Trying new network model

```
> setwd("/mnt/c/Users/Michael Lachmann/Documents/CV19/pholme_sir/")

  setwd("/mnt/c/Users/Michael Lachmann/Documents/CV19/pholme_sir/")
```

First, with no intervention.

We run the network stored in the file "city.nwk", which contains global interactions and household interactions, households of size 4.

```
> system("time ./sir F,city.nwk S,0.7,0.07,4.5,1 w,1e6 w,2e6,0.001,1.0 >out_none-
  .txt")

  <.7,0.07,4.5,1 w,1e6 w,2e6,0.001,1.0 >out_none.txt")
  Didn't find weight, assuming 1
  : Success
  Didn't find weight, assuming 1
  : Success
  0.14user 0.00system 0:00.14elapsed 93%CPU (0avgtext+0avgdata 3744maxresident)k
  0inputs+0outputs (0major+978minor)pagefaults 0swaps

>
```

Pretty quick. Now with intervention.

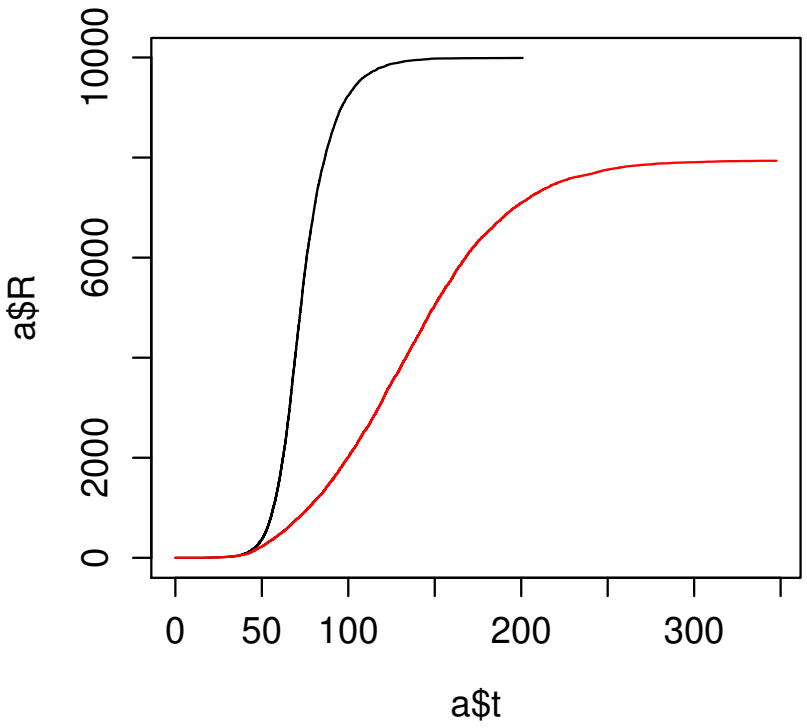
Each "w" argument gives a preiod, with weights. The first period will be cut to 30 days, and then lockdown, 90% efficient

```
> system("time ./sir F,city.nwk S,0.7,0.07,4.5,1 w,30 w,2e6,0.1,1.0 >out_30_90.t-
  xt")

  <,0.7,0.07,4.5,1 w,30 w,2e6,0.1,1.0 >out_30_90.txt")
  Didn't find weight, assuming 1
  : Success
  Didn't find weight, assuming 1
  : Success
  0.10user 0.03system 0:00.14elapsed 95%CPU (0avgtext+0avgdata 3720maxresident)k
  0inputs+0outputs (0major+973minor)pagefaults 0swaps

>
```

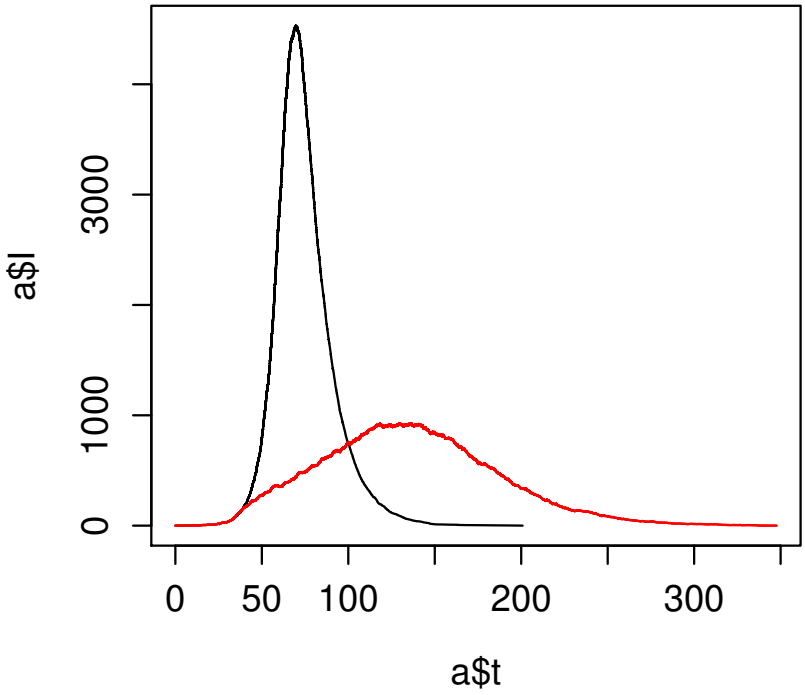
Let's see what it looks like.

```
> a=read.table("out_none.txt") ; colnames(a)=c("t","S","E","I","R")

  a=read.table("out_none.txt") ; colnames(a)=c("t","S","E","I","R")

> b=read.table("out_30_90.txt") ; colnames(b)=c("t","S","E","I","R")

  b=read.table("out_30_90.txt") ; colnames(b)=c("t","S","E","I","R")

> plot(a$t,a$R,type="l",xlim=range(b$t))

  plot(a$t,a$R,type="l",xlim=range(b$t))

> lines(b$t,b$R,col=2)

  lines(b$t,b$R,col=2)

> v()
```

```
v()
```



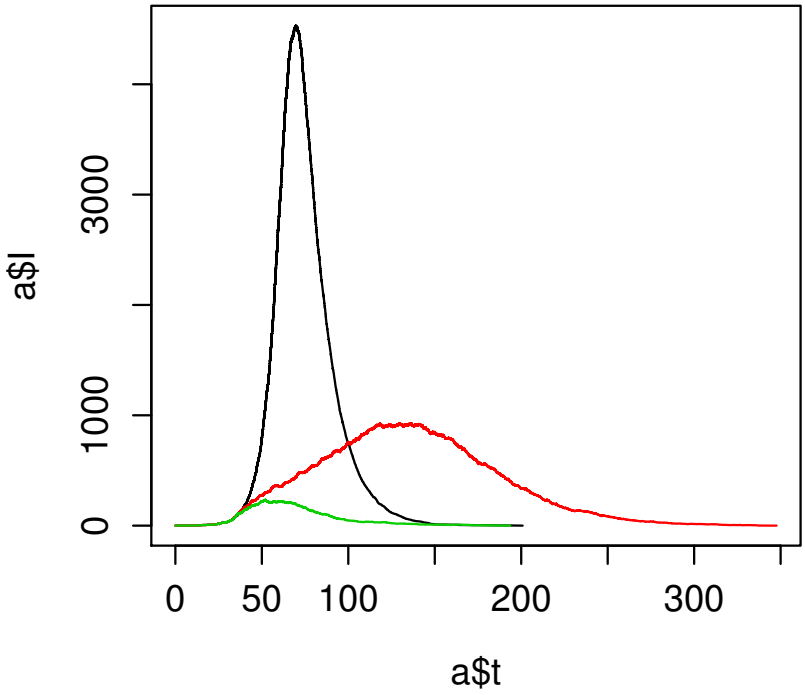

```
> plot(a$t,a$I,type="l",xlim=range(b$t))
  lines(b$t,b$I,col=2)

   lines(b$t,b$I,col=2)

> v()

   v()
```




```
>
```

Let's see what happens with an even stronger intervention

```
> system("time ./sir F,city.nwk S,0.7,0.07,4.5,1 w,30 w,2e6,0.01,1.0 >out_30_99.-
  txt")

   <0.7,0.07,4.5,1 w,30 w,2e6,0.01,1.0 >out_30_99.txt")
   Didn't find weight, assuming 1
   : Success
   Didn't find weight, assuming 1
   : Success
   0.09user 0.01system 0:00.10elapsed 105%CPU (0avgtext+0avgdata 3716maxresident-
   )k
   0inputs+0outputs (0major+970minor)pagefaults 0swaps
> b2=read.table("out_30_99.txt") ; colnames(b2)=c("t","S","E","I","R")

   b2=read.table("out_30_99.txt") ; colnames(b2)=c("t","S","E","I","R")

>
> plot(a$t,a$I,type="l",xlim=range(b$t))
  lines(b$t,b$I,col=2)
  lines(b2$t,b2$I,col=3)

   plot(a$t,a$I,type="l",xlim=range(b$t))
   > lines(b$t,b$I,col=2)
   > lines(b2$t,b2$I,col=3)

> v()

   v()
```




```
>
```

Let's zoom on first 50 days

```
> plot(a$t,a$I,type="l",xlim=c(1,45))
  lines(b$t,b$I,col=2)
  lines(b2$t,b2$I,col=3)
```

```
  plot(a$t,a$I,type="l",xlim=c(1,45))
  > lines(b$t,b$I,col=2)
  > lines(b2$t,b2$I,col=3)
```

```
> head(b)
```

```
  head(b)
           t    S E I R
  1  0.000000 9999 1 0 0
  2  5.268219 9999 0 1 0
  3  6.107342 9998 1 1 0
  4  8.931352 9997 2 1 0
  5  9.923940 9996 3 1 0
  6 10.322130 9995 4 1 0
```

```
> i=min(which(b$t>50))
```

```
  i=min(which(b$t>50))
```

```
> i
```

```
  i
  [1] 1395
```

```
> b[1395:1410,]
```

```
b[1395:1410,]
            t    S   E   I   R
1395 50.00408 9336 161 275 228
1396 50.01210 9336 161 274 229
1397 50.02257 9336 161 273 230
1398 50.05387 9335 162 273 230
1399 50.06692 9335 161 274 230
1400 50.07124 9334 162 274 230
1401 50.09555 9333 163 274 230
1402 50.14385 9332 164 274 230
1403 50.14485 9332 164 273 231
1404 50.15019 9332 163 274 231
1405 50.15464 9332 162 275 231
1406 50.16162 9332 161 276 231
1407 50.17928 9331 162 276 231
1408 50.18557 9330 163 276 231
1409 50.19078 9330 162 277 231
1410 50.20495 9329 163 277 231
> plot(b$t[1395:1595],b$I[1395:1595])
  plot(b$t[1395:1595],b$I[1395:1595])
> plot(b2$t,b2$I,type="l",xlim=c(1,80))
  plot(b2$t,b2$I,type="l",xlim=c(1,80))
>
```