

## Rejection Sampling

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Adaptive Rejection Sampling can be done in R using the 'ars' package. The documentation for this package can be found here: <http://cran.r-project.org/web/packages/ars/ars.pdf>

More information on Adaptive Rejection Sampling can be found on pages 159 - 162 of the book, Computational Statistics.

This can be used to simulate data from any density that is continuous, differentiable, and log-concave. This can be useful for simulating data from densities that are not included in R.

The function used is `ars(n, f, fprima, x, m, lb, ub, xlb, xub, ...)`

`n` is the number of data points we want simulated,

`f` is a function proportional to the log density,

`fprima` is the derivative of `f` with respect to `x`,

`x` is a starting point in which the log density is defined,

`m` is the number of starting points and should be equal to the length of `x`,

`lb` is TRUE if the density has a lower bound other than negative infinity,

`ub` is TRUE if the density has an upper bound other than infinity,

`xlb` is the value of the lower bound,

`xub` is the value of the upper bound

A script can be found below.

[ars.R](#)

