1_proc_HPP

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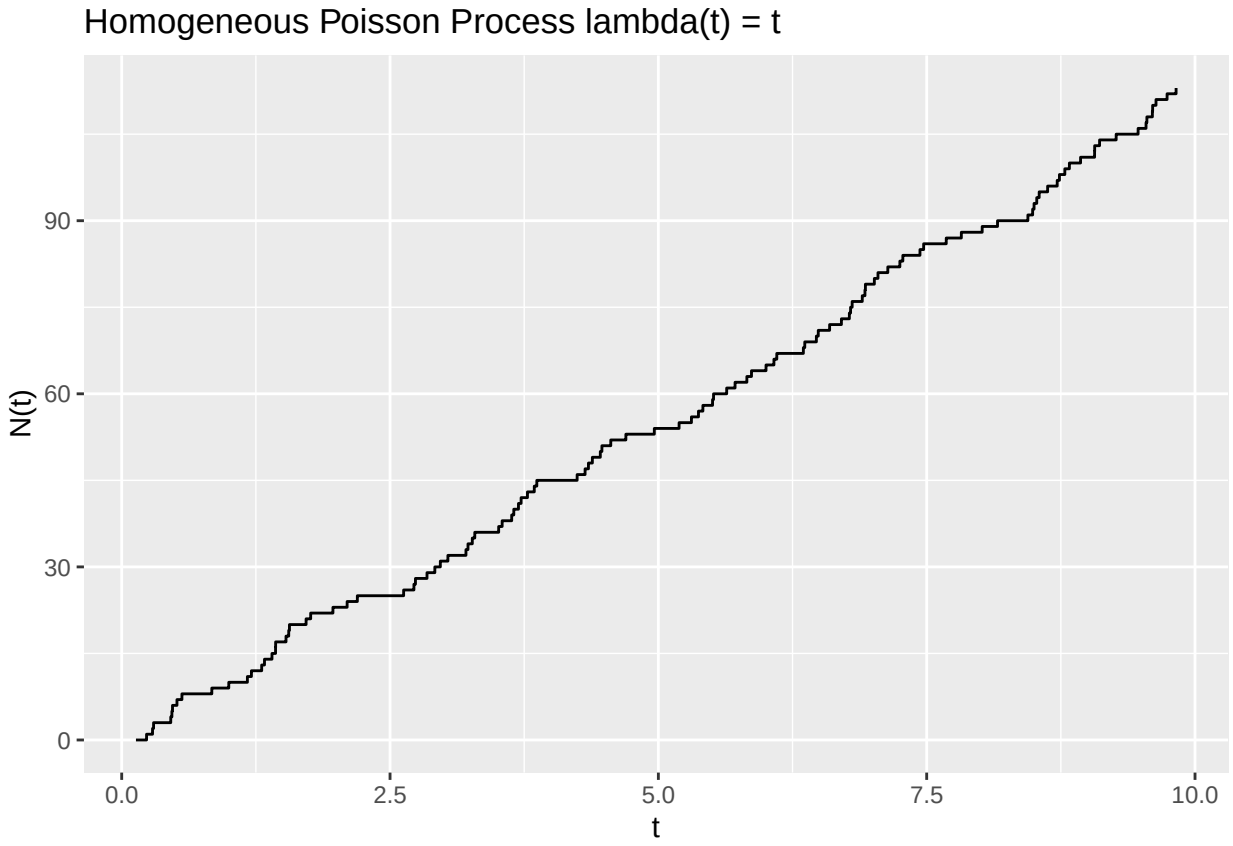
```
library(tidyverse)
library(ggplot2)
```

```
set.seed(1) # for reproducibility

t_max <- 10
t <- 0

lmbda <- 10

X <- numeric(0) # vector of t

while(t <= t_max){
  u       <- runif(1)
  t       <-  t - log(u)/lmbda               # t ~ exp(1/lambda)
  if(t < t_max) {
    X <- c(X,t)                              # update index
  }
}
```

```
length(X)
```

```
## [1] 114
```

```
df_HPP = tibble(
  x = X,
  y = 0:(length(X) - 1)
)

p_HPP <- ggplot(data=df_HPP, mapping=aes(x=x, y=y)) +
  geom_step() +
  labs(title = "Homogeneous Poisson Process lambda(t) = t",
       x = "t",
       y = "N(t)")
p_HPP
```


Homogeneous Poisson Process lambda(t) = t
N(t)
0
30
60
90
0.0
2.5
5.0
7.5
10.0
t