Package 'readstata13'

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Type Package

Title Import 'Stata' Data Files

Version 0.11.0

Description Function to read and write the 'Stata' file format.

URL https://github.com/sjewo/readstata13

BugReports https://github.com/sjewo/readstata13/issues

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LinkingTo Rcpp

ByteCompile yes

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VignetteBuilder knitr

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NeedsCompilation yes

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Contents

`as.caldays` *Convert Stata business calendar dates in readable dates.*

Description

Convert Stata business calendar dates in readable dates.

Usage

```
as.caldays(buisdays, cal, format = "%Y-%m-%d")
```

Arguments

`buisdays`	numeric Vector of business dates
`cal`	data.frame Conversion table for business calendar dates
`format`	character String with date format as in `as.Date`

Value

Returns a vector of readable dates.

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Examples

```
# read business calendar and data
sp500 <- stbcal(system.file("extdata/sp500.stbcal", package="readstata13"))
dat <- read.dta13(system.file("extdata/statacar.dta", package="readstata13"))

# convert dates and check
dat$ldatescal2 <- as.caldays(dat$ldate, sp500)
all(dat$ldatescal2==dat$ldatescal)
```

`get.frames` *List frames in Stata dtas files*

Description

Stata 18 introduced framesets (file extension '.dtas') that contain zipped 'dta' files. This helper functions imports those files and returns a list of data.frames.

Usage

```
get.frames(path)
```

Arguments

`path`	path to .dtas file

Value

Returns a data.frame with frame names, internal filenames and dta file format version.

Examples

```
path <- system.file("extdata", "myproject2.dtas", package="readstata13")

# print all frames in myproject2.dtas
get.frames(path)
```

get.label *Get Stata Label Table for a Label Set*

Description

Retrieve the value labels for a specific Stata label set.

Usage

```
get.label(dat, label.name)
```

Arguments

dat	*data.frame.* Data.frame created by read.dta13.
label.name	*character.* Name of the Stata label set

Details

This function returns the table of factor levels which represent a Stata label set. The name of a label set for a variable can be obtained by get.label.name.

Value

Returns a named vector of code numbers

Author(s)

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Examples

```
dat <- read.dta13(system.file("extdata/statacar.dta", package="readstata13"))
labname <- get.label.name(dat,"type")
get.label(dat, labname)
```

get.label.name *Get Names of Stata Label Set*

Description

Retrieves the Stata label set in the dataset for all or an vector of variable names.

Usage

```
get.label.name(dat, var.name = NULL, lang = NA)
```

Arguments

dat	*data.frame.* Data.frame created by `read.dta13`.
var.name	*character vector.* Variable names. If `NULL`, get names of all label sets.
lang	*character.* Label language. Default language defined by `get.lang` is used if NA

Details

Stata stores factor labels in variable independent labels sets. This function retrieves the name of the label set for a variable.

Value

Returns an named vector of variable labels

Author(s)

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get.label.tables *Get all Stata Label Sets for a Data.frame*

Description

Retrieve the value labels for all variables.

Usage

```
get.label.tables(dat)
```

Arguments

dat	*data.frame.* Data.frame created by `read.dta13`.

Details

This function returns the factor levels which represent a Stata label set for all variables.

Value

Returns a named list of label tables

Author(s)

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Examples

```
dat <- read.dta13(system.file("extdata/statacar.dta", package="readstata13"))
get.label.tables(dat)
```

`get.lang` *Show Default Label Language*

Description

Displays informations about the defined label languages.

Usage

```
get.lang(dat, print = T)
```

Arguments

`dat`	*data.frame.* Data.frame created by `read.dta13`.
`print`	*logical.* If `TRUE`, print available languages and default language.

Details

Stata allows to define multiple label sets in different languages. This functions reports the available languages and the selected default language.

Value

Returns a list with two components:

languages: Vector of label languages used in the dataset

default: Name of the actual default label language, otherwise NA

Author(s)

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`get.origin.codes` *Get Origin Code Numbers for Factors*

Description

Recreates the code numbers of a factor as stored in the Stata dataset.

Usage

```
get.origin.codes(x, label.table)
```

Arguments

`x`	*factor.* Factor to obtain code for
`label.table`	*table.* Table with factor levels obtained by `get.label`.

Details

While converting numeric variables into factors, the original code numbers are lost. This function reconstructs the codes from the attribute `label.table`.

Value

Returns an integer with original codes

Author(s)

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Examples

```
dat <- read.dta13(system.file("extdata/statacar.dta", package="readstata13"))
labname <- get.label.name(dat,"type")
labtab <- get.label(dat, labname)

# comparsion
get.origin.codes(dat$type, labtab)
as.integer(dat$type)
```

maxchar *Check max char length of data.frame vectors*

Description

Stata requires us to provide the maximum size of a charactervector as every row is stored in a bit region of this size.

Usage

```
maxchar(x)
```

Arguments

x	vector of data frame

Details

Ex: If the max chars size is four, _ is no character in this vector: 1. row: four 3. row: one_ 4. row: ____

If a character vector contains only missings or is empty, we will assign it a value of one, since Stata otherwise cannot handle what we write.

read.dta13 *Read Stata Binary Files*

Description

`read.dta13` reads a Stata dta-file and imports the data into a data.frame.

Usage

```
read.dta13(
  file,
  convert.factors = TRUE,
  generate.factors = FALSE,
  encoding = "UTF-8",
  fromEncoding = NULL,
  convert.underscore = FALSE,
  missing.type = FALSE,
  convert.dates = TRUE,
  replace.strl = TRUE,
  add.rownames = FALSE,
  nonint.factors = FALSE,
  select.rows = NULL,
```

```
  select.cols = NULL,
  strlexport = FALSE,
  strlpath = ".",
  tz = "GMT"
)
```

Arguments

`file`	*character.* Path to the dta file you want to import.
`convert.factors`	*logical.* If `TRUE`, factors from Stata value labels are created.
`generate.factors`	*logical.* If `TRUE` and convert.factors is TRUE, missing factor labels are created from integers. If duplicated labels are found, unique labels will be generated according the following scheme: "label_(integer code)".
`encoding`	*character.* Strings can be converted from Windows-1252 or UTF-8 to system encoding. Options are "latin1" or "UTF-8" to specify target encoding explicitly. Since Stata 14 files are UTF-8 encoded and may contain strings which can't be displayed in the current locale. Set encoding=NULL to stop reencoding.
`fromEncoding`	*character.* We expect strings to be encoded as "CP1252" for Stata Versions 13 and older. For dta files saved with Stata 14 or newer "UTF-8" is used. In some situation the used encoding can differ for Stata 14 files and must be manually set.
`convert.underscore`	*logical.* If `TRUE`, "_" in variable names will be changed to "."
`missing.type`	*logical.* Stata knows 27 different missing types: ., .a, .b, ..., .z. If `TRUE`, attribute `missing` will be created.
`convert.dates`	*logical.* If `TRUE`, Stata dates are converted.
`replace.strl`	*logical.* If `TRUE`, replace the reference to a strL string in the data.frame with the actual value. The strl attribute will be removed from the data.frame (see details).
`add.rownames`	*logical.* If `TRUE`, the first column will be used as rownames. Variable will be dropped afterwards.
`nonint.factors`	*logical.* If `TRUE`, factors labels will be assigned to variables of type float and double.
`select.rows`	*integer.* Vector of one or two numbers. If single value rows from 1:val are selected. If two values of a range are selected the rows in range will be selected.
`select.cols`	*character.* or *numeric.* Vector of variables to select. Either variable names or position.
`strlexport`	*logical.* Should strl content be exported as binary files?
`strlpath`	*character.* Path for strl export.
`tz`	*character.* time zone specification to be used for POSIXct values. '""' is the current time zone, and '"GMT"' is UTC (Universal Time, Coordinated).

Details

If the filename is a url, the file will be downloaded as a temporary file and read afterwards.

Stata files are encoded in ansinew. Depending on your system's default encoding certain characters may appear wrong. Using a correct encoding may fix these.

Variable names stored in the dta-file will be used in the resulting data.frame. Stata types char, byte, and int will become integer; float and double will become numerics. R only knows a single missing type, while Stata knows 27, so all Stata missings will become NA in R. If you need to keep track of Statas original missing types, you may use `missing.type=TRUE`.

Stata dates are converted to R's Date class the same way foreign handles dates.

Stata 13 introduced a new character type called strL. strLs are able to store strings up to 2 billion characters. While R is able to store strings of this size in a character vector, the printed representation of such vectors looks rather cluttered, so it's possible to save only a reference in the data.frame with option `replace.strl=FALSE`.

In R, you may use rownames to store characters (see for instance `data(swiss)`). In Stata, this is not possible and rownames have to be stored as a variable. If you want to use rownames, set add.rownames to TRUE. Then the first variable of the dta-file will hold the rownames of the resulting data.frame.

Reading dta-files of older and newer versions than 13 was introduced with version 0.8.

Stata 18 introduced alias variables and frame files. Alias variables are currently ignored when reading the file and a warning is printed. Stata frame files (file extension '.dtas') contain zipped 'dta' files which can be imported with `read.dtas`.

Value

The function returns a data.frame with attributes. The attributes include

datalabel: Dataset label

time.stamp: Timestamp of file creation

formats: Stata display formats. May be used with `sprintf`

types: Stata data type (see Stata Corp 2014)

val.labels: For each variable the name of the associated value labels in "label"

var.labels: Variable labels

version: dta file format version

label.table: List of value labels.

strl: Character vector with long strings for the new strl string variable type. The name of every element is the identifier.

expansion.fields: list providing variable name, characteristic name and the contents of Stata characteristic field.

missing: List of numeric vectors with Stata missing type for each variable.

byteorder: Byteorder of the dta-file. LSF or MSF.

orig.dim: Dimension recorded inside the dta-file.

Note

read.dta13 uses GPL 2 licensed code by Thomas Lumley and R-core members from foreign::read.dta().

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References

Stata Corp (2014): Description of .dta file format https://www.stata.com/help.cgi?dta

See Also

read.dta in package foreign and memisc for dta files from Stata versions < 13 and read_dta in package haven for Stata version >= 13.

Examples

```
## Not run:
  library(readstata13)
  r13 <- read.dta13("https://www.stata-press.com/data/r13/auto.dta")

## End(Not run)
```

---

read.dtas *Read frames from Stata dtas files*

Description

Stata 18 introduced framesets (file extension '.dtas') that contain zipped 'dta' files. This helper functions imports those files and returns a list of data.frames.

Usage

```
read.dtas(path, select.frames = NULL, read.dta13.options = NULL)
```

Arguments

path	path to .dtas file
select.frames	character vector
read.dta13.options	list of parameters used in read.dta13. The list must have the following structure: list(framename = list(param = value))

Value

Returns a named list of data.frames.

Examples

```
path <- system.file("extdata", "myproject2.dtas", package="readstata13")

# read all frames in myproject2.dtas
read.dtas(path)

# read selected frames
read.dtas(path, select.frames = c("persons", "counties"))

# read only frame counties
read.dtas(path, select.frames = c("counties"))

# read frames with different arguments
read.dtas(path,
          read.dta13.options = list(counties = list(select.cols = "median_income"),
                                    persons = list(select.cols = "income")))
```

`readstata13` *Import Stata Data Files*

Description

Function to read the Stata file format into a data.frame.

Note

If you catch a bug, please do not sue us, we do not have any money.

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See Also

`read.dta` and `memisc` for dta files from Stata Versions < 13

save.dta13 *Write Stata Binary Files*

Description

save.dta13 writes a Stata dta-file bytewise and saves the data into a dta-file.

Usage

```
save.dta13(
  data,
  file,
  data.label = NULL,
  time.stamp = TRUE,
  convert.factors = TRUE,
  convert.dates = TRUE,
  tz = "GMT",
  add.rownames = FALSE,
  compress = FALSE,
  version = 117,
  convert.underscore = FALSE
)
```

Arguments

data	*data.frame.* A data.frame Object.
file	*character.* Path to the dta file you want to export.
data.label	*character.* Name of the dta-file.
time.stamp	*logical.* If TRUE, add a time.stamp to the dta-file.
convert.factors	*logical.* If TRUE, factors will be converted to Stata variables with labels. Stata expects strings to be encoded as Windows-1252, so all levels will be recoded. Character which can not be mapped in Windows-1252 will be saved as hexcode.
convert.dates	*logical.* If TRUE, dates will be converted to Stata date time format. Code from foreign::write.dta
tz	*character.* time zone specification to be used for POSIXct values and dates (if convert.dates is TRUE). '""' is the current time zone, and '"GMT"' is UTC (Universal Time, Coordinated).
add.rownames	*logical.* If TRUE, a new variable rownames will be added to the dta-file.
compress	*logical.* If TRUE, the resulting dta-file will use all of Statas numeric-vartypes.
version	*numeric.* Stata format for the resulting dta-file either Stata version number (6 - 16) or the internal Stata dta-format (e.g. 117 for Stata 13). Support for large datasets: Use version="15mp" to save the dataset in the new Stata 15/16 MP file format. This feature is not thoroughly tested yet.

`convert.underscore`
: *logical.* If `TRUE`, all non numerics or non alphabet characters will be converted to underscores.

Value

The function writes a dta-file to disk. The following features of the dta file format are supported:

datalabel: Dataset label

time.stamp: Timestamp of file creation

formats: Stata display formats. May be used with `sprintf`

type: Stata data type (see Stata Corp 2014)

var.labels: Variable labels

version: dta file format version

strl: List of character vectors for the new strL string variable type. The first element is the identifier and the second element the string.

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References

Stata Corp (2014): Description of .dta file format https://www.stata.com/help.cgi?dta

See Also

`read.dta` in package `foreign` and `memisc` for dta files from Stata versions < 13 and `read_dta` in package `haven` for Stata version >= 13.

Examples

```
## Not run:
  library(readstata13)
  save.dta13(cars, file="cars.dta")

## End(Not run)
```

saveToExport *Check if numeric vector can be expressed as integer vector*

Description

Compression can reduce numeric vectors as integers if the vector does only contain integer type data.

Usage

```
saveToExport(x)
```

Arguments

x	vector of data frame

set.label *Assign Stata Labels to a Variable*

Description

Assign value labels from a Stata label set to a variable. If duplicated labels are found, unique labels will be generated according the following scheme: "label_(integer code)". Levels without labels will become <NA>.

Usage

```
set.label(dat, var.name, lang = NA)
```

Arguments

dat	*data.frame.* Data.frame created by `read.dta13`.
var.name	*character.* Name of the variable in the data.frame
lang	*character.* Label language. Default language defined by `get.lang` is used if NA

Value

Returns a labeled factor

Examples

```
dat <- read.dta13(system.file("extdata/statacar.dta", package="readstata13"),
                  convert.factors=FALSE)

# compare vectors
set.label(dat, "type")
dat$type

# German label
set.label(dat, "type", "de")
```

`set.lang` *Assign Stata Language Labels*

Description

Changes default label language for a dataset. Variables with generated labels (option generate.labels=TRUE) are kept unchanged.

Usage

```
set.lang(dat, lang = NA, generate.factors = FALSE)
```

Arguments

`dat`	*data.frame.* Data.frame created by `read.dta13`.
`lang`	*character.* Label language. Default language defined by `get.lang` is used if NA
`generate.factors`	*logical.* If `TRUE`, missing factor levels are generated.

Value

Returns a data.frame with value labels in language "lang".

Author(s)

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Examples

```
dat <- read.dta13(system.file("extdata/statacar.dta", package="readstata13"))
get.lang(dat)
varlabel(dat)

# set German label
datDE <- set.lang(dat, "de")
get.lang(datDE)
varlabel(datDE)
```

stbcal *Parse Stata business calendar files*

Description

Create conversion table for business calendar dates.

Usage

```
stbcal(stbcalfile)
```

Arguments

stbcalfile	*stbcal-file* Stata business calendar file created by Stata.

Details

Stata 12 introduced business calendar format. Business dates are integer numbers in a certain range of days, weeks, months or years. In this range some days are omitted (e.g. weekends or holidays). If a business calendar was created, a stbcal file matching this calendar was created. This file is required to read the business calendar. This parser reads the stbcal- file and returns a data.frame with dates matching business calendar dates.

A dta-file containing Stata business dates imported with read.stata13() shows in formats which stdcal file is required (e.g. " sp500.stbcal).

Stata allows adding a short description called purpose. This is added as an attribute of the resulting data.frame.

Value

Returns a data.frame with two cols:

range: The date matching the businessdate. Date format.

buisdays: The Stata business calendar day. Integer format.

Author(s)

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Examples

```
sp500 <- stbcal(system.file("extdata/sp500.stbcal", package="readstata13"))
```

varlabel *Get and assign Stata Variable Labels*

Description

Retrieve or set variable labels for a dataset.

Usage

```
varlabel(dat, var.name = NULL, lang = NA)

varlabel(dat) <- value
```

Arguments

dat	*data.frame.* Data.frame created by read.dta13.
var.name	*character vector.* Variable names. If NULL, get label for all variables.
lang	*character.* Label language. Default language defined by get.lang is used if NA
value	*character vector.* Character vector of size ncol(data) with variable names.

Value

Returns an named vector of variable labels

Author(s)

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Examples

```
dat <- read.dta13(system.file("extdata/statacar.dta", package="readstata13"),
                  convert.factors=FALSE)

# display variable labels
varlabel(dat)

# display german variable labels
varlabel(dat, lang="de")

# display german variable label for brand
varlabel(dat, var.name = "brand", lang="de")

# define new variable labels
varlabel(dat) <- letters[1:ncol(dat)]

# display new variable labels
varlabel(dat)
```

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