

# Package ‘ntsDatasets’

July 18, 2024

**Type** Package

**Title** Neutrosophic Data Sets

**Version** 0.2.0

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**Description**

Provides a collection of datasets related to neutrosophic sets for statistical modeling and analysis.

**License** GPL-3

**URL** <https://github.com/a-roshani/ntsDatasets>

**Encoding** UTF-8

**LazyData** false

**Depends** R (>= 3.5)

**RoxygenNote** 7.3.2

**NeedsCompilation** no

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**Repository** CRAN

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AGSTimes	<i>The Analgesic Datasets</i>
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### Description

Dataset containing times to relief for 20 patients receiving analgesic.

### Format

A data frame with the relief times (in minutes) of 20 patients receiving analgesic.

### Source

Jamal, F., Shafiq, S., Aslam, M., Khan, S., Hussain, Z., Abbas, Q. (2024). Modeling COVID-19 data with a novel neutrosophic Burr-III distribution, *Scientific Reports*, 14:10810.

### Examples

```
data("AGSTimes")
AGSTimes
```

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alloy	<i>Alloy melting data</i>
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### Description

It is related to alloy melting points.

### Format

A data.frame with 18 observations of alloy melting points.

### Source

Rao, G. S. (2003). Neutrosophic Log-Logistic Distribution Model in Complex Alloy Metal Melting Point Applications, *International Journal of Computational Intelligence Systems*, 16: 48.

Hassan, M. K. and Aslam, M. (2024). Birnbaum Saunders distribution for imprecise data: statistical properties, estimation methods, and real life applications, *scientific reports*, 14: 6955.

**Examples**

```
data("alloy")  
alloy
```

---

balls

*Balls data*

---

**Description**

It is related to failure times of 23 bearing balls.

**Format**

A data.frame with 23 observations of failure times of bearing balls.

**Source**

Lawless, J. F. (2003). *Statistical Models and Methods for Lifetime Data*, Wiley, Hoboken, NJ, USA.  
Salam, S., Khan, Z., Ayed, H., Brahmia, A., Amin, A. (2021). The Neutrosophic Lognormal Model in Lifetime Data Analysis: Properties and Applications, *Fuzzy Sets and Their Applications in Mathematics*, Article ID 6337759.

**Examples**

```
data("balls")  
balls
```

---

batteries

*Lifetime of batteries data*

---

**Description**

It is related to the lifetime in 100hours of batteries

**Format**

A data.frame with 23 batteries represent their lifetime.

**Source**

Aslam, M. (2021). A new goodness of fit test in the presence of uncertain parameters. *Complex and Intelligent Systems*, 7(1), 359–365.  
Hassan, M. K. and Aslam, M. (2024). Birnbaum Saunders distribution for imprecise data: statistical properties, estimation methods, and real life applications, *scientific reports*, 14: 6955.

**Examples**

```
data("batteries")
batteries
```

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ChildMortalitySA	<i>Childhood Mortality Rates in Saudi Arabia (1995-2020)</i>
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**Description**

Dataset containing childhood mortality rates (under age 5) per 1000 live births for Saudi Arabia from 1995 to 2020. Data sourced from the WHO's global health indicators database.

**Format**

A data frame with observations of childhood mortality rates per 1000 live births.

**Source**

World Health Organization (WHO), Global Health Observatory (GHO) data repository.

**Examples**

```
data("ChildMortalitySA")
ChildMortalitySA
```

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CRPK	<i>Coronavirus Reproduction Rate Data for Pakistan</i>
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**Description**

Dataset containing the coronavirus reproduction rate in Pakistan from October 2020 to December 2020.

**Format**

A data frame with 79 observations of coronavirus reproduction rate in Pakistan from October 2020 to December 2020.

**Source**

Sherwani, R. A. K., Shakeel, H., Saleem, M., Awan, W. B., Aslam, M., Farooq, M. (2021). A new neutrosophic sign test: An application to COVID-19 data, PLOS ONE, 16(8): e0255671.

**Examples**

```
data("CRPK")
head(CRPK)
```

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debt	<i>Public Debt Data</i>
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**Description**

This dataset contains information on public debt (in million dollars) in Egypt, covering the period from 2000 to 2022.

**Format**

A data frame with 23 observations of public debt in Egypt from 2000 to 2022.

**Source**

Essa, N. I., Zhar, H. M., Abu El-Magd, N. A. T. (2023). Neutrosophic Generalized Pareto Distribution, *Mathematics and Statistics*, 11(5), 827-833.

**Examples**

```
data("debt")
debt
```

---

dioxins	<i>Average Daily Ingestion of Dioxins Data</i>
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**Description**

The dataset contains estimates of dioxins absorption from the average diet annually for the years 1998 to 2015, as reported in the 2017 annual environmental statistics by the Ministry of Environment, Japan.

**Format**

A data frame with 18 observations. Each observation represents the estimated daily ingestion of dioxins (in pg TEQ/day).

**Source**

Khan, Z., Almazah, M. M. A., Hamood Odhah, O., Alshanbari, H. M. (2022). Generalized Pareto Model: Properties and Applications in Neutrosophic Data Modeling, *Mathematical Problems in Engineering*, 2022, 3686968.

**Examples**

```
data("dioxins")
dioxins
```

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failure	<i>Failur time data</i>
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**Description**

It is related to failure times of the cooling system used in an airplane.

**Format**

A data.frame with 30 observations of failure time data on the air conditioning system

**Source**

Linhart, H. and Zucchini, W. (1986). *Model Selection*, John Wiley & Sons, New York.

**Examples**

```
data("failure")
failure
```

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ICUcovidPK	<i>The Daily ICU Occupancy dataset</i>
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**Description**

Dataset containing daily ICU occupancy data of COVID-19 patients in Pakistan for December 2020.

**Format**

A data frame with observations of daily ICU occupancy: - day: Day of December 2020. - age\_55\_and\_above: Lower and upper bounds of ICU occupancy for patients aged 55 and above, formatted as "lower-upper". - age\_between\_35\_and\_55: Lower and upper bounds of ICU occupancy for patients aged between 35 and 55, formatted as "lower-upper". - age\_below\_35: Lower and upper bounds of ICU occupancy for patients aged below 35, formatted as "lower-upper". - male: Lower and upper bounds of ICU occupancy for male patients, formatted as "lower-upper". - female: Lower and upper bounds of ICU occupancy for female patients, formatted as "lower-upper".

**Source**

Sherwani, R. A. K., Shakeel, H., Awan, W. B., Faheem, M., Aslam, M. (2021). Analysis of COVID-19 data using neutrosophic Kruskal Wallis H test, *BMC Medical Research Methodology*, 21:215.

Sherwani R. A. K., Shakeel, H., Saleem, M., Awan, W. B., Aslam, M., Farooq, M. (2021). A new neutrosophic sign test: An application to COVID-19 data, *PLoS ONE*, 16(8): e0255671.

**Examples**

```
data("ICUcovidPK")
ICUcovidPK
```

---

MRcovidNL

*COVID-19 Mortality Rate Data for the Netherlands*

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**Description**

Dataset containing COVID-19 mortality rate data recorded in the Netherlands recorded from 31 March to 30 April 2020.

**Format**

A data frame with 30 observations of COVID-19 mortality rate for the Netherlands.

**Source**

Almongy, H. M., Almetwally, E. M., Aljohani, H. M., Alghamdi, A. S. and Hafez, E. H. (2021). A new extended Rayleigh distribution with applications of COVID-19 data. *Results in Physics*, 23, 104012.

Jamal, F., Shafiq, S., Aslam, M., Khan, S., Hussain, Z., Abbas, Q. (2024). Modeling COVID-19 data with a novel neutrosophic Burr-III distribution, *Scientific Reports*, 14:10810.

**Examples**

```
data("MRcovidNL")
head(MRcovidNL)
```

---

NOx

*Nitrogen Oxides Emissions Data*

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**Description**

This dataset includes yearly nitrogen oxides emissions for Denmark for the period 1990 to 2018.

**Format**

A data frame with 29 observations of nitrogen oxides emissions for Denmark for the period 1990-2018.

**Source**

Khan, Z., Amin, A., Khan, S. A., Gulistan, M. (2021). Statistical Development of the Neutrosophic Lognormal Model with Application to Environmental Data, *Neutrosophic Sets and Systems*, 47, 1-11.

**Examples**

```
data("NOx")
NOx
```

---

 PopVillUSA

*Population Villages USA data*


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**Description**

It is related to population compactness of a few villages in rural USA.

**Format**

A data frame with 17 populations of Villages in the USA. Each row represents a village.

**Source**

Albassam, M., Khan, N., Aslam, M., (2020) The W/S Test for Data Having Neutrosophic Numbers: An Application to USA Village Population, *Complexity*, 2020, 3690879.

Rao, G. S., Norouzirad, M., and Mazarei, D. (2023). Neutrosophic Generalized Exponential Distribution with Application. *Neutrosophic Sets and Systems*, 55, 471-485.

**Examples**

```
data("PopVillUSA")
PopVillUSA
```

---

remission

*Remission data*


---

**Description**

It is related to remission time in months of 128 cancer patients.

**Format**

A data.frame with 128 observations of remission time in months of cancer patients.

**Source**

Lee, E.T. and Wang, J. (2003), *Statistical Methods for Survival Data Analysis*. Vol. 476, John Wiley & Sons, Hoboken, NJ, USA.

Rao, G. S., Norouzirad, M., and Mazarei . D. (2023). Neutrosophic Generalized Exponential Distribution with Application. *Neutrosophic Sets and Systems*, 55, 471-485.

**Examples**

```
data("remission")
remission
```



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tempLahor	<i>Monthly Low and High Temperatures in Lahore, Pakistan (2016–2020)</i>
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**Description**

This dataset contains the monthly low and high temperatures recorded in Lahore, Pakistan, over the years 2016 to 2020.

**Format**

A data frame with 60 rows representing months, and columns for low and high temperatures in Lahore, Pakistan, from 2016 to 2020.

**Source**

Ahsan-ul-Haq, M., Zafar, J., Aslam, M., Tariq, S. (2024). Neutrosophic Topp-Leone Distribution for Interval-Valued Data Analysis, *Journal of Statistical Theory and Applications*, 23, 164–173.

**Examples**

```
data("tempLahor")
tempLahor
```

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