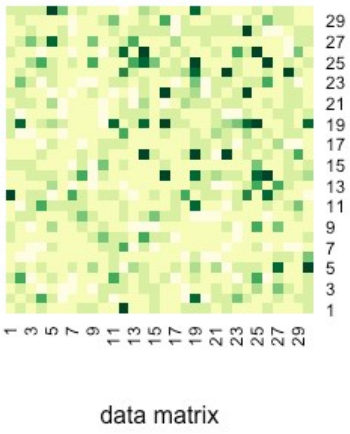
Computational Methods

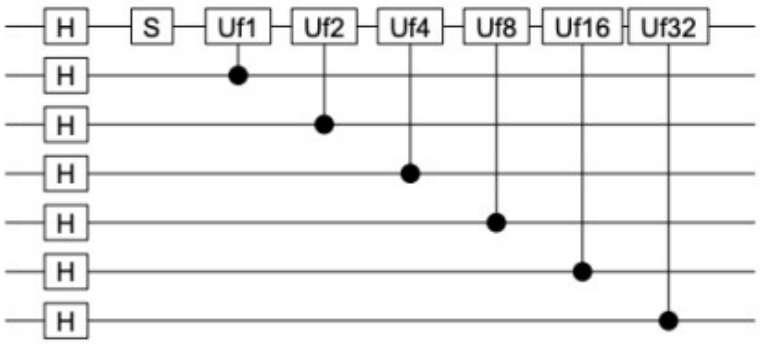
FKF.SP v0.1.0: Provides a fast and flexible Kalman filtering implementation utilizing sequential processing, designed for efficient parameter estimation through maximum likelihood estimation. See the vignette.

rminizinc v0.0.4: Implements an interface to MiniZinc, a free and open-source constraint modeling language which is used to identify feasible solutions out of a very large set of candidates when the problem can be modeled in terms of arbitrary constraints. See the vignette.

nosiySBM v0.1.4: Implements the variational expectation-maximization algorithm to fit a noisy stochastic block model to an observed dense graph and to perform node clustering. See Rebafka & Villers (2020) for background and the vignette to get started.



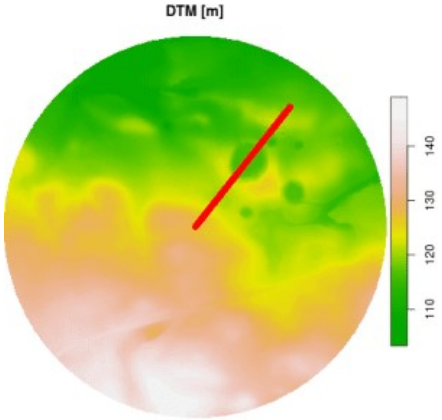
qsimulatR v1.0: Implements a quantum computer simulator with up to 24 qubits which provides many common gates and allows users to define general single qubit gates and general controlled single qubit gates. The package supports plotting circuits and exporting circuits to `Qiskit`, a Python package which can be used to run on IBM's Quantum hardware. There is an Introduction, and vignettes on Exponentiation modulo n, Addition by Fourier transform, the Deutsch-Sozsa Algorithm, the Phase Estimation Algorithm and Quantum Fourier Trafo.



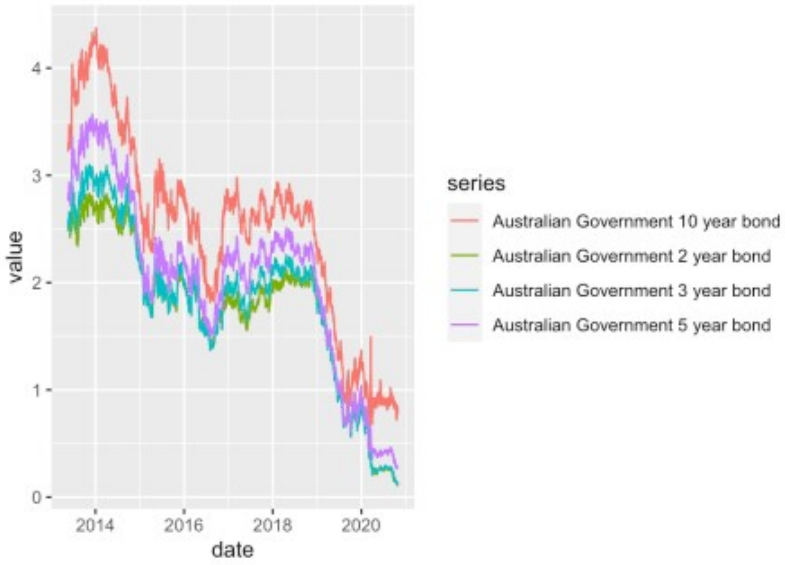
Data

eyedata v0.1.0: Contains anonymized real life, open source data sets from patients treated in Moorfields Eye Hospital, London and includes data about people who received intravitreal injections with anti-vascular endothelial growth factor due to age-related macular degeneration or diabetic macular edema. See README for the list of medical publications associated with the data sets.

rgugik v0.2.1: Automates open data acquisition including raster and vector data from the Polish Head Office of Geodesy and Cartography. See the vignettes Digital Eelvation Model, Orthophotomap, and Topographic Database.

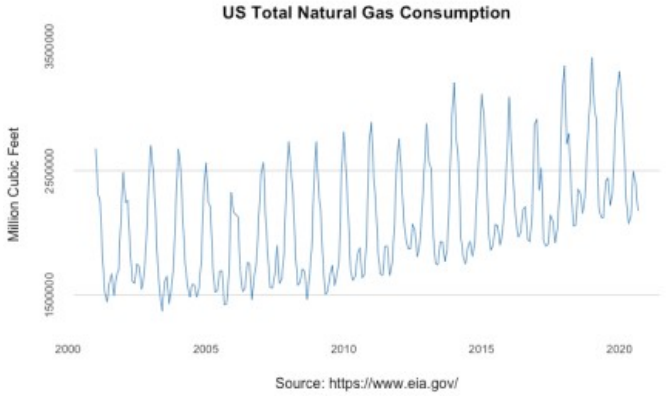


readrba v0.1.0: Provides tools to download current and historical statistical tables and forecasts from the Reserve Bank of Australia Data which comprise a broad range of Australian macroeconomic and financial time series. See the vignette to get started.



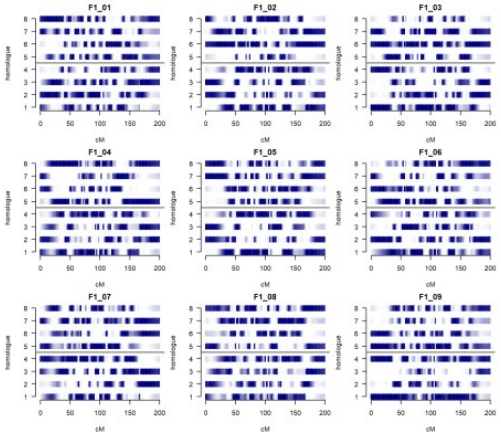
threesixtygiving v0.2.2: Provides access to open data from 360Giving, a database of charitable grant giving in the UK. See the vignette.

USgas Links to the US Energy Information Administration to provide and overview of natural gas demand at the county level. See the vignette.



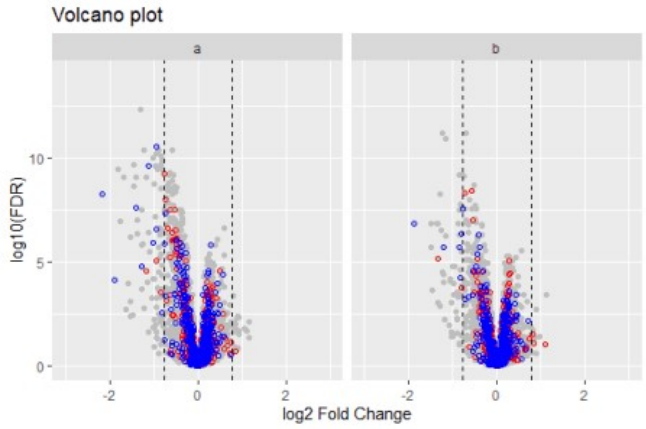
Genomics

polyqtlR v0.0.4: Provides functions for quantitative trait loci (QTL) analysis in polyploid bi-parental F1 populations. See the vignette for background and examples.



RPPASPACE v1.0.7: Provides tools for the analysis of reverse-phase protein arrays (RPPAs), which are also known as *tissue lysate arrays* or simply *lysate arrays*. See Hu (2007) for background and the Guide to for examples.

RVA v0.0.3: Provides functions to automate downstream visualization & pathway analysis in RNAseq analysis. See the vignette.

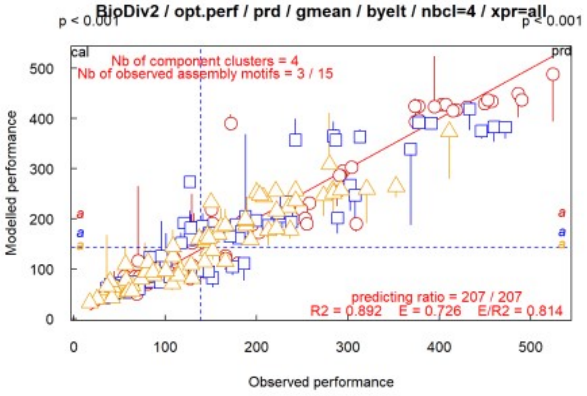


Machine Learning

comparator v0.0.1: Implements functions for comparing strings, sequences and numeric vectors for clustering and record linkage applications. It includes generalized edit distances for comparing sequences/strings, Monge-Elkan similarity for fuzzy comparison of token sets, and L-p distances for comparing numeric vectors. See README to get started.

DoubleML v0.1.1: Implements the double/debiased machine learning framework of Chernozhukov et al. (2018) for partially linear regression models, partially linear instrumental variable regression models, interactive regression models and interactive instrumental variable regression models. There are guides on Installation and Getting Started.

functClust v0.1.6: Provides functions to cluster the components that make up an interactive system on the basis of their functional redundancy for one or more collective, systemic performances. There are six vignettes including and Overview, a simple Use Case, and Multi Fuctionality.

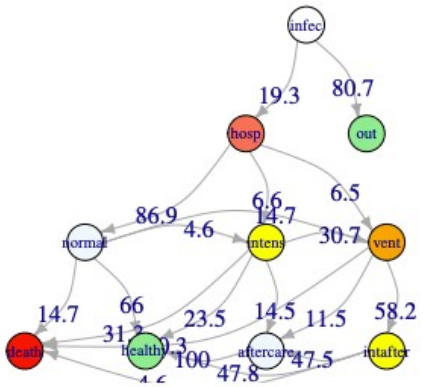


mlpack v3.4.2.1: Implements bindings to the mlpack C++ machine learning library. See Curtin et al (2018) for background and look here for documentation.

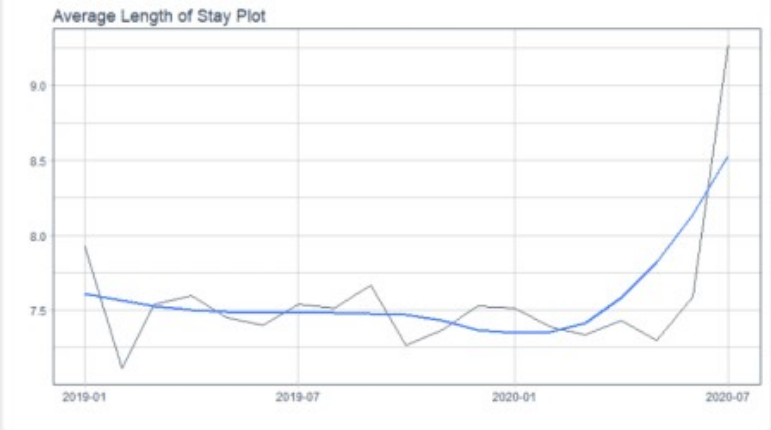
RFCCA v1.0.3: Implements Random Forest with Canonical Correlation Analysis, a method for estimating the canonical correlations between two sets of variables depending on the subject-related covariates. The method is described in Alakus et al. (2020). See the vignette for examples.

Medicine

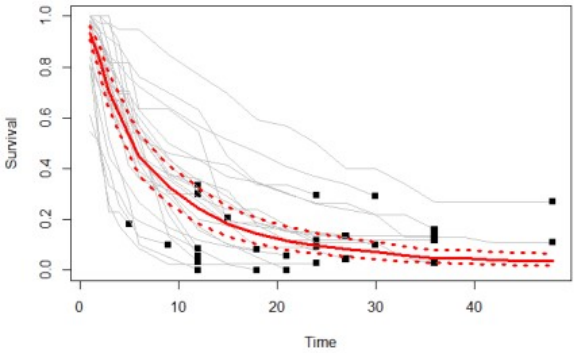
babsim.hospital v11.5.14: Implements a discrete-event simulation model for a hospital resource planning. Motivated by the challenges faced by health care institutions in the current COVID-19 pandemic, it can be used by health departments to forecast demand for intensive care beds, ventilators, and staff resources. See Ucar, Smeets & Azcorra (2019), Lawton & McCooe (2019) and the website for background, and the vignette to get started.



healthyR v0.1.1: Implements hospital data analysis workflow tools including modeling tools, and tools to review common administrative hospital data such as average length of stay, readmission rates, average net pay amounts by service lines, and more. See the vignette.

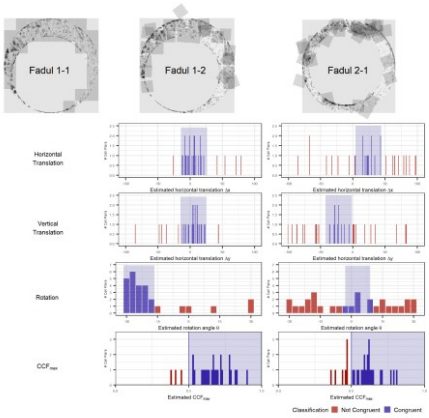


metaSurvival v0.1.0: Provides a function to assess information from a summary survival curve and test the between-strata heterogeneity. See the GitHub repo for an example.

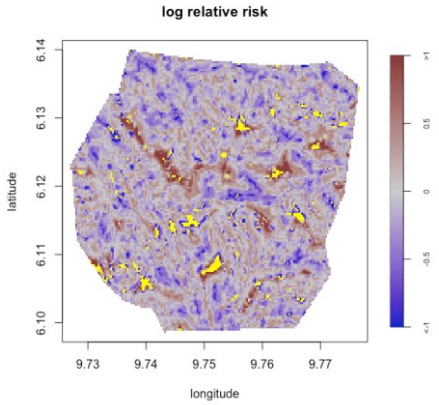


Science

cmcR v0.1.3: Implements the congruent matching cells method for cartridge case identification as proposed by Song (2013) as well as an extension of the method proposed by Tong et al. (2015). There is a vignette on Decision Rules and another vignette reproducing the study by Song et al.



envi v0.1.6: Provides tools for environmental interpolation using occurrence data, covariates, kernel density-based estimation, and spatial relative risk. See Davies et al. (2018) for details on spatial relative risk, Bithell (1990) for kernel density estimation and Bithell (1991) for estimating relative risk. The vignette provides background and examples.

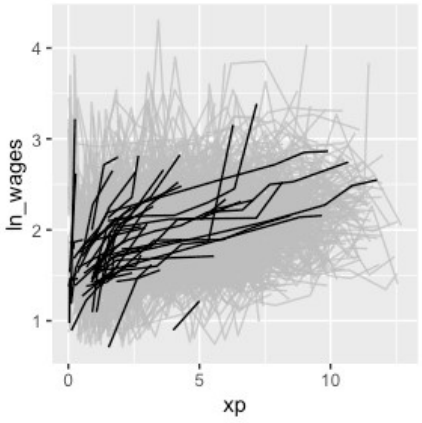


PAMpal v0.9.14: Provides tools for loading and processing passive acoustic data, including functions to read Pamguard data, process, and export data. See Oswald et al (2007), Griffiths et al (2020), and Baumann-Pickering et al (2010) for background. Look here for the installation guide and tutorial.

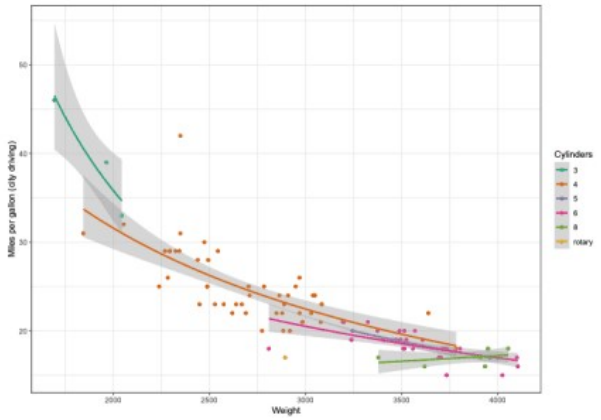
Statistics

bpcs v1.0.0: Implements models for the analysis of paired comparison data using `Stan` including random effects, generalized model for predictors and order effect Bayesian versions of the Bradley-Terry model. See Bradley & Terry (1952), Davidson (1970), and Carpenter et al. (2017) for background and the vignette for an overview.

brolgar v0.1.0: Provides a framework of tools to summarise, visualise, and explore longitudinal data and includes methods for calculating features and summary statistics and sampling individual series. See Tierney, Cook & Prvan and the Getting Started Guide to get going. There are also vignettes exploratory modelling, finding features, identifying interesting observations, data structures, mixed effects models, and visualisation.



MASSExtra v1.0.2: Provides enhancements, extensions and additions (such as Gramm-Schmidt orthogonalisation and generalised eigenvalue problems) to the `MASS` package with convenient default settings and user interfaces. See the vignette.

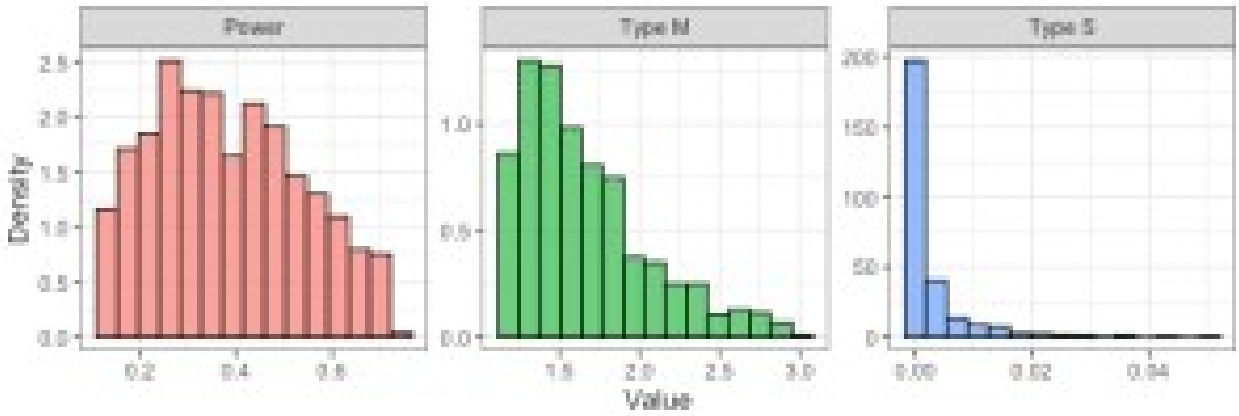


motifr v1.0.0: Provides tools for motif analysis in multi-level networks to visualize multi-level networks, count multi-level network motifs and compare motif occurrences to baseline models. See the motif zoo and Baseline model comparisons to get started.

OptCirClust v0.0.3: Provides fast (runtime = O(K N log^2 N), optimal, reproducible clustering algorithms for circular, periodic, or framed data based on a core algorithm for optimal framed clustering. There are vignettes on Circular genome clustering, Performance, Circular Clustering, and Framed Clusterine.

pflamelet v0.1.1: Provides functions to compute the persistence flamelets, a statistical tool for exploring the Topological Invariants of Scale-Space families introduced in Padellini and Brutti (2017).

PRDA v1.0.0: Implements the *Design Analysis* proposed by Gelman & Carlin (2014) which combines the evaluation of Power-Analysis with other inferential-risks. See also Altoè et al. (2020) and Bertoldo et al. (2020) for background and the vignettes PRDA, Prospective and Retrospective.



puls v0.1.1: Supplements the `fda` and `fda.use` packages by providing a method for clustering functional data using subregion information of the curves. See the vignette for an example and references.

Utilities

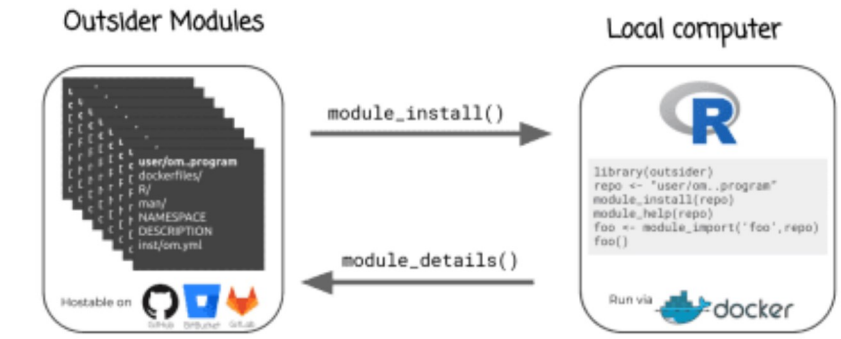
coro v1.0.1: Provides *coroutines*, a family of functions that can be suspended and resumed later on. This includes async functions (which await) and generators (which yield). See the vignette.

dataReporter v1.0.0: Provides functions to auto generate a customizable data report showing potential errors in a data set. See Petersen & Ekstrøm (2019) for background, and the vignette for examples.

DescrTab2 v2.0.3: Provides functions to create descriptive statistics tables for continuous and categorical variables. There are vignettes on Maintenance, Usage, and Validation.

libr v1.1.1: Provides functions to create data libraries, generate data dictionaries, and simulate a data step. There is an Introduction, and vignettes on library operations and management, and Data Step operations and the enhanced equality operator.

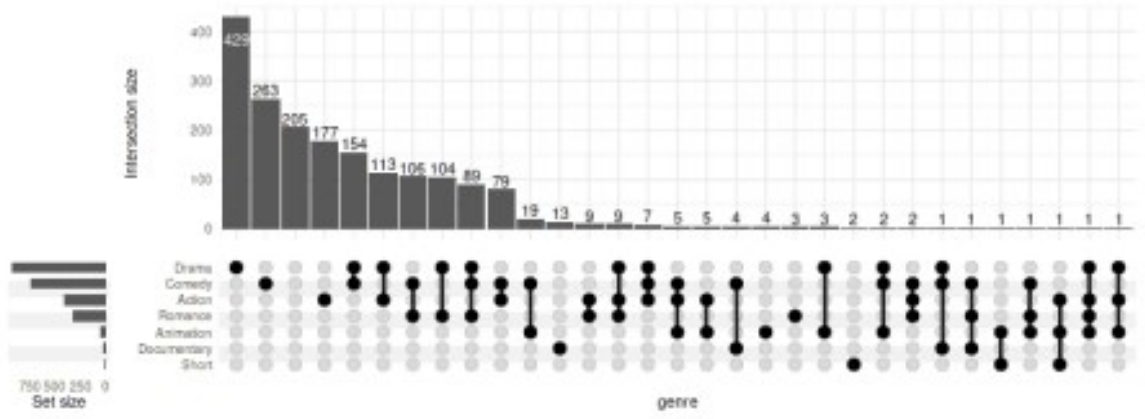
outsider v0.1.1: Allows users to install and run external command-line programs in R through use of Docker and online repositories. Look here for package information.



srcr v1.0.0: Provides a simple tool to abstract connection details, including secret credentials, out of your source code and manage configurations for frequently-used database connections. See the vignette.

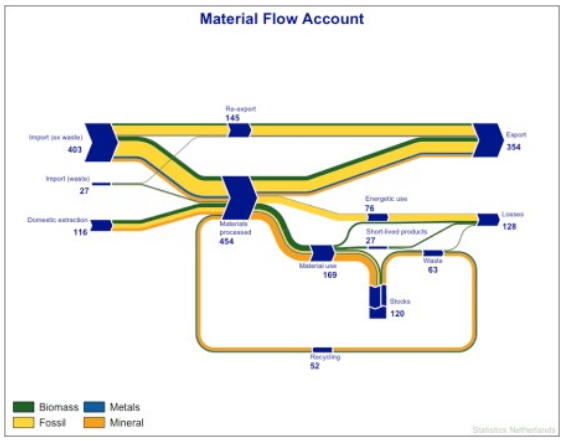
Visualization

ComplexUpset v1.0.3: Provides functions to create Upset plots which offer improvements over Venn Diagrams for set overlap visualizations.



nmaplateplot v1.0.0: Provides a graphical display of results from network meta-analysis (NMA) which is suitable for outcomes like odds ratios, risk ratios, risk differences, and standardized mean differences. See the vignette for examples. vignette for examples.

PantaRhei v0.1.2: Provides functions to produce Sankey diagrams which are used to visualize the flow of conservative substances through a system. See the vignette.


Material Flow Account
Re-export
145
Import (ex waste)
403
Import (waste)
27
Domestic extraction
116
Materials processed
454
Export
354
Energetic use
76
Losses
128
Short-lived products
27
Material use
169
Waste
63
Stocks
120
Recycling
52
Biomass
Metals
Fossil
Mineral
Statistics Netherlands