qbild_update

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How to get Qbild?

- Download the qbldcpp folder from the **GitHub repo**,

- Run the following commands :-
    - R CMD build qbild
    - R CMD install qbildcpp_1.0.tar.gz

After finishing the steps:

```r
library(qbild)
library(knitr)

set.seed(10)

###############
## Loading and manipulation of the data set
###############

data <- readRDS("~/airpollution.rda") #contains factor variables as well

nsim = 5000
p = 0.25

##with intercept
time_a = Sys.time()
out <- model.qbld(data, id = "id", fixed_formula = wheeze~age+I(age^2)+smoking+counts,
                  random_formula = ~counts , nsim, p = 0.25, summarize = TRUE,
                  verbose = FALSE)  #intercept true for both, added manipulation of symbols
```
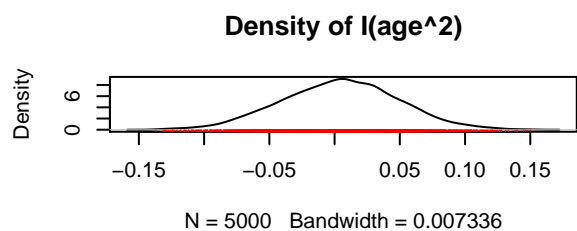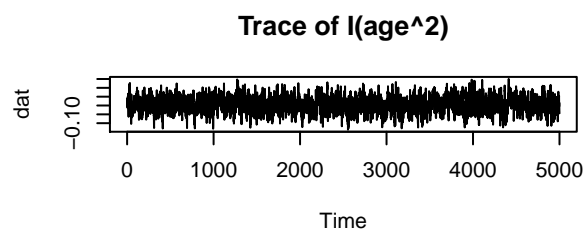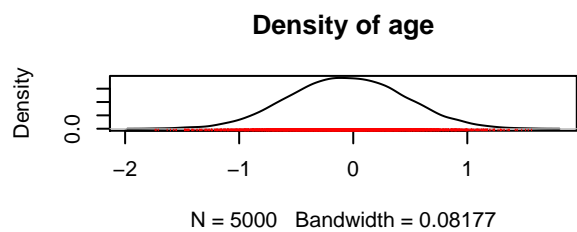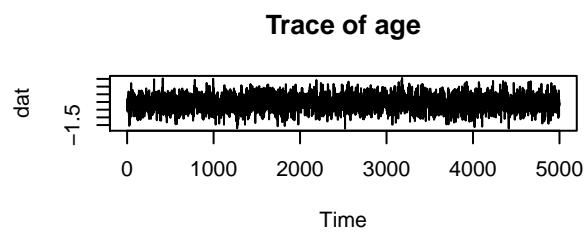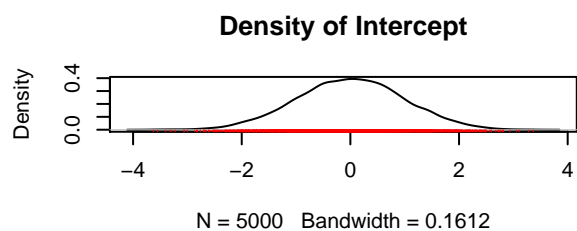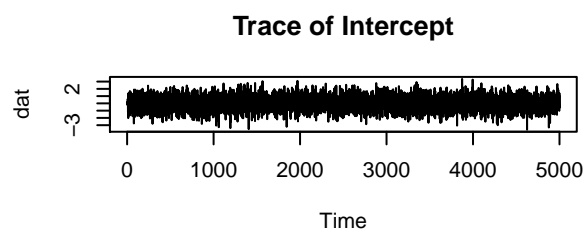
```
##
## Quantile used = 0.25
##
## No. of Iterations = 5000 samples
## Type of Sampler = block
## Burn-in Used? = FALSE
##
## 1. Statistics for each variable,
##            Mean   SD  MCSE     ESS GR Diagnostic
## Intercept  0.00 0.98 0.014 5108.43       1.000029
```
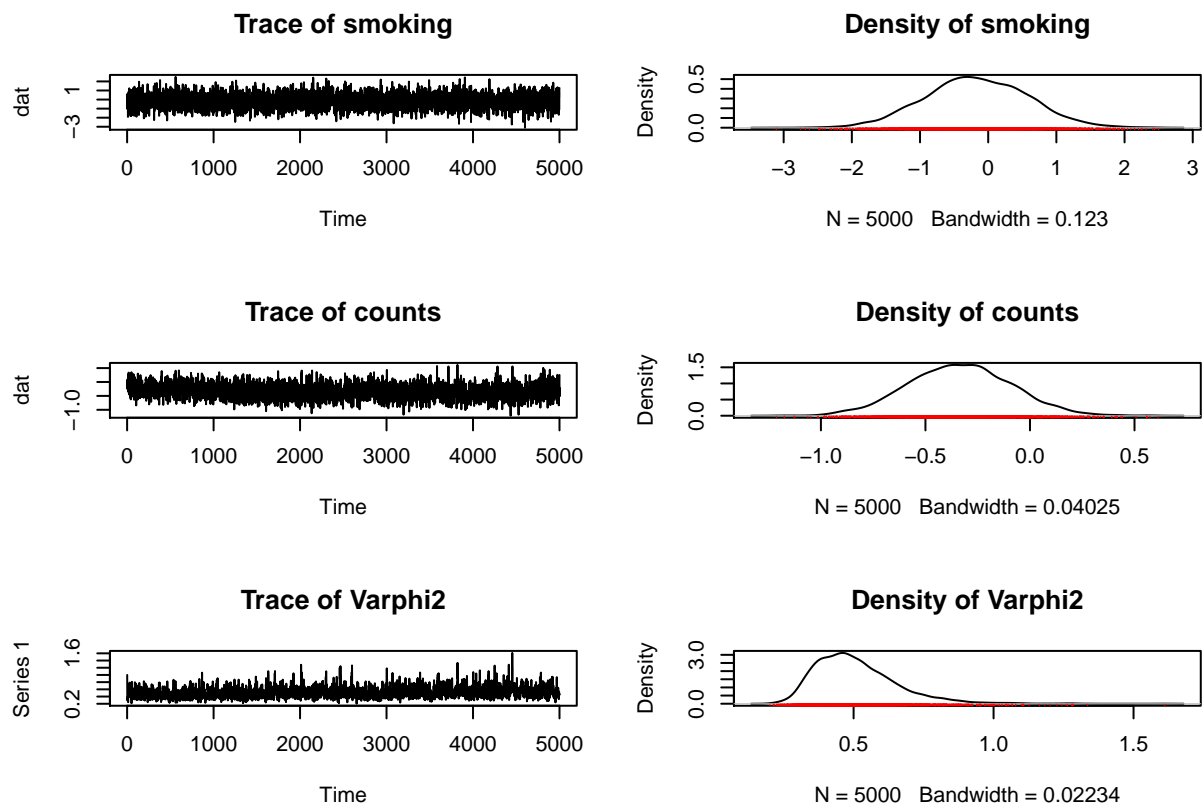
```
## age         -0.06 0.50 0.014 1272.38       1.000184
## I(age^2)     0.00 0.04 0.002  751.11       1.000359
## smoking     -0.17 0.75 0.011 4308.79       1.000040
## counts      -0.33 0.25 0.014  288.44       1.000751
## Varphi2      0.51 0.15 0.005  737.29       1.000615
## 
## 
## 2. Quantiles for each variable,
##               2.5%    25%    50%    75% 97.5%
## Intercept -1.930 -0.650  0.010  0.669 1.932
## age       -1.024 -0.397 -0.055  0.290 0.915
## I(age^2)  -0.083 -0.026  0.005  0.034 0.092
## smoking   -1.638 -0.671 -0.184  0.346 1.296
## counts    -0.814 -0.503 -0.337 -0.170 0.143
## Varphi2    0.302  0.402  0.485  0.585 0.854
## 
## MultiESS value = 2043.821 737.2893
## 
## 3. Model Selection Criterion
## Log likelihood = -71.46137
## AIC = 154.9227
## BIC = 177.5801
```

```r
time_b = Sys.time()
paste0("Time elapsed = ",round(time_b-time_a,2)," sec")
```

```
## [1] "Time elapsed = 2.99 sec"
```

```r
plot(out)
```

Trace of Intercept

Density of Intercept

N = 5000   Bandwidth = 0.1612

Trace of age

Density of age

N = 5000   Bandwidth = 0.08177

Trace of I(age^2)

Density of I(age^2)

N = 5000   Bandwidth = 0.007336

Trace of smoking	**Density of smoking**

Trace of counts	**Density of counts**

Trace of Varphi2	**Density of Varphi2**

```
##with intercept
time_a = Sys.time()
out2 <- model.qbld(data, id = "id", fixed_formula = wheeze~age+smoking+counts-1,
            random_formula = ~-. , nsim, p = 0.25, summarize = TRUE, method="Unblock",
                verbose = FALSE)  #intercept true foronly random
```

```
##
## Quantile used = 0.25
##
## No. of Iterations = 5000 samples
## Type of Sampler = Unblock
## Burn-in Used? = FALSE
##
## 1. Statistics for each variable,
##          Mean   SD  MCSE    ESS GR Diagnostic
## age      0.02 0.12 0.012 107.89      1.011434
## smoking -0.33 0.58 0.028 433.92      1.001291
## counts  -0.24 0.09 0.045   3.89      1.055949
## Varphi2  1.00 0.44 0.021 461.51      1.000969
##
##
## 2. Quantiles for each variable,
##           2.5%    25%    50%    75%  97.5%
## age     -0.229 -0.058  0.024  0.104  0.264
## smoking -1.436 -0.712 -0.341  0.057  0.842
## counts  -0.423 -0.280 -0.222 -0.176 -0.088
```

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```
## Varphi2  0.448  0.696  0.915  1.186  2.120
##
## MultiESS value = 76.5387 461.5091
##
## 3. Model Selection Criterion
## Log likelihood = -77.05763
## AIC = 162.3068
## BIC = 175.6028
```

```
time_b = Sys.time()
paste0("Time elapsed = ",round(time_b-time_a,2)," sec")
```

```
## [1] "Time elapsed = 1.54 sec"
```

```
plot(out2)
```

Trace of Varphi2

Series 1

Time

Density of Varphi2

Density

N = 5000   Bandwidth = 0.05994

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