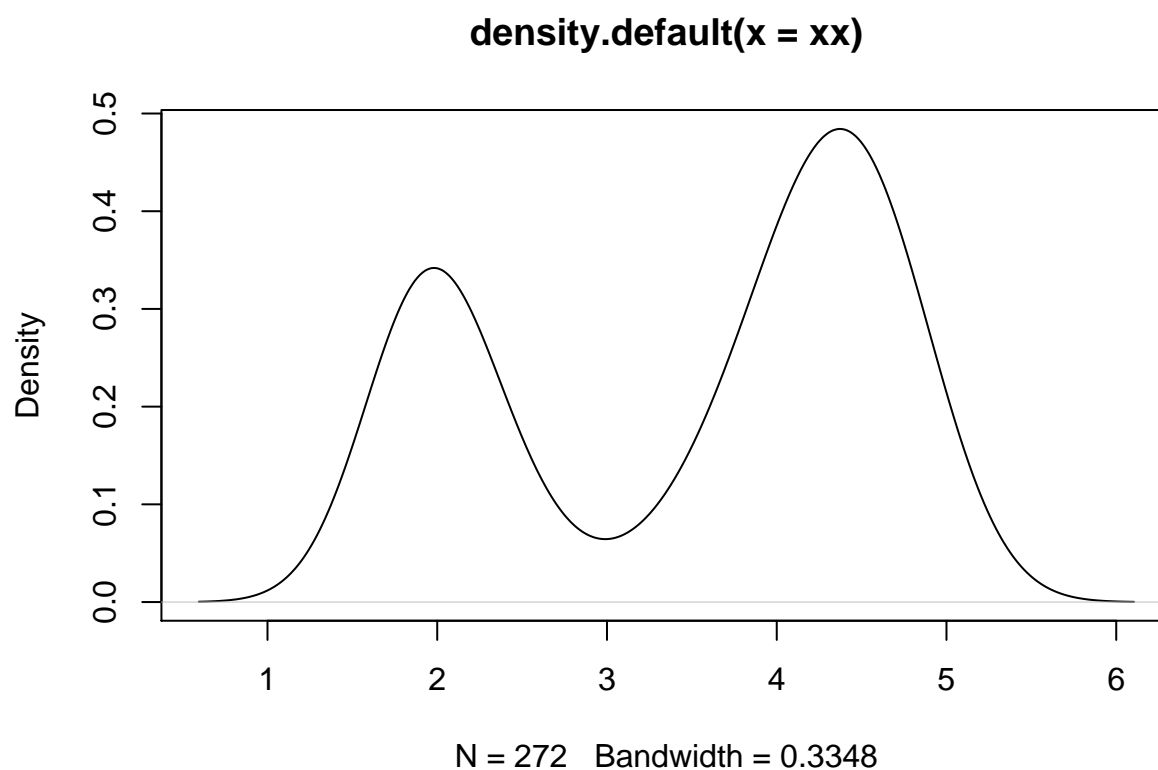# A Gental Intro to Rcpp

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This R Markdown document reproduces the example code in 'Chapter 1: A Gental Introduction to Rcpp' of *Seamless R and C++ Integration with Rcpp* stored in the folder "/SkyDrive/Trinostics/Rcpp Book".

```
xx <- faithful$eruptions
fit <- density(xx)
plot(fit)
```


density.default(x = xx)

```
xx <- faithful$eruptions
fit1 <- density(xx)
fit2 <- replicate(10000, {
  x <- sample(xx, replace = TRUE);
  density(x, from = min(fit1$x), to = max(fit1$x))$y # supplying this
  # from, to range "ensures that the bootstrapped density is estimated
  # on the same grid of x values as in fit1" (p. 5)
})
fit3 <- apply(fit2, 1, quantile, c(0.025, 0.975))
plot(fit1, ylim = range(fit3))
polygon(c(fit1$x, rev(fit1$x)),
```

```
        c(fit3[1,], rev(fit3[2,])),
        col = 'grey', border = F)
lines(fit1)
```

density.default(x = xx)

N = 272   Bandwidth = 0.3348
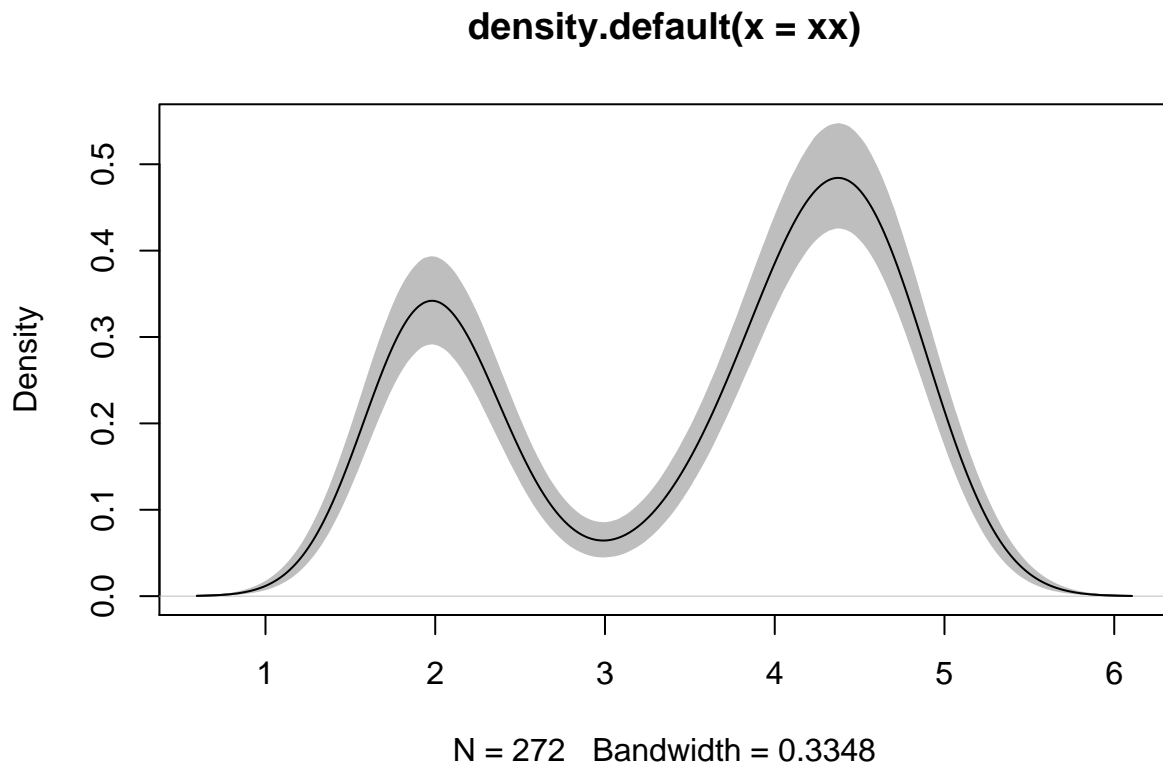
For this data set, the grid contains 512 points

```
length(fit1$x)
```

```
## [1] 512
```

This is because, via help(density),

> The algorithm used in density.default disperses the mass of the empirical distribution function
> over a regular grid of at least 512 points

1.2 A First Example

Finonacci sequence F_n