cdf-examples.R

mwilde

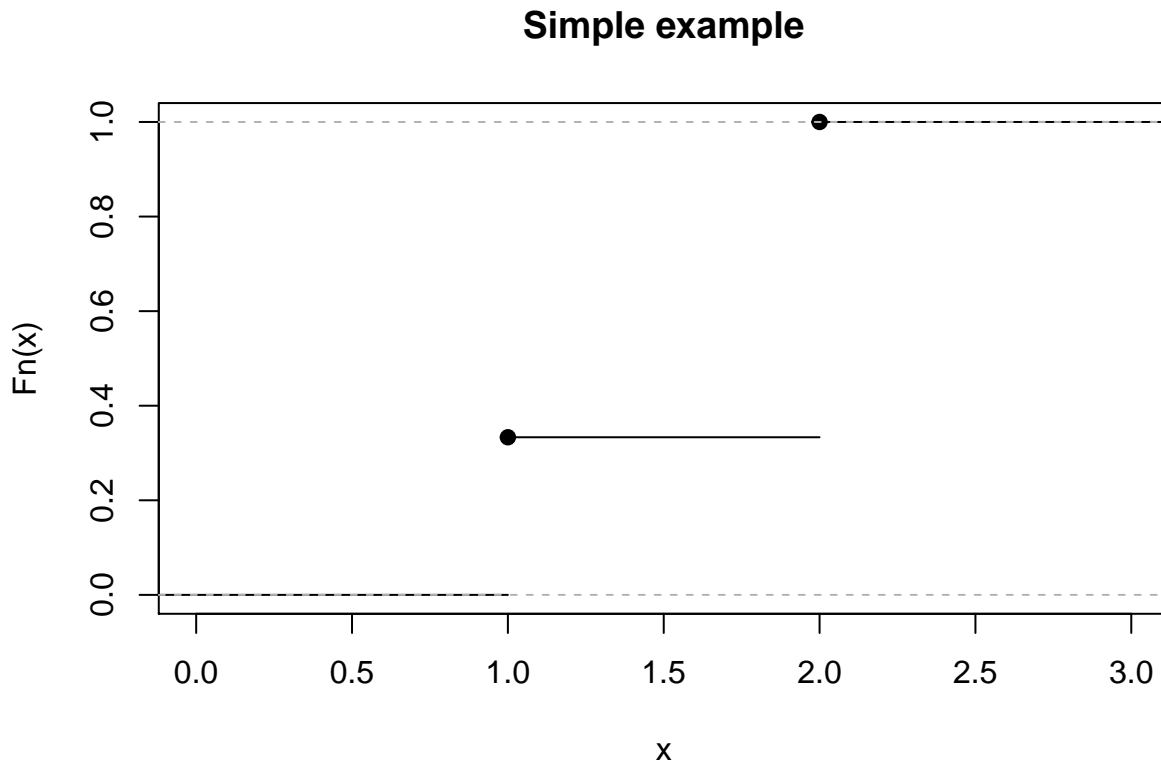*Tue Oct 9 17:56:24 2018*

```r
#Some examples with constructing CDFs:

## The function plot.ecdf constructs an "empirical CDF":

# Here is a simple example:
plot.ecdf(c(1,2,2),main="Simple example")
```

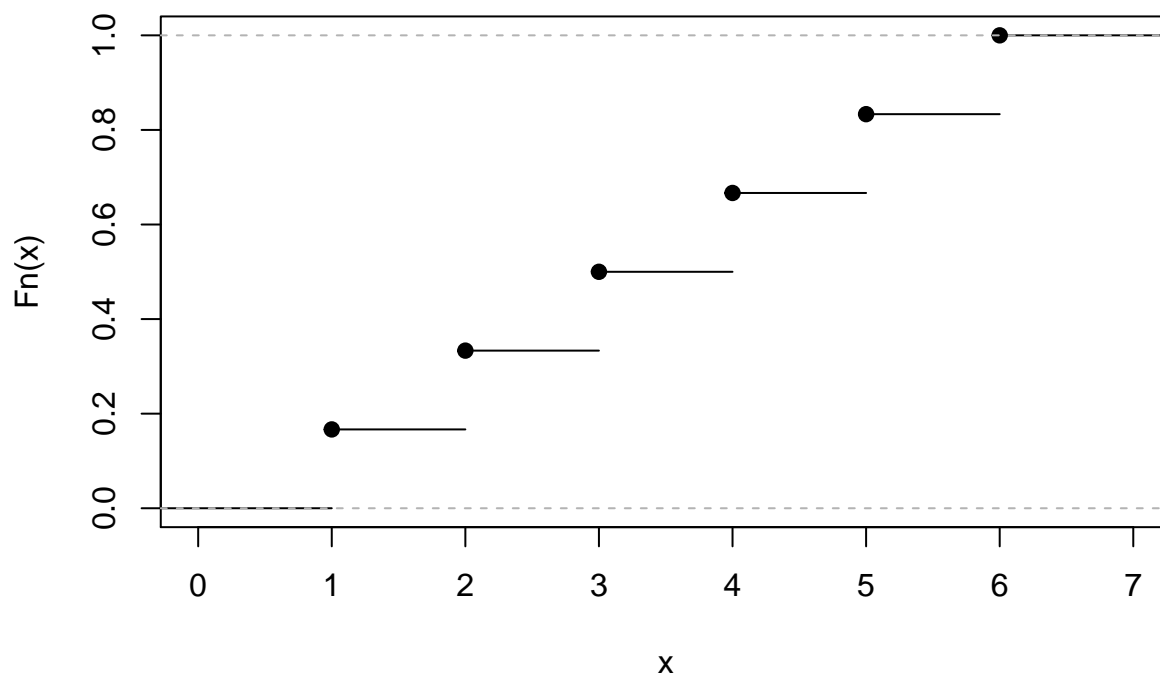### Simple example


```r
# This is the CDF for a discrete random variable such that
# P(X=1) = 1/3,  P(X=2)=1/3
# Note that the function is leaving out the unfilled circles

# Let's do a slightly more complex example - a fair die:

plot.ecdf(1:6,main="A fair die")
```

A fair die


```r
# Doing the same thing by simulation:

nsims <- 1000
sims <- sample(1:6,size=nsims,replace=TRUE)

table(sims)
```
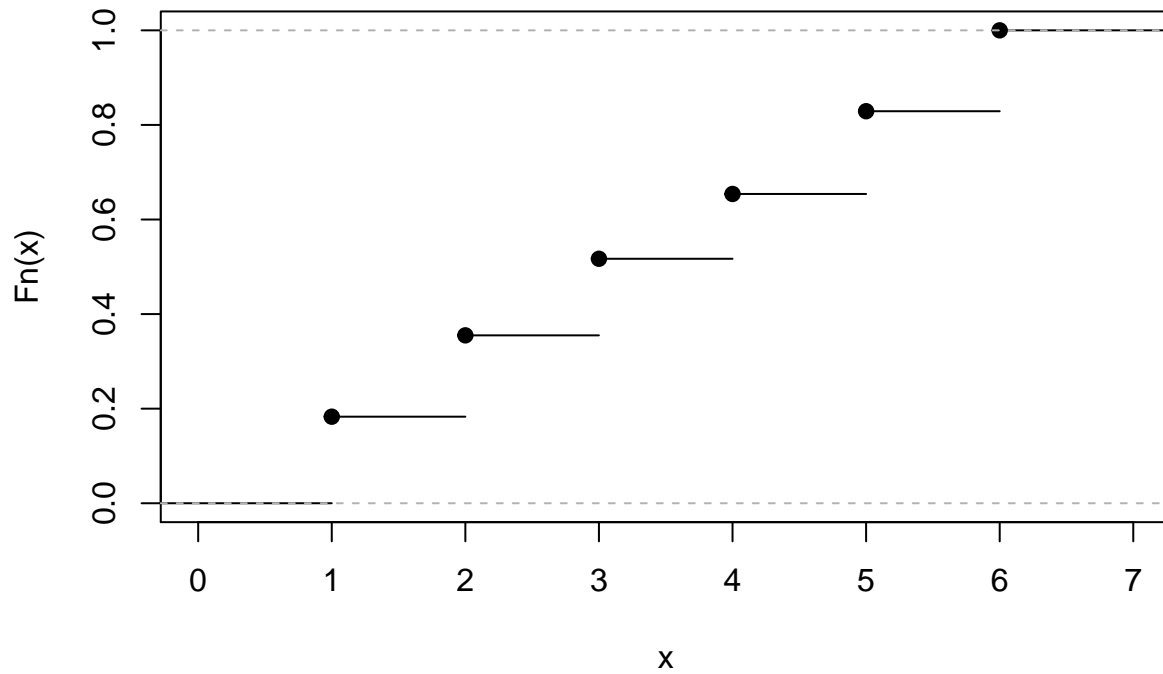
```
## sims
##   1   2   3   4   5   6
## 183 172 162 137 175 171
```

```r
table(sims)/nsims
```

```
## sims
##     1     2     3     4     5     6
## 0.183 0.172 0.162 0.137 0.175 0.171
```
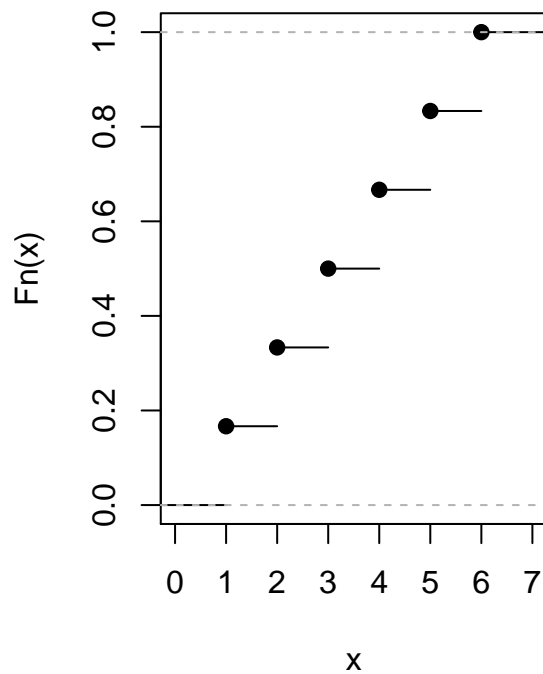
```r
plot.ecdf(sims, main="Empirical CDF")
```
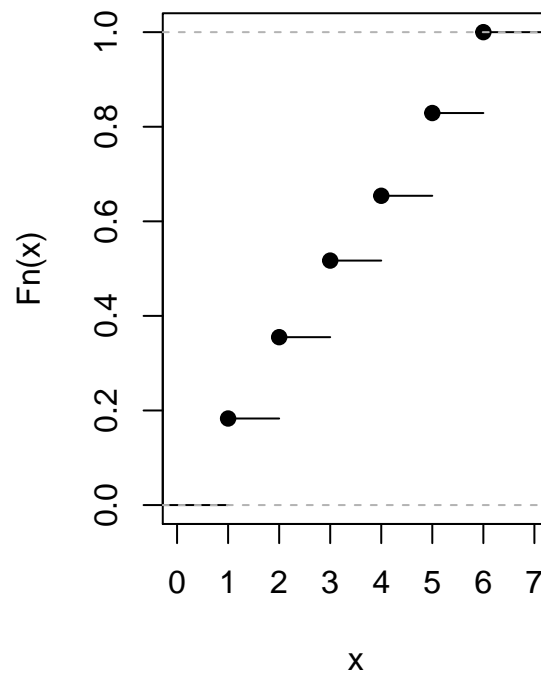
Empirical CDF


```
#Comparison

par(mfrow=c(1,2))
plot.ecdf(1:6,main="Theoretical CDF")
plot.ecdf(sims, main="Empirical CDF")
```

Theoretical CDF

Empirical CDF

```
# Now repeat with different values of nsims
```