

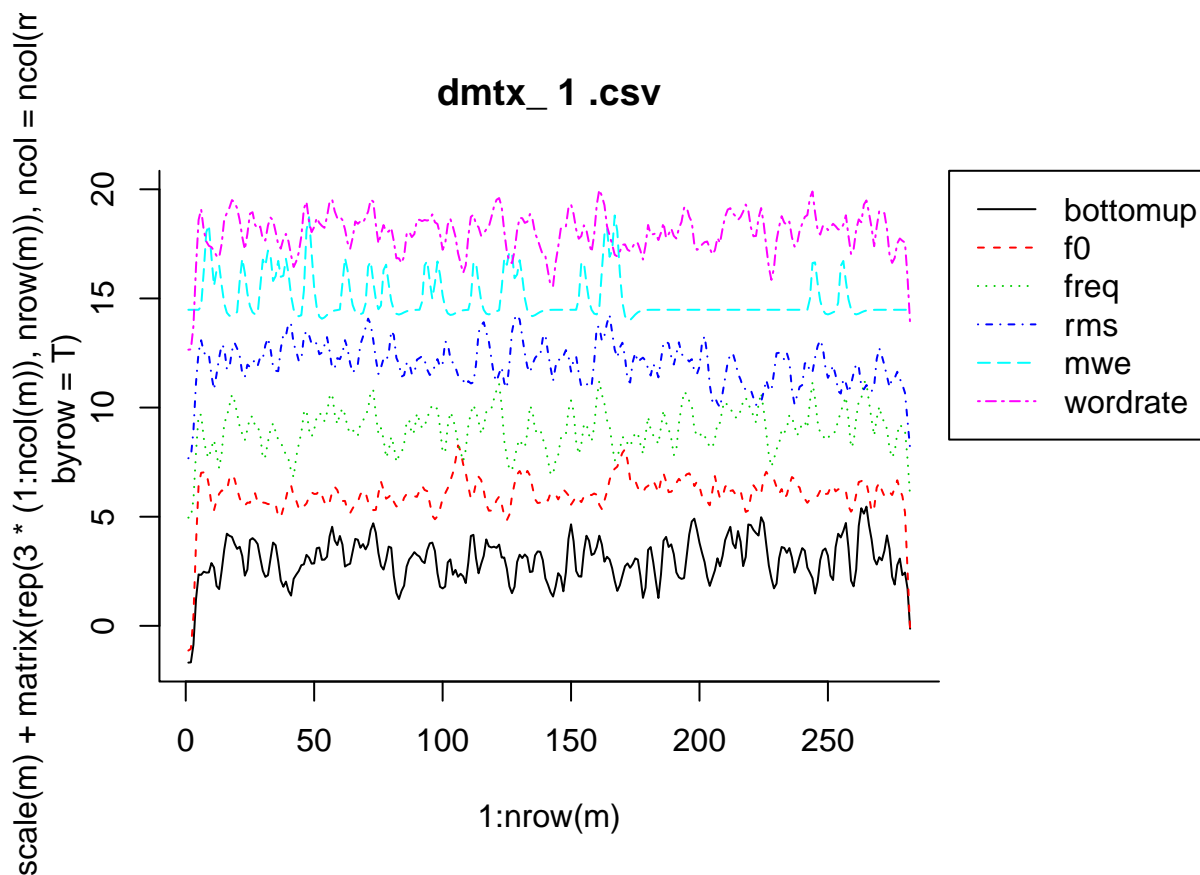
Regressors for Le Petit Prince.

Christophe Pallier

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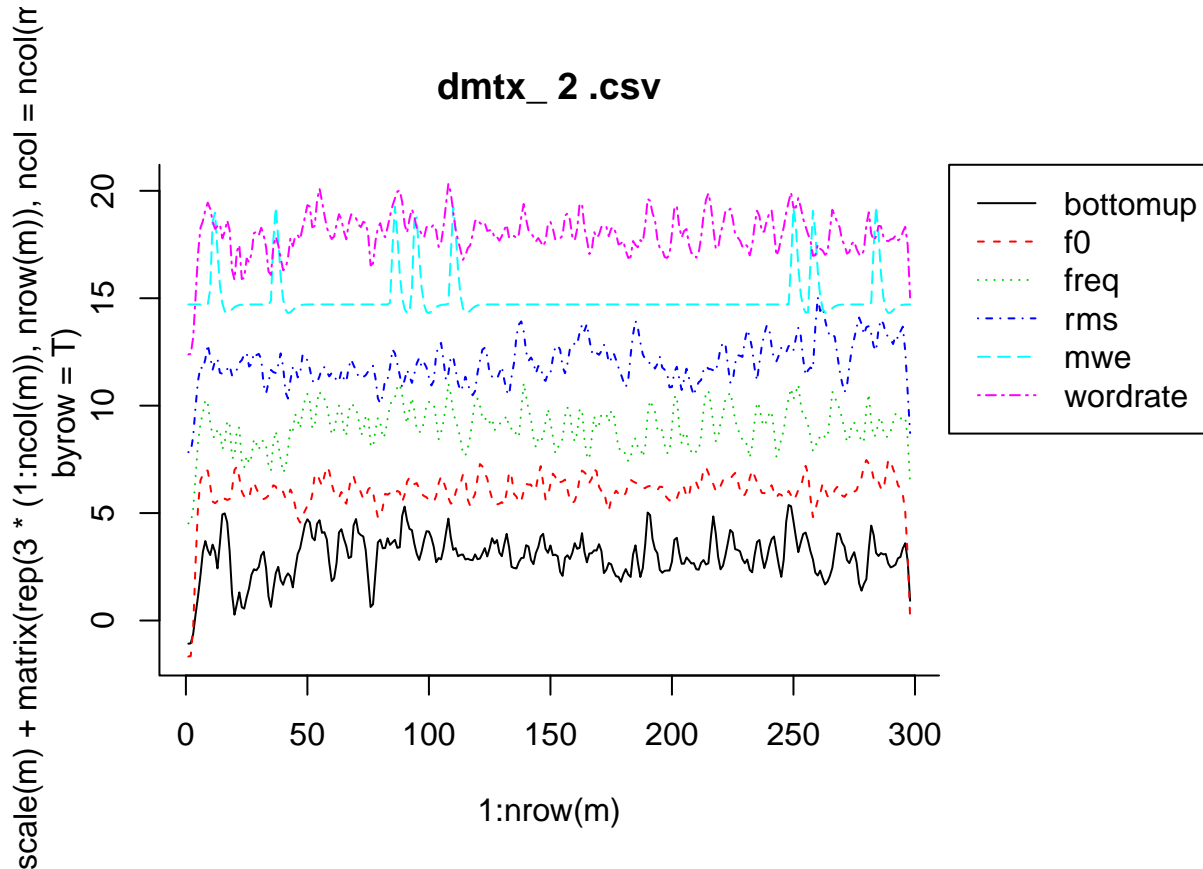
For each session, we load the design matrix, plot the regressors (Note: All the variables are scaled, and shifted relative to one another for the plotting), and print the pairwise correlations and the variance inflation factors.

```
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', bty='n',
  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 + mwe, data=m)
  print('Variance Inflation Factors:')
  print(vif(lmm))
}
```

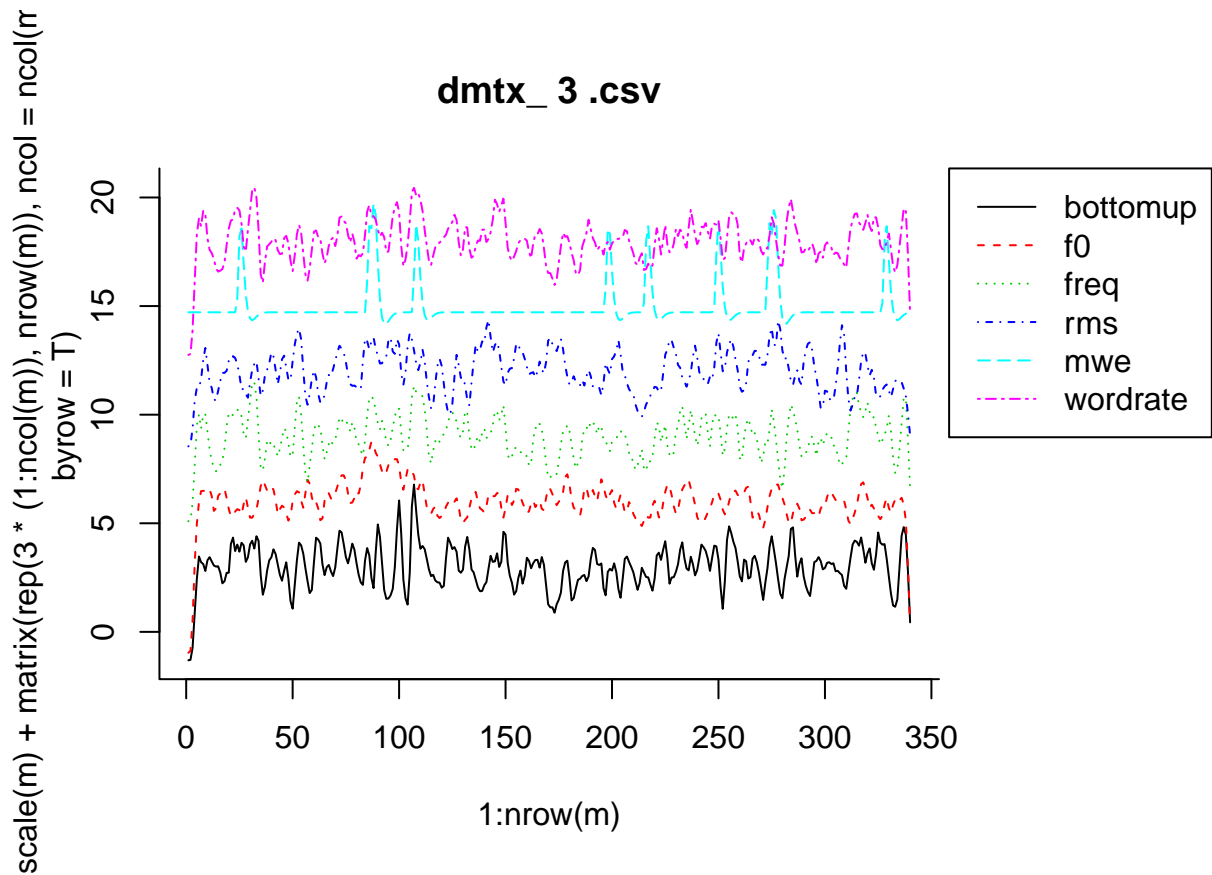


```
## [1] "pair-wise correlations: "
##      bottomup      f0      freq      rms      mwe      wordrate
## bottomup      1.00  0.390  0.74  0.13 -0.110  0.720
```

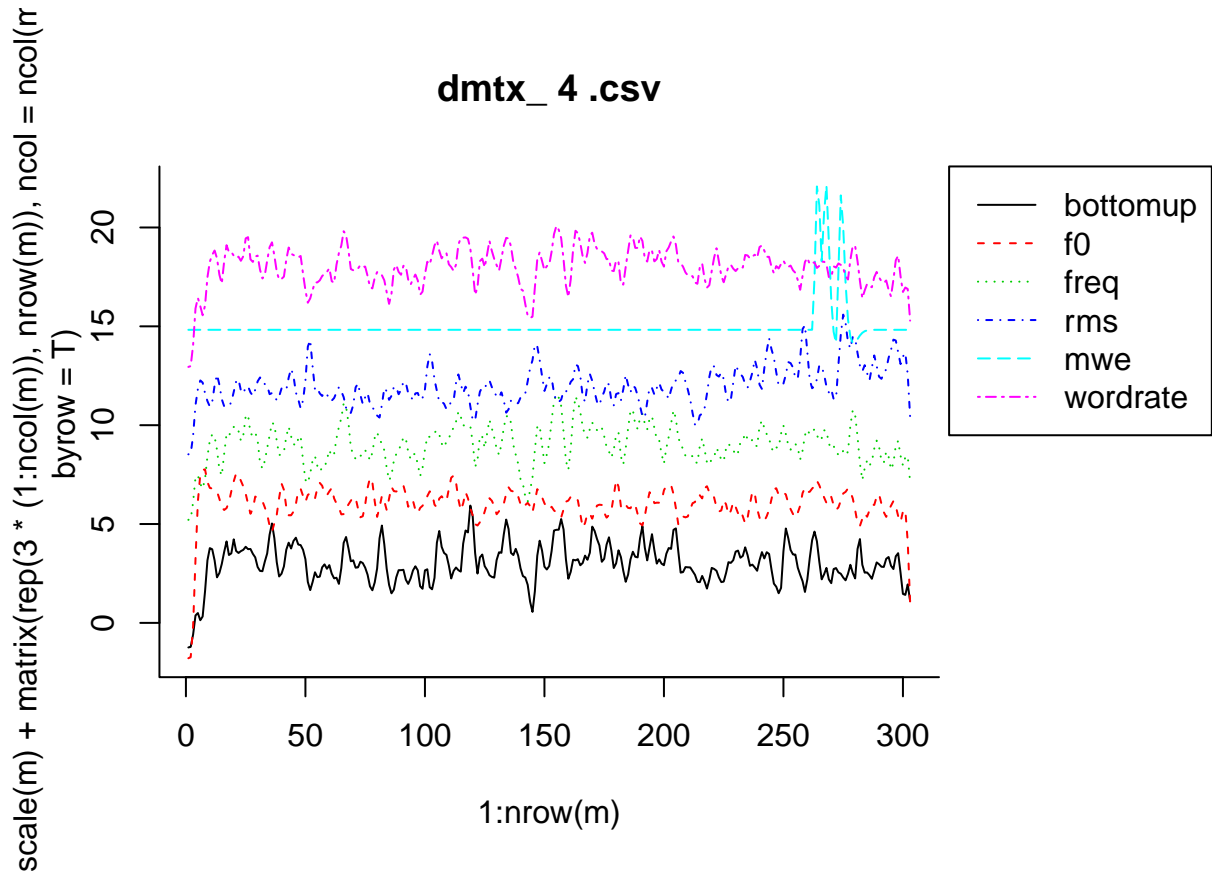
```
## f0          0.39  1.000  0.33 0.42 -0.017  0.440
## freq        0.74  0.330  1.00 0.17 -0.100  0.880
## rms         0.13  0.420  0.17 1.00  0.270  0.400
## mwe        -0.11 -0.017 -0.10 0.27  1.000  0.043
## wordrate    0.72  0.440  0.88 0.40  0.043  1.000
## [1] "Variance Inflation Factors:"
## wordrate    rms      f0      freq bottomup    mwe
## 7.310207 1.711175 1.462701 6.275301 2.511686 1.161759
```



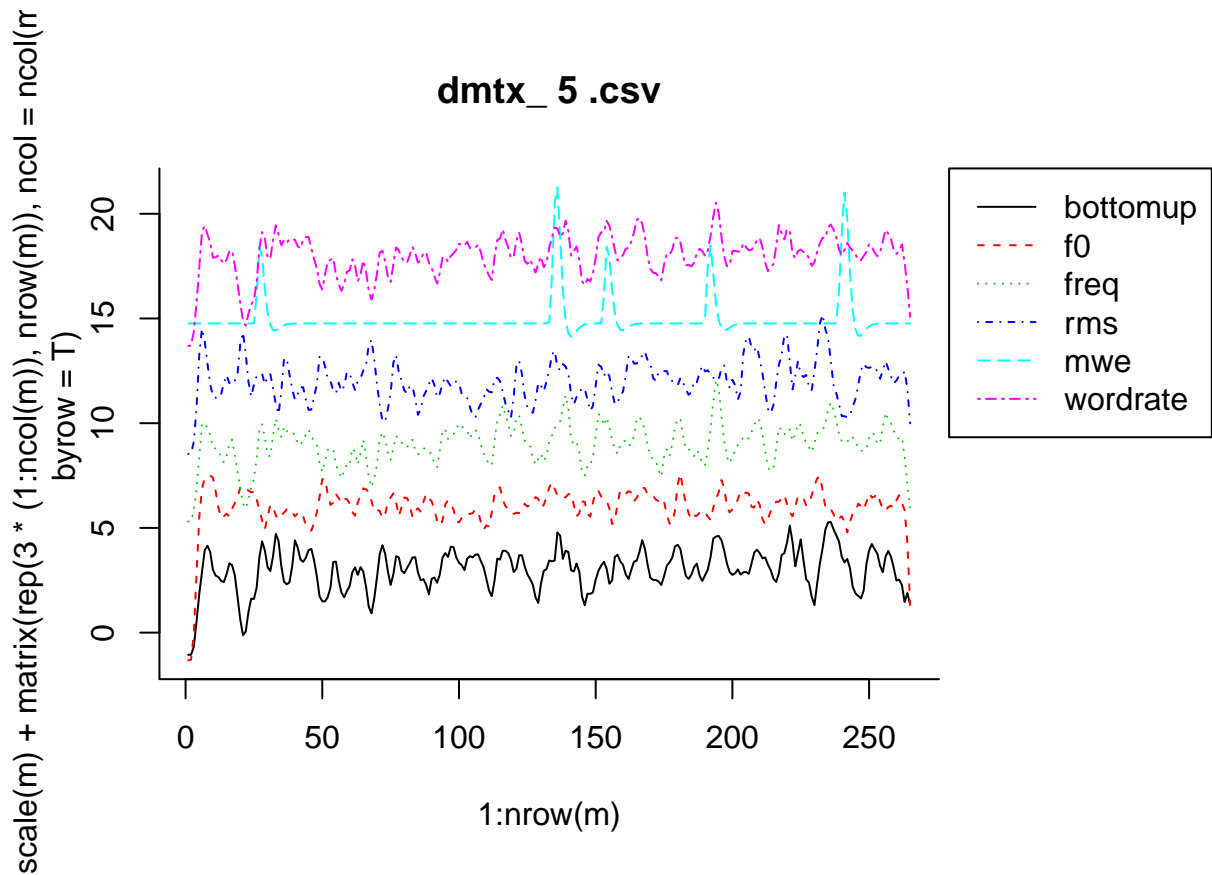
```
## [1] "pair-wise correlations: "
##          bottomup      f0 freq rms      mwe wordrate
## bottomup      1.000  0.340 0.670 0.09  0.067      0.75
## f0            0.340  1.000 0.430 0.49 -0.043      0.52
## freq          0.670  0.430 1.000 0.26  0.086      0.91
## rms           0.090  0.490 0.260 1.00  0.100      0.30
## mwe           0.067 -0.043 0.086 0.10  1.000      0.15
## wordrate      0.750  0.520 0.910 0.30  0.150      1.00
## [1] "Variance Inflation Factors:"
## wordrate    rms      f0      freq bottomup    mwe
## 9.036999 1.398333 1.742931 6.064610 2.438450 1.092676
```



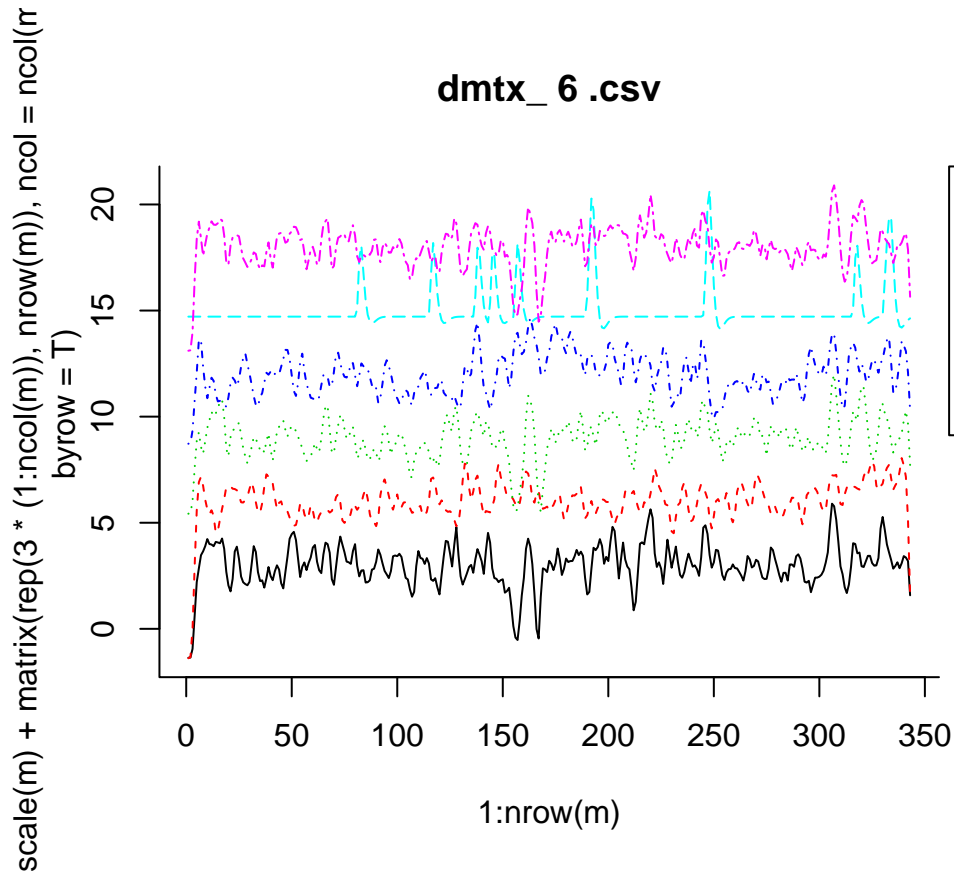
```
## [1] "pair-wise correlations: "
##      bottomup  f0 freq  rms  mwe wordrate
## bottomup    1.000 0.33 0.73 0.075 0.12    0.75
## f0          0.330 1.00 0.36 0.520 0.18    0.45
## freq        0.730 0.36 1.00 0.240 0.16    0.91
## rms         0.075 0.52 0.24 1.000 0.14    0.37
## mwe         0.120 0.18 0.16 0.140 1.00    0.14
## wordrate    0.750 0.45 0.91 0.370 0.14    1.00
## [1] "Variance Inflation Factors:"
## wordrate      rms      f0      freq bottomup      mwe
## 8.405254 1.707802 1.597058 6.550051 2.608079 1.057986
```



```
## [1] "pair-wise correlations: "
##      bottomup  f0  freq    rms      mwe wordrate
## bottomup    1.000 0.22 0.640 -0.086 -0.03300  0.72000
## f0          0.220 1.00 0.260  0.270  0.10000  0.34000
## freq        0.640 0.26 1.000  0.063  0.02700  0.91000
## rms         -0.086 0.27 0.063  1.000  0.19000  0.09400
## mwe         -0.033 0.10 0.027  0.190  1.00000 -0.00091
## wordrate     0.720 0.34 0.910  0.094 -0.00091  1.00000
## [1] "Variance Inflation Factors:"
## wordrate      rms      f0      freq bottomup      mwe
## 7.544945 1.167029 1.239742 5.850946 2.164448 1.049292
```



```
## [1] "pair-wise correlations: "
##      bottomup      f0 freq      rms      mwe wordrate
## bottomup      1.00  0.300 0.81  0.160  0.170      0.81
## f0            0.30  1.000 0.38  0.560 -0.041      0.39
## freq          0.81  0.380 1.00  0.270  0.170      0.93
## rms           0.16  0.560 0.27  1.000 -0.019      0.30
## mwe           0.17 -0.041 0.17 -0.019  1.000      0.22
## wordrate      0.81  0.390 0.93  0.300  0.220      1.00
## [1] "Variance Inflation Factors:"
## wordrate      rms      f0      freq bottomup      mwe
## 8.905238 1.529825 1.619615 8.441608 3.195704 1.083213
```



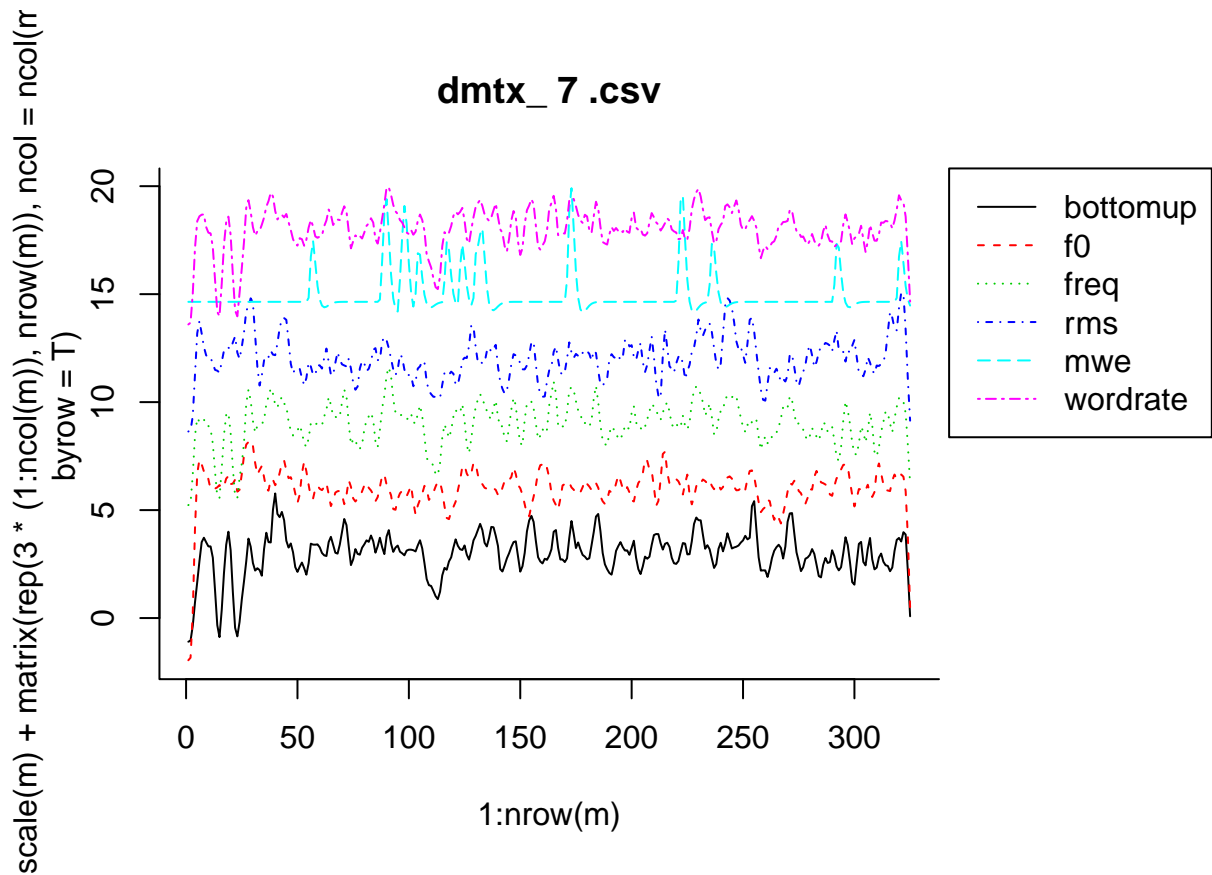
```
## [1] "pair-wise correlations: "
```

	bottomup	f0	freq	rms	mwe	wordrate
bottomup	1.00	0.260	0.770	0.12	-0.020	0.800
f0	0.26	1.000	0.280	0.48	0.079	0.350
freq	0.77	0.280	1.000	0.26	-0.024	0.930
rms	0.12	0.480	0.260	1.00	0.110	0.340
mwe	-0.02	0.079	-0.024	0.11	1.000	-0.014
wordrate	0.80	0.350	0.930	0.34	-0.014	1.000

```
## [1] "Variance Inflation Factors:"
```

	rms	f0	freq	bottomup	mwe
wordrate	9.900646	1.512796	1.395352	7.785459	3.018994

```
## 9.900646 1.512796 1.395352 7.785459 3.018994 1.017517
```

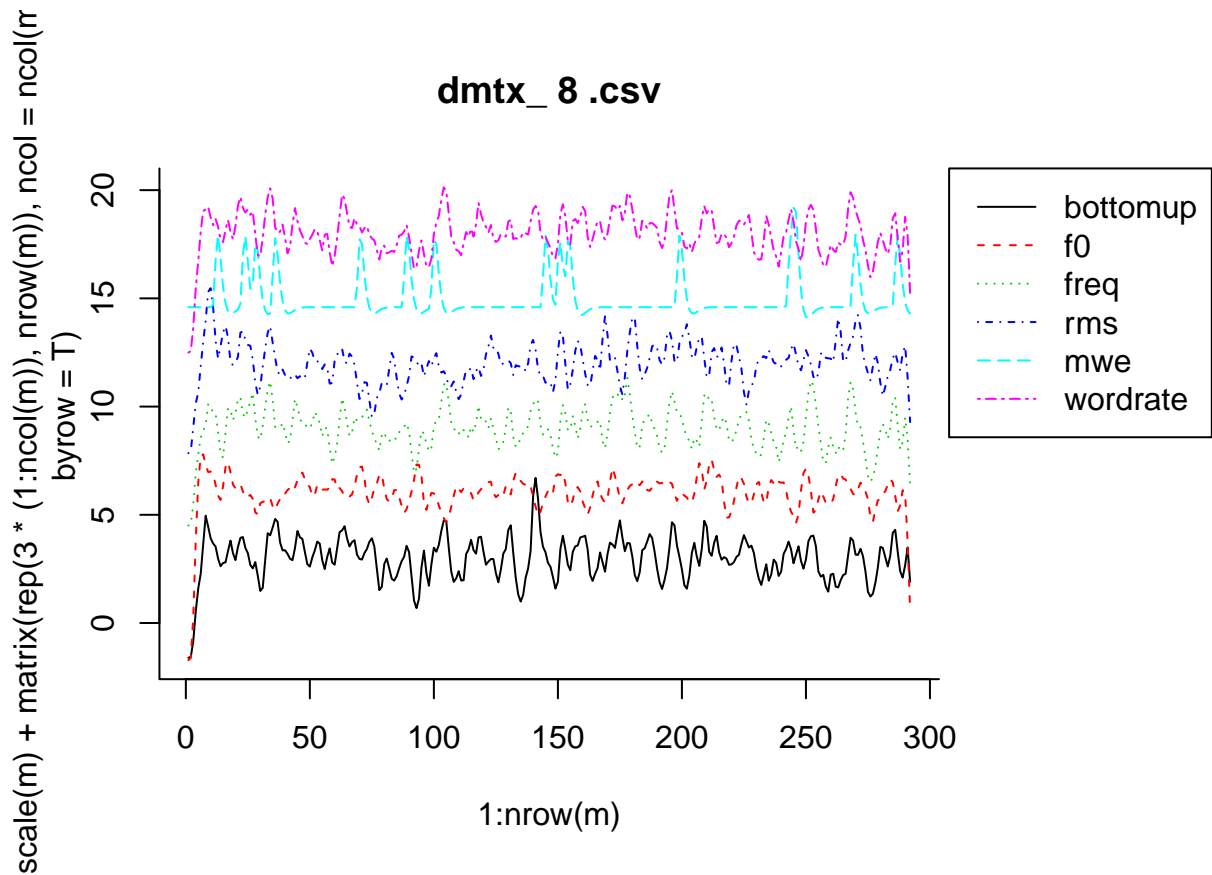


```
## [1] "pair-wise correlations: "
```

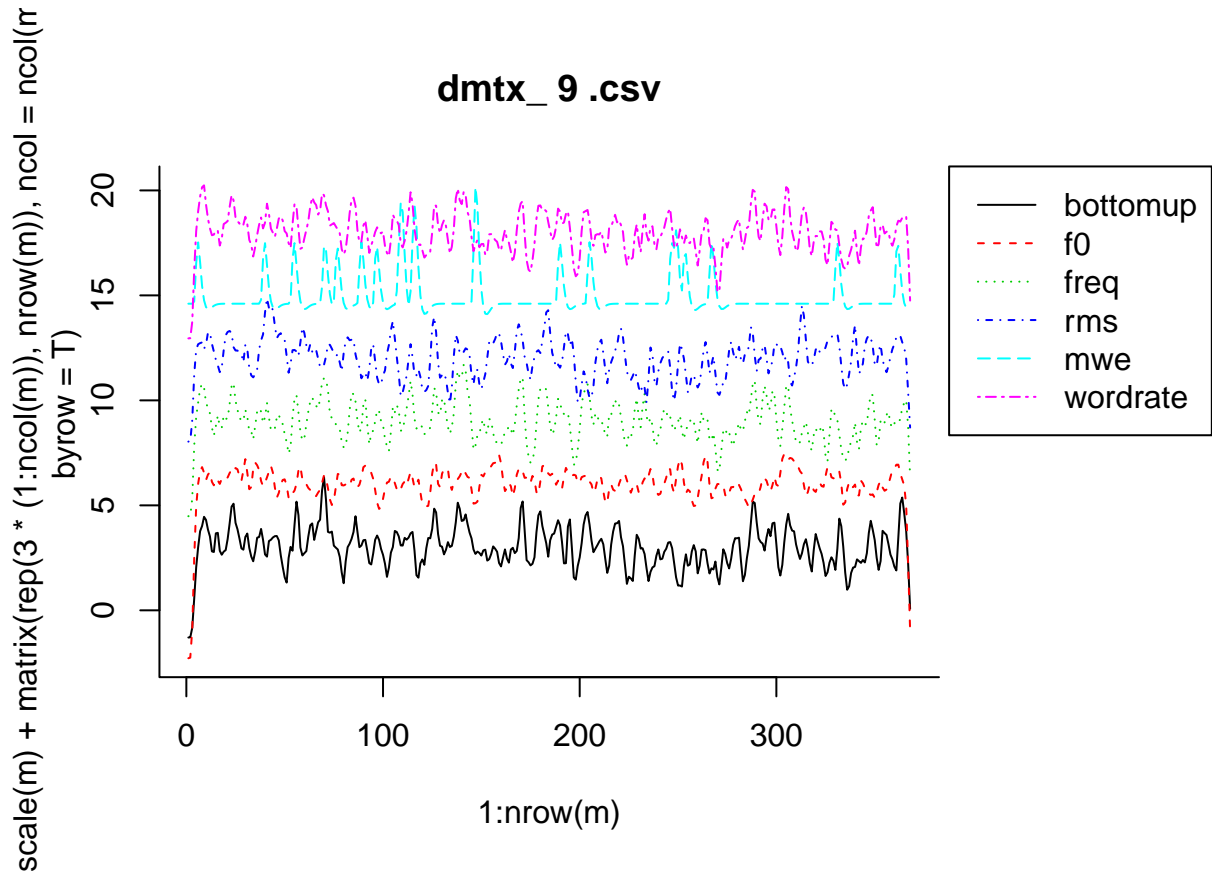
	bottomup	f0	freq	rms	mwe	wordrate
bottomup	1.00	0.340	0.82	0.370	0.120	0.85
f0	0.34	1.000	0.32	0.520	0.033	0.38
freq	0.82	0.320	1.00	0.440	0.210	0.95
rms	0.37	0.520	0.44	1.000	0.072	0.50
mwe	0.12	0.033	0.21	0.072	1.000	0.19
wordrate	0.85	0.380	0.95	0.500	0.190	1.00

```
## [1] "Variance Inflation Factors:"
```

	rms	f0	freq	bottomup	mwe
wordrate	1.624001	1.433205	9.839360	3.699055	1.056583



```
## [1] "pair-wise correlations: "
##      bottomup    f0  freq   rms   mwe wordrate
## bottomup      1.00  0.30 0.760 0.260  0.070   0.780
## f0            0.30  1.00 0.370 0.490 -0.090   0.470
## freq         0.76  0.37 1.000 0.300  0.064   0.910
## rms          0.26  0.49 0.300 1.000  0.081   0.480
## mwe          0.07 -0.09 0.064 0.081  1.000   0.085
## wordrate      0.78  0.47 0.910 0.480  0.085   1.000
## [1] "Variance Inflation Factors:"
## wordrate      rms      f0      freq bottomup      mwe
## 9.650109 1.696205 1.503347 7.096815 2.693100 1.041716
```

```
## [1] "pair-wise correlations: "
```

	bottomup	f0	freq	rms	mwe	wordrate
bottomup	1.000	0.4000	0.770	0.34	0.0450	0.780
f0	0.400	1.0000	0.430	0.48	0.0061	0.490
freq	0.770	0.4300	1.000	0.38	0.0670	0.910
rms	0.340	0.4800	0.380	1.00	-0.1400	0.560
mwe	0.045	0.0061	0.067	-0.14	1.0000	0.069
wordrate	0.780	0.4900	0.910	0.56	0.0690	1.000

```
## [1] "Variance Inflation Factors:"
```

	rms	f0	freq	bottomup	mwe
wordrate	9.879423	1.975634	1.449657	7.486373	2.708233

```
## 9.879423 1.975634 1.449657 7.486373 2.708233 1.063569
```