# check_equilibrium

This package contains two sets of code for returning the equilibrium solution to the Griffin et al. 2014 transmission model. The first was written in R by Jamie Griffin, and the second was written in Rcpp by Xiaoyu Li, before being adapted into package format by Bob Verity. Here we will compare both sets of code to 1) establish that both sets of code produce the same results, 2) compare code in terms of speed.

## Compare solutions

Start by loading the package. You must have the package installed for this to work.

```
library(malariaModelFit)
```

Try some code that requires the package

```
p <- random_parameters()[[1]]
print(p)
```

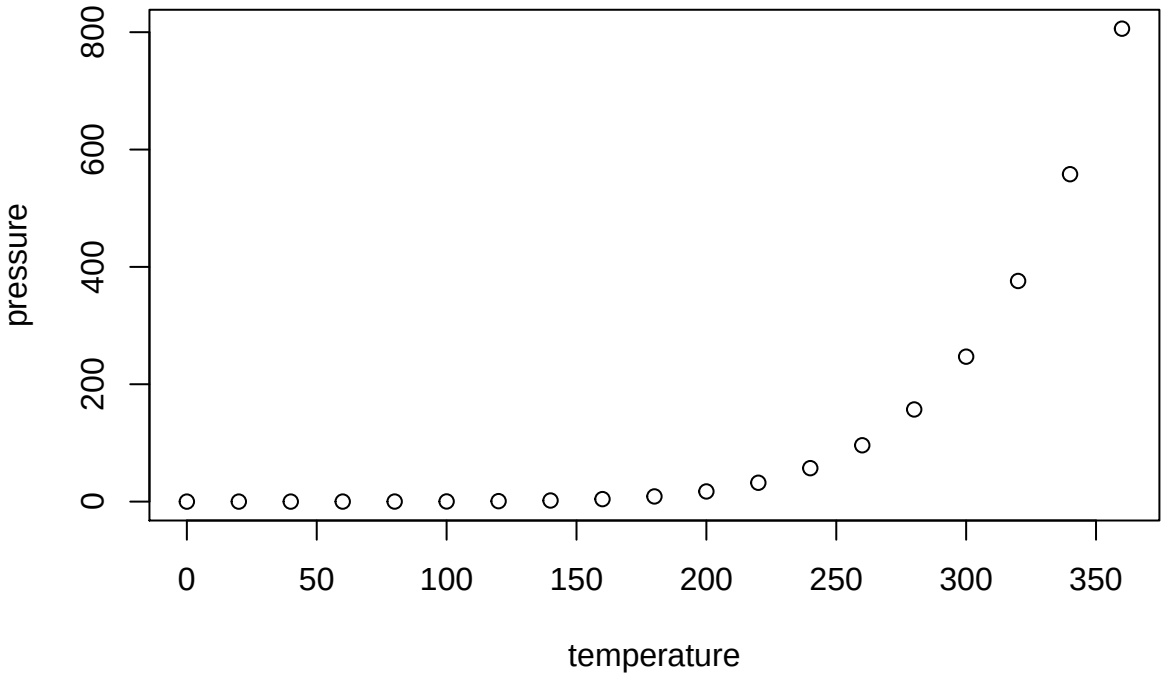
```
## $eta
## [1] 0.0001305
##
## $rho
## [1] 0.85
##
## $a0
## [1] 2920
##
## $s2
## [1] 1.67
##
## $rA
## [1] 0.00512821
##
## $rT
## [1] 0.2
##
## $rD
## [1] 0.2
##
## $rU
## [1] 4.436399e-05
##
## $rP
## [1] 0.2
##
## $dE
## [1] 12
##
## $tl
## [1] 12.5
##
## $cD
## [1] 0.0676909
```

```
##
## $cT
## [1] 0.0034482
##
## $cU
## [1] 0.006203
##
## $g_inf
## [1] 1.82425
##
## $aA
## [1] 0.04781189
##
## $aU
## [1] 0.9542867
##
## $d1
## [1] 0.1068866
##
## $dd
## [1] 3650
##
## $ID0
## [1] 15.03585
##
## $kd
## [1] 1.429374
##
## $ud
## [1] 4.242665
##
## $ad0
## [1] 3984.445
##
## $fd0
## [1] 0.5931441
##
## $gd
## [1] 0.9182759
##
## $b0
## [1] 0.4474691
##
## $b1
## [1] 0.5
##
## $db
## [1] 3650
##
## $IB0
## [1] 3.54132
##
## $kb
## [1] 1.509497
```

```
##
## $ub
## [1] 2.362335
##
## $phi0
## [1] 0.6439322
##
## $phi1
## [1] 0.1760216
##
## $dc
## [1] 10950
##
## $IC0
## [1] 1688.235
##
## $kc
## [1] 1.213153
##
## $uc
## [1] 6.641225
##
## $PM
## [1] 0.843136
##
## $dm
## [1] 108.6619
##
## $tau
## [1] 10
##
## $mu
## [1] 0.132
##
## $f
## [1] 0.3333333
##
## $Q0
## [1] 0.92
```

## Including Plots

You can also embed plots, for example:




Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.