    0.88
## bottomup 0.34 0.40     0.78 0.77     1.00    0.78
## topdown  0.47 0.45     0.90 0.88     0.78    1.00
## [1] "Variance Inflation Factors:"
##  wordrate       rms        f0      freq  bottomup   topdown
## 10.899653  1.875398  1.448589  8.063631  2.901142  6.209071
```