

# Package: WeibullFit (via r-universe)

September 6, 2024

**Type** Package

**Title** Fits and Plots a Dataset to the Weibull Probability Distribution Function

**Version** 0.1.0

**Description** Provides a single function to fit data of an input data frame into one of the selected Weibull functions (w2, w3 and it's truncated versions), calculating the scale, location and shape parameters accordingly. The resulting plots and files are saved into the 'folder' parameter provided by the user.  
References: a) John C. Nash, Ravi Varadhan (2011). ``Unifying Optimization Algorithms to Aid Software System Users: optimx for R" <doi:10.18637/jss.v043.i09>.

**License** GPL-3

**Encoding** UTF-8

**LazyData** true

**Depends** R(>= 3.6.0)

**Imports** glue, xtable, sqldf, R.oo, FAdist, mixdist, optimx, kSamples, e1071, R.methodsS3, grDevices, graphics, stats, utils

**RoxygenNote** 6.1.1

**Repository** <https://thiagomini.r-universe.dev>

**RemoteUrl** <https://github.com/thiagomini/weibullfit>

**RemoteRef** HEAD

**RemoteSha** 48030775c715fee969284afbbf0174d4ea60e7dc

## Contents

busTrace . . . . .	2
TreesDBH . . . . .	2
weibullFit . . . . .	3

<b>Index</b>	<b>5</b>
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busTrace	<i>Bus velocity at given Time</i>
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**Description**

Bus velocity at given Time

**Usage**

data(busTrace)

**Format**

A data frame with columns:

**Onibus** Bus' series name

**Linha** Bus' line name

**Velocidade** Bus' velocity at given time

**HoraSegundos** Time of record, in seconds

**Source**

[/hrefhttps://crawdad.org/coppe-ufrj/RioBuses/20180319/](https://crawdad.org/coppe-ufrj/RioBuses/20180319/)

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TreesDBH	<i>Diameter at breast height of brazilian eucalyptus</i>
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**Description**

Diameter at breast height of brazilian eucalyptus

**Usage**

data(TreesDBH)

**Format**

A data frame with columns:

**parcela** The Parcel's number (A primary group). Each parcel contains many trees at the same age

**idade** Trees' age at given parcel, in months

**idadearred** Trees' rounded age at given parcel, in months

**dap** Diameter at breast height, or DBH. It is the standard for measuring trees. DBH refers to the tree diameter measured at 4.5 feet above the ground.

**Source**

still unknown

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weibullFit	<i>Weibull-fitting function</i>
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### Description

This functions calculates the shape, scale and location parameters for the weibull distribution to the input data and save the plots.

### Usage

```
weibullFit(dataFrame, primaryGroup = "parcela",
  secondaryGroup = "idadearred", restrValue, pValue = "dap",
  leftTrunc = 5, folder = NA, limit = 1e+05,
  selectedFunctions = NULL, amp = 2, pmaxIT = 20, verbose = FALSE)
```

### Arguments

dataFrame	the input data frame containing the independent, continuous variable.
primaryGroup	the name(String) of the primary grouping column of the data frame.
secondaryGroup	the name(String) of the secondary grouping column of the data frame.
restrValue	the restriction value choosen to be applied to the secondary group column.
pValue	the name(String) of the independent, continuos variable to be analyzed.
leftTrunc	An integer, defining the value for the weibull's function truncation.
folder	the pathname of the folder where the plots will be saved.
limit	A positive integer determining the maximum number of rows from the data frame (grouped by the primary group column) to be analyzed.
selectedFunctions	A character vector determining which weibull function to be applied. Can be any of the following: w2, w2te, w2td, w2ttd, w3, w3te, w3td, w3ttd
amp	The continuous variable class width to be accounted for the calculations.
pmaxIT	A positive integer, the maximum number of iterations used by the algorithm to try to get the weibull function parameters, for each primary group.
verbose	Logical, determines if the function prints more detailed results on the console.

### Details

This function first extracts a subset of the input data frame using the restrValue parameter applied to the secondary group column. Then, it calculates the weibull function scale, shape and location parameters using the maximum-likelihood method. Finally, it plots the results (as .wmf, .csv and .jpeg) inside the folder given by the Folder parameter.

### Value

A data frame object containing the best results for shape, location and scale parameters.

**Examples**

```
functions <- c("w2", "w3")
best <- weibullFit(restrValue = 60, dataframe = TreesDBH,
selectedFunctions = functions, amp = 2, pmaxIT = 1, limit = 1)
```

# Index

## \* datasets

busTrace, [2](#)

TreesDBH, [2](#)

busTrace, [2](#)

TreesDBH, [2](#)

weibullFit, [3](#)