- `R CMD check` and `R CMD INSTALL` now work with (some) directory names containing spaces.
- `choose(n, k)` gave incorrect values for negative `n` and small `k`.
- `plot.ts(x,y)` could use wrong default labels; fixed thanks to Antonio Fabio di Narzo.
- `reshape()` got column names out of sync with contents in some cases; found by Antonio Fabio Di Narzo.
- `ar(x)` for short `x` (i.e., length $\leq$ 10) could fail because the default `order.max` was $\geq$ `length(x)` which is non-sensical.
- Keyboard events in `getGraphicsEvent()` could cause stack imbalance errors (PR#10453)

Changes on CRAN

by Kurt Hornik

New contributed packages

BARD Better Automated ReDistricting and heuristic exploration of redistricter revealed preference. By Micah Altman.

CellularAutomaton An object-oriented implementation of one-dimensional cellular automata. Supports many of the features offered by Mathematica, including elementary rules, user-defined rules, radii, user-defined seeding, and plotting. By John Hughes.

ComPairWise Compare phylogenetic or population genetic data alignments. By Trina E. Roberts.

EDR Estimation of the effective dimension reduction (EDR) space in multi-index regression models. By Joerg Polzehl.

FGN Fractional Gaussian Noise (FGN) model fitting, including MLEs for the *H* parameter and regression with FGN errors, and simulation of FGN. By A. I. McLeod.

FKBL Fuzzy Knowledge Base Learning, an R/C implementation of a fuzzy inference engine supporting several inference methods. By Alvaro Gonzalez Alvarez.

FieldSim Routines to simulate random fields. By Alexandre Brouste and Sophie Lambert-Lacroix.

GLDEX Fitting single and mixture of Generalized Lambda Distributions (RS and FMKL) using Discretized and Maximum Likelihood methods. The fitting algorithms considered have two major objectives. One is to provide a smoothing device to fit distributions to data using the weight and unweighted discretized approach based on the bin width of the histogram. The other is to provide a definitive fit to the data set using the maximum likelihood estimation. Diagnostics on goodness of fit can be done via QQ-plots, KS-resample tests and comparing mean, variance, skewness and kurtosis of the data with the fitted distribution. By Steve Su.

GillespieSSA Gillespie's Stochastic Simulation Algorithm (SSA). Provides a simple to use, intuitive, and extensible interface to several stochastic simulation algorithms for generating simulated trajectories of finite population continuous-time models. Currently it implements Gillespie's exact stochastic simulation algorithm (Direct method) and several approximate methods (Explicit tau-leap, Binomial tau-leap, and Optimized tau-leap). Also contains a library of template models that can be run as demo models and can easily be customized and extended. Currently the following models are included: decaying-dimerization reaction set, linear chain system, logistic growth model, Lotka predator-prey model, Rosenzweig-MacArthur predator-prey model, Kermack-McKendrick SIR model, and a meta-population SIRS model. By Mario Pineda-Krch.

HardyWeinberg Exploration of bi-allelic marker data. Focuses on the graphical representation of the results of tests for Hardy-Weinberg equilibrium in a ternary plot. Routines for several tests for Hardy-Weinberg equilibrium are included. By Jan Graffelman.

HiddenMarkov Hidden Markov Models. Contains functions for the analysis of Discrete Time Hidden Markov Models, Markov Modulated GLMs and the Markov Modulated Poisson Process. Includes functions for simulation, parameter estimation, and the Viterbi algorithm. The algorithms are based of those of Walter Zucchini. By David Harte.

JADE JADE and ICA performance criteria. The

package ports J.-F. Cardoso's JADE algorithm as well as his function for joint diagonalization. There are also several criteria for performance evaluation of ICA algorithms. By Klaus Nordhausen, Jean-Francois Cardoso, Hannu Oja, and Esa Ollila.

JudgeIt Calculates bias, responsiveness, and other characteristics of two-party electoral systems, with district-level electoral and other data. By Andrew Gelman, Gary King, and Andrew C. Thomas.

NestedCohort Estimate hazard ratios, standardized survival and attributable risks for cohorts with missing covariates, for Cox models or Kaplan-Meier. By Hormuzd A. Katki.

ProfessR Grades setting and exam maker. Programs to determine student grades and create examinations from question banks. Programs will create numerous multiple choice exams, randomly shuffled, for different versions of same question list. By Jonathan M. Lees.

RFOC Graphics for statistics on a sphere, as applied to geological fault data, crystallography, earthquake focal mechanisms, radiation patterns, ternary plots and geographical/geological maps. By Jonathan M. Lees.

RHmm Discrete, univariate or multivariate Gaussian, mixture of univariate or multivariate Gaussian HMM functions for simulation and estimation. By Ollivier Taramasco.

RPMG R Poor Man's Gui: create interactive R analysis sessions. By Jonathan M. Lees.

RPyGeo ArcGIS Geoprocessing in R via Python. Provides access to (virtually any) ArcGIS Geoprocessing tool from within R by running Python geoprocessing scripts without writing Python code or touching ArcGIS. Requires ArcGIS $\geq$ 9.2, a suitable version of Python (currently 2.4), and Windows. By Alexander Brenning.

RSAGA SAGA Geoprocessing and Terrain Analysis in R. Provides access to geocomputing and terrain analysis functions of SAGA (`http://www.saga-gis.org/`) from within R by running the command line version of SAGA. In addition, several R functions for handling and manipulating ASCII grids are provided, including a flexible framework for applying local or focal functions to grids. By Alexander Brenning.

RcmdrPlugin.FactoMineR Rcmdr plugin for package **FactoMineR**. By Francois Husson, Julie Josse, and Sebastien Le.

Rsundials SUite of Nonlinear DIfferential ALgebraic equations Solvers in R. Provides an interface for the package of nonlinear differential algebraic equation solvers that comprise SUNDIALS. ODEs are expressed as R functions or as compiled code. By Selwyn-Lloyd McPherson.

Rvelslant Code for interactively analyzing downhole seismic data and interpreting layered velocity models of constant velocity layers accounting for refractions across layer boundaries. Original method by Dave Boore, R port and some additions by Eric M. Thompson.

SASxport Functions for reading, listing the contents of, and writing SAS XPORT format files. The functions support reading and writing of either individual data frames or sets of data frames. Further, a mechanism has been provided for customizing how variables of different data types are stored. By Gregory R. Warnes.

SoDA Utilities and examples from the book "Software for Data Analysis: Programming with R". By John M Chambers.

StatDA Offers different possibilities to make statistical analysis for environmental data. By Peter Filzmoser and Barbara Steiger.

TSMySQL Time Series Database Interface extensions for MySQL. By Paul Gilbert.

TSSQLite Time Series Database Interface extensions for SQLite. By Paul Gilbert.

TSdbi Time Series Database Interface. By Paul Gilbert.

TSpadi TSdbi Interface to PADI Time Series Server (for e.g. Fame). Provides methods for generics in the **TSdbi** package to connect through a protocol for application database interface (PADI) to a time series database (e.g., Fame). By Paul Gilbert.

TTR Functions and data to construct Technical Trading Rules. By Josh Ulrich.

animation Various functions for animations in statistics, covering many areas such as probability theory, mathematical statistics, multivariate statistics, nonparamatric statistics, sampling survey, linear models, time series, computational statistics, data mining and machine learning. These functions might be of help in teaching statistics and data analysis. By Yihui Xie.

bnlearn Bayesian network structure learning via constraint-based (also known as "conditional independence") algorithms. This package implements the Grow-Shrink (GS) algorithm, the

Incremental Association (IAMB) algorithm, the Interleaved-IAMB (Inter-IAMB) algorithm and the Fast-IAMB (Fast-IAMB) algorithm for both discrete and Gaussian networks. Simulation and some score functions are implemented for discrete networks. By Marco Scutari.

bs A collection of utilities for the Birnbaum-Saunders distribution (BSD). By Víctor Leiva, Hugo Hernández, and Marco Riquelme.

cacher Tools for caching statistical analyses in key-value databases which can subsequently be distributed over the web. By Roger D. Peng.

calib Statistical tool for calibration of plate based bioassays. By Dan Samarov and Perry Haaland.

caret Classification And REgression Training: functions for training and plotting classification and regression models. By Max Kuhn, Jed Wing, Steve Weston, and Andre Williams.

caretLSF Classification And REgression Training LSF style. By Max Kuhn.

caretNWS Classification And REgression Training in parallel Using NetworkSpaces. By Max Kuhn and Steve Weston.

cggd Continuous Generalized Gradient Descent. Efficient procedures for fitting an entire regression sequences with different model types. By Cun-Hui Zhang and Ofer Melnik.

demogR Construction and analysis of matrix population models in R. By James Holland Jones.

dice Calculate probabilities of various dice-rolling events. By Dylan Arena.

dtw Implementation of Dynamic Time Warp (DTW) and its generalizations. DTW finds the optimal mapping (local time stretch) between a given query into a given template time series. Implements symmetric, asymmetric, and custom step patterns with weights. Supports windowing (none, Itakura, Sakoe-Chiba, custom). Outputs minimum cumulative distance, warping paths, etc. By Toni Giorgino, with contributions from Paolo Tormene.

ecespa Some wrappers, functions and data sets for for spatial point pattern analysis, used in the book "Introduccion al Analisis Espacial de Datos en Ecologia y Ciencias Ambientales: Metodos y Aplicaciones". By Marcelino de la Cruz Rot, with contributions of Philip M. Dixon.

fAsianOptions Rmetrics: EBM and Asian option valuation. By Diethelm Wuertz and many others.

fAssets Rmetrics: Assets selection and modeling. By Diethelm Wuertz and many others.

fBonds Rmetrics: Bonds and interest rate models. By Diethelm Wuertz and many others.

fExoticOptions Rmetrics: Exotic option valuation. By Diethelm Wuertz and many others.

fGarch Rmetrics: Autoregressive conditional heteroskedastic modeling. By Diethelm Wuertz and many others.

fImport Rmetrics: Economic and financial data import. By Diethelm Wuertz and many others.

fNonlinear Rmetrics: Nonlinear and chaotic time series modeling. By Diethelm Wuertz and many others.

fRegression Rmetrics: Regression based decision and prediction. By Diethelm Wuertz and many others.

fTrading Rmetrics: Technical trading analysis. By Diethelm Wuertz and many others.

fUnitRoots Rmetrics: Trends and unit roots. By Diethelm Wuertz and many others.

fUtilities Rmetrics utilities. By Diethelm Wuertz and many others.

ff Flat file database designed for large vectors and multi-dimensional arrays. By Daniel Adler, Oleg Nenadic, Walter Zucchini, and Christian Glaeser.

fuzzyFDR Exact calculation of fuzzy decision rules for multiple testing. Choose to control FDR (false discovery rate) using the Benjamini and Hochberg method, or FWER (family wise error rate) using the Bonferroni method. By Alex Lewin.

gamlss.cens An add on package to GAMLSS for fitting interval response variables using gamlss.family distributions. By Mikis Stasinopoulos, Bob Rigby, and Nicoleta Mortan.

glasso Graphical lasso. By Jerome Friedman and R. Tibshirani.

hbim Hill/Bliss Independence Model for combination vaccines. Calculate expected relative risk and proportion protected assuming normally distributed log10 transformed antibody dose for several component vaccine. Uses Hill models for each component which are combined under Bliss independence. By M. P. Fay.

hints Gives hints on what functions you might want to apply to an object you have created. By Hadley Wickham and Sanford Weisberg.

ig A collection of utilities for robust and classical versions of the inverse Gaussian distribution known as inverse Gaussian type distribution (IGTD). By Víctor Leiva, Hugo Hernández, and Antonio Sanhueza.

lga Tools for linear grouping analysis (LGA). By Justin Harrington.

logilasso Analysis of sparse contingency tables with penalization approaches. By Corinne Dahinden.

ltsa Linear time series analysis. Methods are given for loglikelihood computation, forecasting and simulation. By A. I. McLeod, Hao Yu, and Zinovi Krougly.

matrixcalc A collection of functions to support matrix differential calculus as presented in Magnus and Neudecker (1999) "Matrix Differential Calculus with Applications in Statistics and Econometrics", Second Edition, John Wiley, New York. Some of the functions are comparable to APL and J functions which are useful for actuarial models and calculations. By Frederick Novomestky.

mefa Faunistic count data handling and reporting. The name "mefa" stands for the term "metafaunistics" indicating that handling of basic data is only the first, but the most critical and sometimes most time consuming part of data analysis. It contains functions to create and manage objects combining basic faunistic (sample/species/count or crosstabulated) count data and sample/species attribute tables. Segments within the count data and samples with zero count can be indicated and used in subsequent operations. Reports can be generated in plain text or LaTeX format. By Peter Solymos.

mlegp Maximum Likelihood Estimates of Gaussian Processes for univariate and multi-dimensional outputs with diagnostic plots and sensitivity analysis. By Garrett M. Dancik.

mra Analysis of mark-recapture (capture-recapture) data using individual, time, and individual-time varying covariates. Contains functions to estimate live-capture Cormack-Jolly-Seber open population models. By Trent McDonald.

nnls An R interface to the Lawson-Hanson NNLS algorithm for non-negative least squares that solves the least squares problem $Ax = b$ with the constraint $x >= 0$. By Katharine M. Mullen.

nonbinROC ROC-type analysis for non-binary gold standards. Estimate and compare the accuracies of diagnostic tests in situations where the gold standard is continuous, ordinal or nominal. By Paul Nguyen.

paleoTSalt Modeling evolution in paleontological time-series (alternate parametrization). Facilitates the analysis of paleontological sequences of trait values from an evolving lineage. Functions are provided to fit, using maximum likelihood, evolutionary models including unbiased random walks, directional evolution, stasis and Ornstein-Uhlenbeck (OU) models. Performs many of the same functions as package **paleoTS**, but does so using a different parametrization of the evolutionary models. By Gene Hunt.

playwith A GUI for interactive plots using GTK+. Tries to work out the structure of a plot, in order to interact with it. The built-in features include: navigating the data space, identifying data points, editing and annotating the plot, and saving to a file. New tools can be defined. Note: the interaction features do not work with multiple-plot layouts. Based on **RGtk2**, and so requires the GTK+ libraries, and still very much under development.

ppls Linear and nonlinear regression methods based on Partial Least Squares and Penalization Techniques. By Nicole Kraemer and Anne-Laure Boulesteix.

predbayescor Classification rule based on naive Bayes models with feature selection bias corrected. By Longhai Li.

predmixcor Classification rule based on Bayesian mixture models with feature selection bias corrected. By Longhai Li.

pseudo Various functions for computing pseudo-observations for censored data regression. By Mette Gerster and Maja Pohar Perme.

ramps Bayesian geostatistical modeling of Gaussian processes using a reparametrized and marginalized posterior sampling (RAMPS) algorithm designed to lower autocorrelation in MCMC samples. Package performance is tuned for large spatial datasets. By Brian J. Smith, Jun Yan, and Mary Kathryn Cowles.

realized Realized Variance Toolkit. By Scott Payseur.

regsubseq Detect and test regular sequences and subsequences. For a sequence of event occurrence times, we are interested in finding subsequences in it that are too "regular" (in the sense of being significantly different from a homogeneous Poisson process). By Yanming Di.

sendplot A tool for sending interactive plots. By Daniel P Gaile, Lori A. Shepherd, Lara Sucheston, Andrew Bruno, and Kenneth F. Manly.

sets Data structures and basic operations for ordinary sets, and generalizations such as fuzzy sets, multisets, and fuzzy multisets. By David Meyer and Kurt Hornik.

surv2sample Two-sample tests for survival analysis. Provides tests for comparing two survival distributions, testing equality of two cumulative incidence functions under competing risks and checking goodness of fit of proportional rate models (proportional hazards, proportional odds) for two samples. By David Kraus.

zoeppritz Zoeppritz equations: calculate and plot scattering matrix coefficients for plane waves at interface. By Jonathan M. Lees.

Other changes

- Packages **FLCore**, **FLEDA**, **FortranCallsR**, **GammaTest**, **InfNet**, **RcppTemplate**, **edci**, **limma**, **rcompletion**, and **roblm** were moved to the Archive.
- Packages **StoppingRules** and **pwt** were removed from CRAN.

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