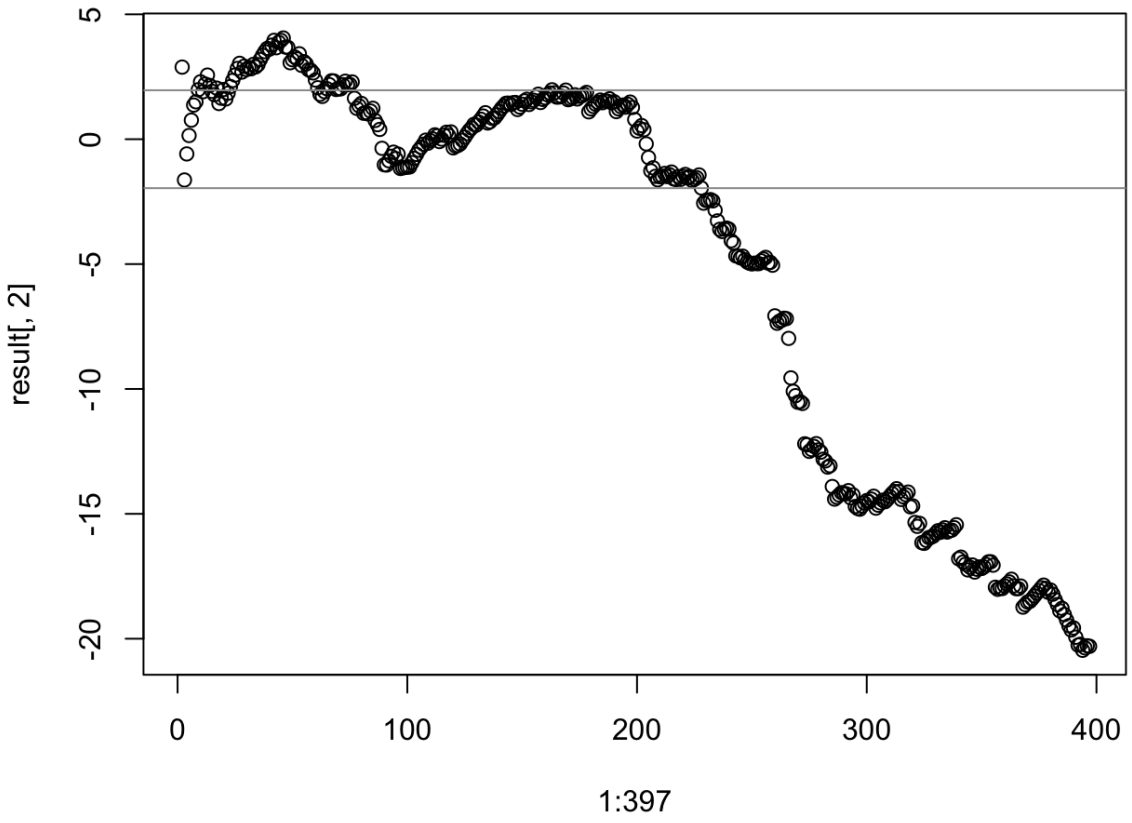
hw4 az147

1. The Laplace Trend Test results

data1.csv

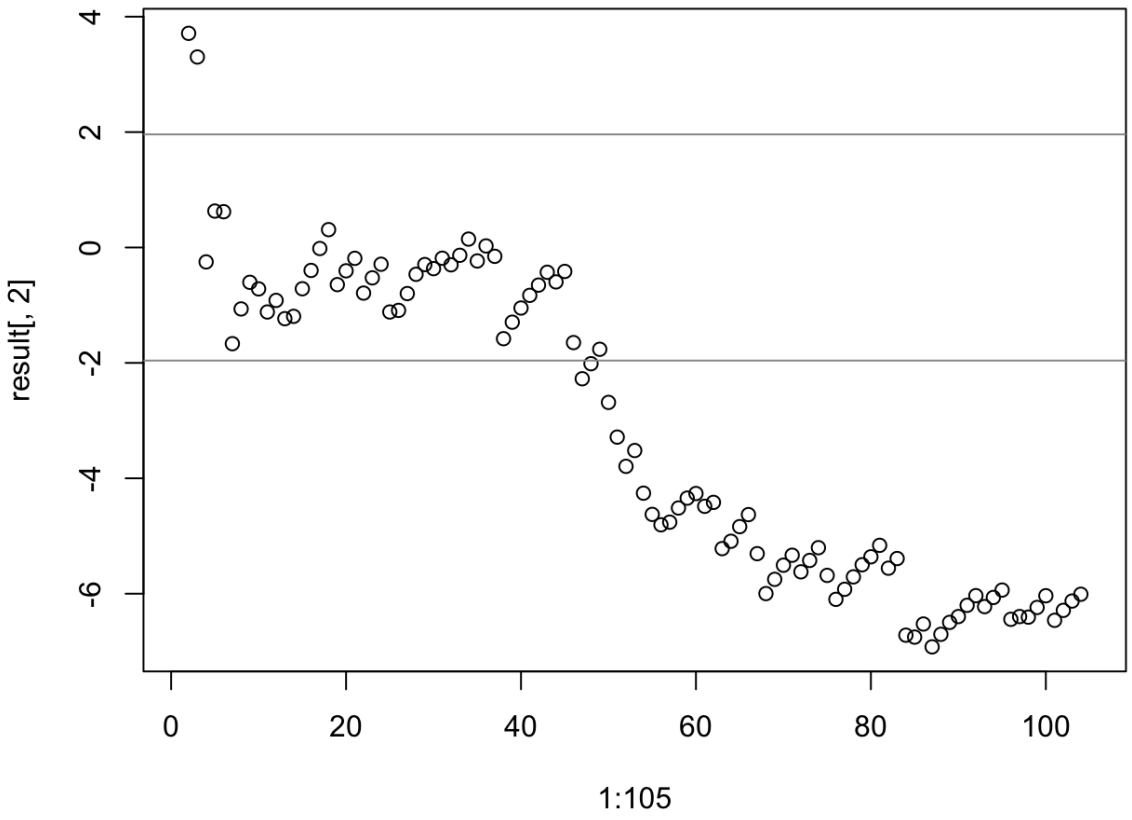
```
HMP<-read.table(file="data/data1.csv", header=TRUE, sep=",")
head(HMP)
dim(HMP)
si=0
ssm=0
y=HMP
result<-matrix(nrow = 397,ncol=2)
for(i in 2:397){
  si<-0
  for(j in 1:i){
    si<-si+y[j,2]
  }
  ssm<-y[1,2]
  for(m in 2:i-1){
    for(j in 1:m){
      ssm<-ssm+y[j,2]
    }
  }
  result[i,2]<-((1/(i-1))*ssm - si/2)/(si*sqrt(1/(12*(i - 1))))
  print(result[i,2])
}
#print(y[,2])
plot(1:397, result[,2])
abline(h = 1.96,,col = "gray60")
abline(h = -1.96, col = "gray60")
```



data2.csv

```
HMP<-read.table(file="data/data2.csv", header=TRUE, sep=",")
head(HMP)
dim(HMP)
si=0
ssm=0
y=HMP
result<-matrix(nrow = 105,ncol=2)
for(i in 2:105){
  si<-0
  for(j in 1:i){
    si<-si+y[j,2]
  }
  ssm<-y[1,2]
  for(m in 2:i-1){
    for(j in 1:m){
      ssm<-ssm+y[j,2]
    }
  }
  result[i,2]<-((1/(i-1))*ssm - si/2)/(si*sqrt(1/(12*(i - 1))))
  print(result[i,2])
}
#print(y[,2])
```

```
plot(1:105, result[,2])
abline(h = 1.96,,col = "gray60")
abline(h = -1.96, col = "gray60")
```

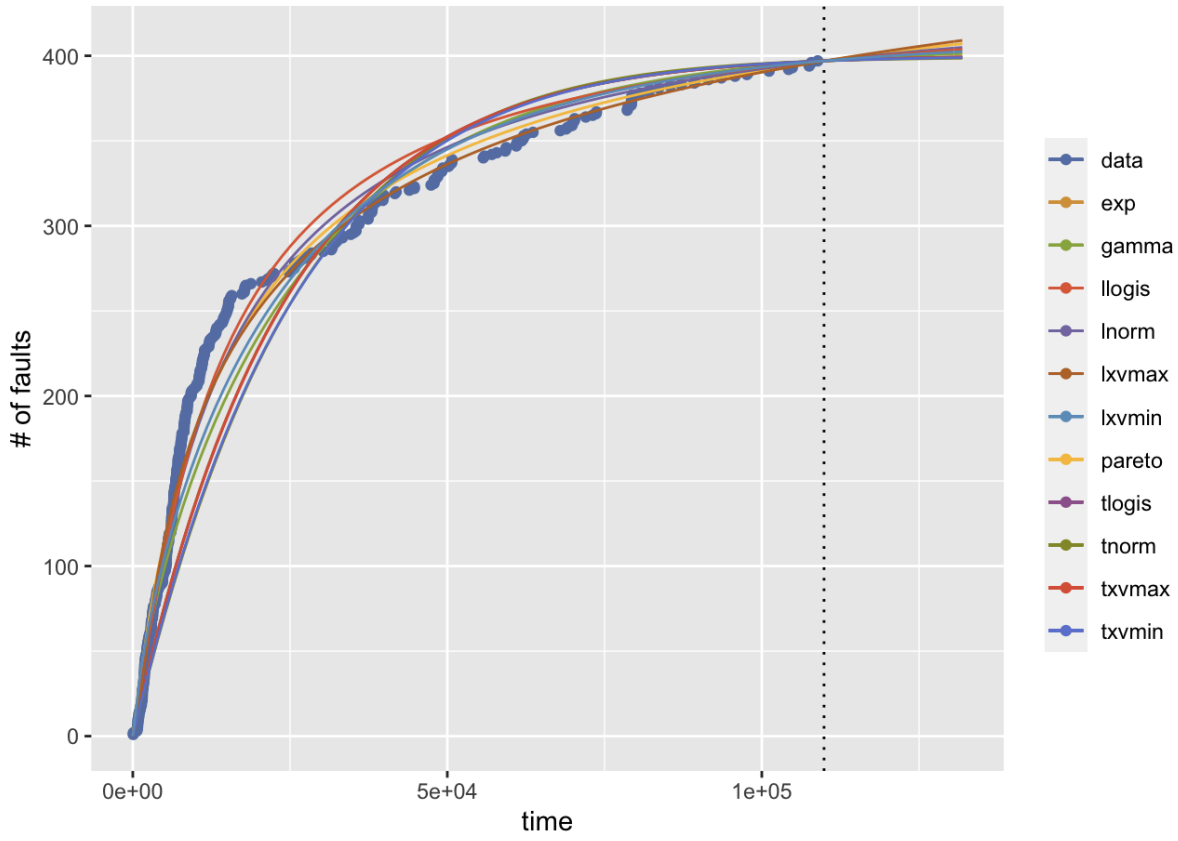


2.SRGMs fitting

data1.csv

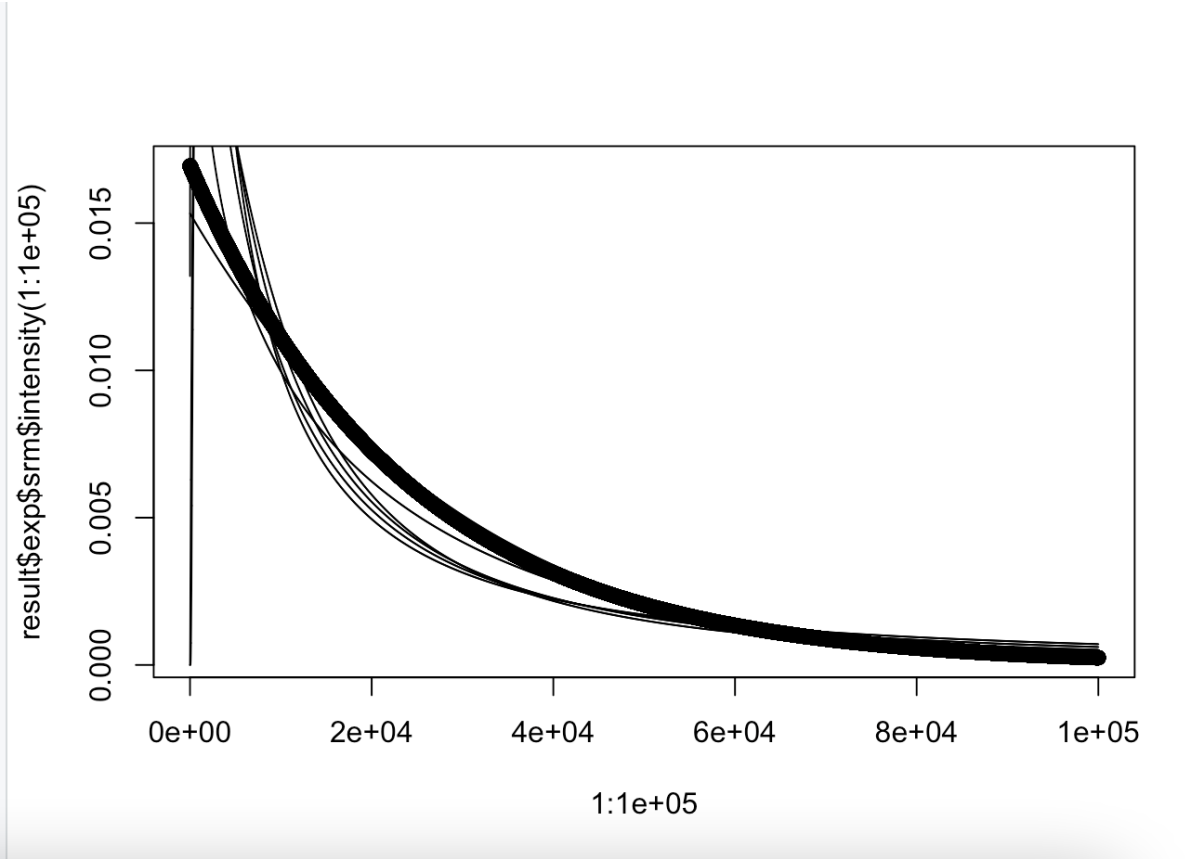
original m(t) and fitted m(t) curves

```
HMP<-read.table(file="data/data1.csv", header=TRUE, sep=",")
library(Rsrat)
HMP
srm.models
(result <- fit.srm.nhpp(te=1000,time=HMP$Time.to.Failure,selection=NULL))
mvfplot(te=1000,time=HMP$Time.to.Failure,srms=result)
```



λ(t) curves

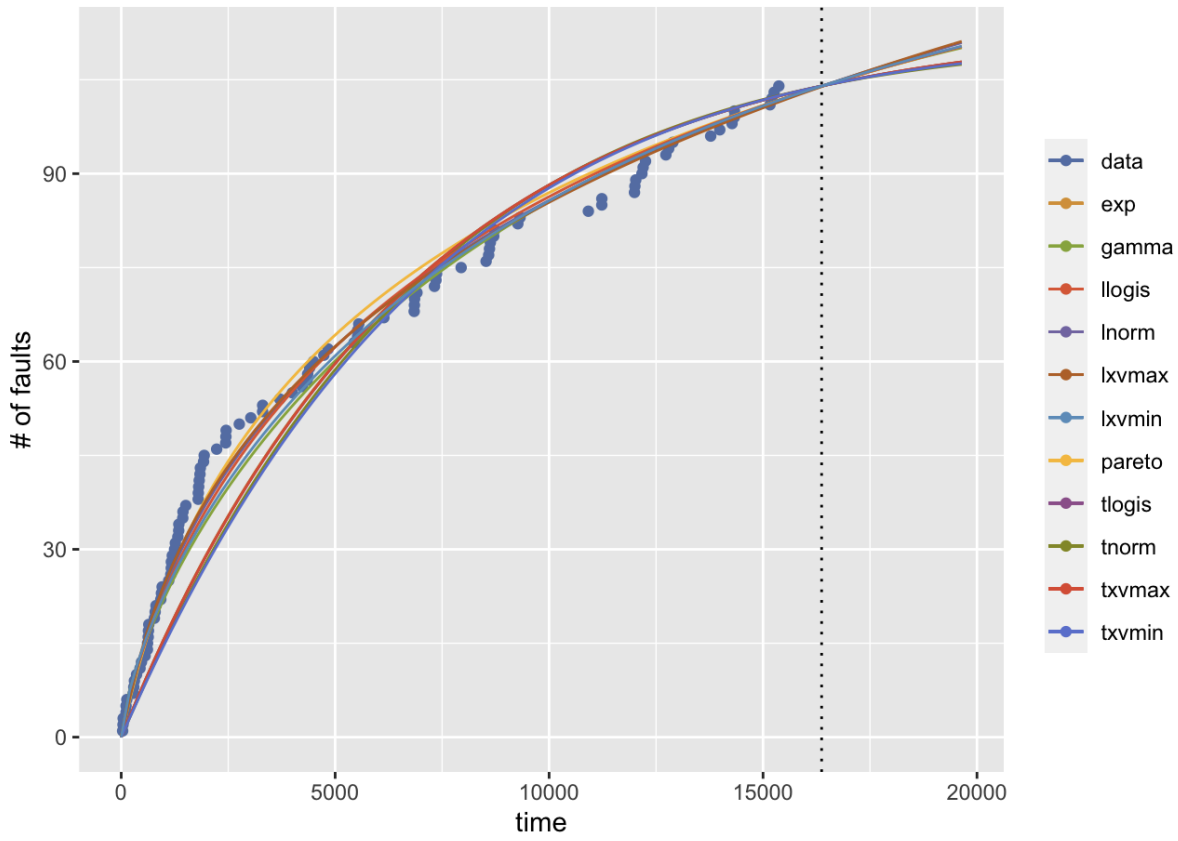
```
HMP<-read.table(file="data/data1.csv", header=TRUE, sep=",")
library(Rsrat)
HMP
srm.models
(result <- fit.srm.nhpp(te=1000,time=HMP$Time.to.Failure,selection=NULL))
mvfplot(te=1000,time=HMP$Time.to.Failure,srms=result)
plot(1:100000,result$exp$srm$intensity(1:100000),lty=1)
lines(1:100000,result$exp$srm$intensity(1:100000),lty=1)
lines(1:100000,result$gamma$srm$intensity(1:100000),lty=1)
lines(1:100000,result$pareto$srm$intensity(1:100000),lty=1)
lines(1:100000,result$tnorm$srm$intensity(1:100000),lty=1)
lines(1:100000,result$lnorm$srm$intensity(1:100000),lty=1)
lines(1:100000,result$tlogis$srm$intensity(1:100000),lty=1)
lines(1:100000,result$llogis$srm$intensity(1:100000),lty=1)
lines(1:100000,result$txvmax$srm$intensity(1:100000),lty=1)
lines(1:100000,result$lxvmax$srm$intensity(1:100000),lty=1)
lines(1:100000,result$txvmin$intensity(1:100000),lty=1)
lines(1:100000,result$lxvmin$intensity(1:100000),lty=1)
```



data2.csv

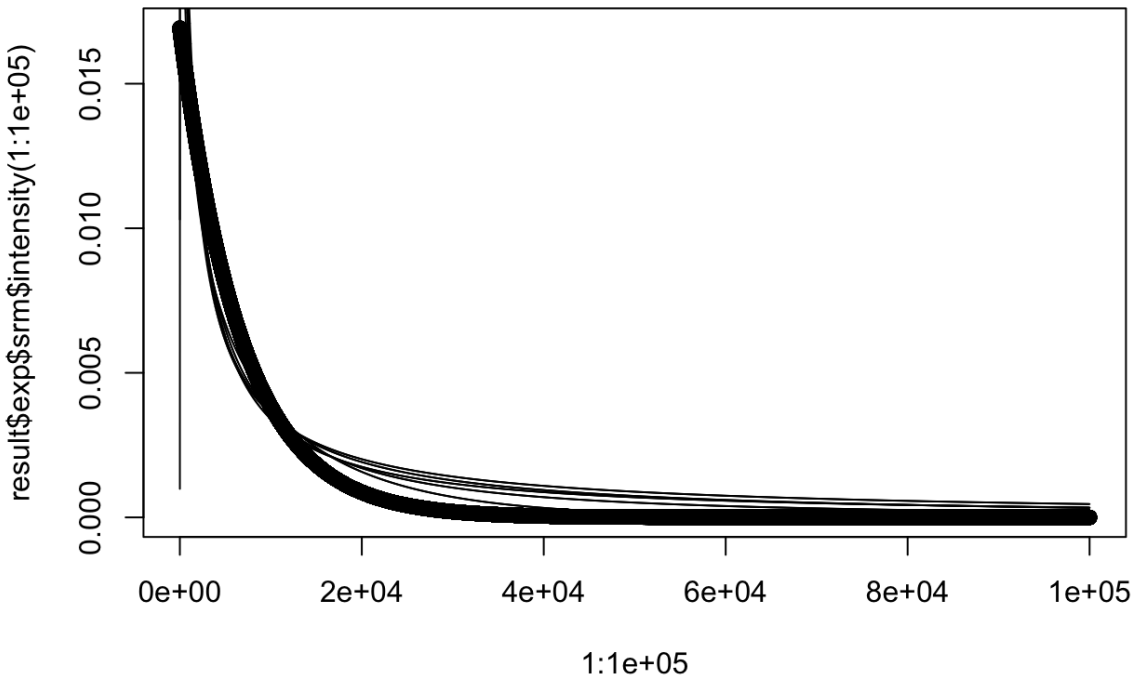
original m(t) and fitted m(t) curves

```
HMP<-read.table(file="data/data2.csv", header=TRUE, sep=",")
library(Rsrat)
HMP
srm.models
(result <- fit.srm.nhpp(te=1000,time=HMP$Time.to.Failure,selection=NULL))
mvfplot(te=1000,time=HMP$Time.to.Failure,srms=result)
```



λ(t) curves

```
HMP<-read.table(file="data/data2.csv", header=TRUE, sep=",")
library(Rsrat)
HMP
srm.models
(result <- fit.srm.nhpp(te=1000,time=HMP$Time.to.Failure,selection=NULL))
mvfplot(te=1000,time=HMP$Time.to.Failure,srms=result)
plot(1:100000,result$exp$srm$intensity(1:100000),lty=1)
lines(1:100000,result$exp$srm$intensity(1:100000),lty=1)
lines(1:100000,result$gamma$srm$intensity(1:100000),lty=1)
lines(1:100000,result$pareto$srm$intensity(1:100000),lty=1)
lines(1:100000,result$tnorm$srm$intensity(1:100000),lty=1)
lines(1:100000,result$lnorm$srm$intensity(1:100000),lty=1)
lines(1:100000,result$tlogis$srm$intensity(1:100000),lty=1)
lines(1:100000,result$llogis$srm$intensity(1:100000),lty=1)
lines(1:100000,result$txvmax$srm$intensity(1:100000),lty=1)
lines(1:100000,result$lxvmax$srm$intensity(1:100000),lty=1)
lines(1:100000,result$txvmin$intensity(1:100000),lty=1)
lines(1:100000,result$lxvmin$intensity(1:100000),lty=1)
```


resultexpsrm$intensity(1:1e+05)
0.000
0.005
0.010
0.015
0e+00
2e+04
4e+04
6e+04
8e+04
1e+05
1:1e+05